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Asthma Allergy Immunology

Astım Allerji İmmünoloji

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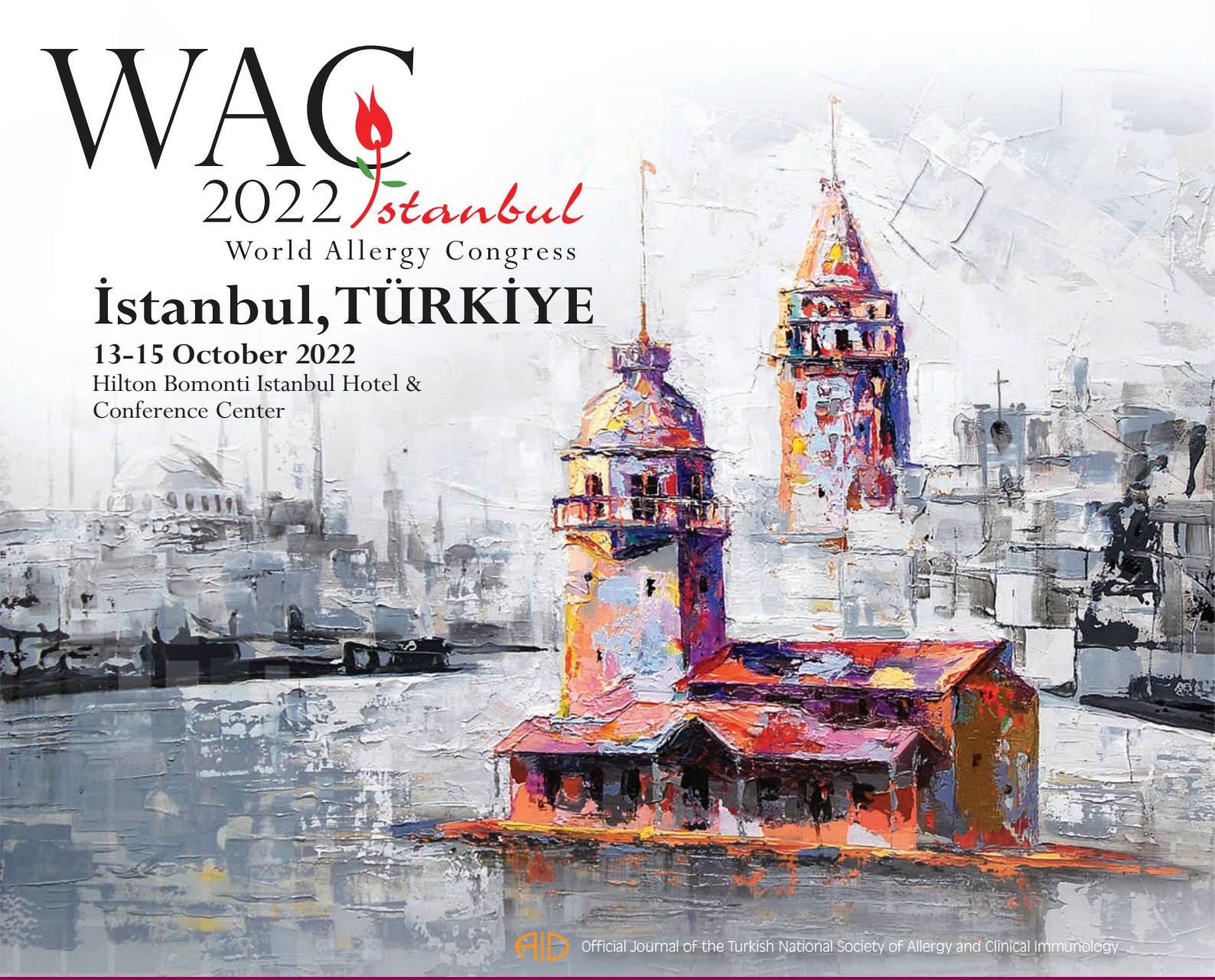

Official Journal of the Turkish National Society of Allergy and Clinical Immunology

Asthma Allergy Immunology

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Volume 20, **Supplement: 1, December,** 2022

Asthma Allergy Immunology

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Türkiye Ulusal Allerji ve Klinik İmmünoloji Derneği adına
Prof. Dr. Dilşad Mungan

Publishing Manager / *Sorumlu Yazı İşleri Müdürü*
Veli Sipahi

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Asthma Allergy Immunology is indexed in Turkish Medical Index of TUBITAK/ULAKBIM, EBSCOhost Research Databases, Index Copernicus, CINAHL, Turkey Citation Index and ISI Web of Science - Emerging Sources Citation Index.

Review of the articles in the journal to make sure they conform to publishing standards, redaction, typesetting, the review of abstract and sources, getting the journal ready for publication and finally the publishing process is responsibility of BULUŞ Design and Printing Services Company.

Asthma Allergy Immunology

AIMS AND SCOPE

Asthma Allergy Immunology has been published three times a year in April, August and December as the official and periodical journal of the Turkish National Society of Allergy and Clinical Immunology since 2003. All articles published in the journal have been available online since 2003. A peer reviewed system is used in evaluation of the manuscripts submitted to Asthma Allergy Immunology. The official language of the journal is English.

The aim of the journal is to present advances in the field of allergic diseases and clinical immunology to the readers. In accordance with this goal, manuscripts in the format of original research, review, case report, short report and letters to the editor about allergic diseases and clinical immunology are published in the journal.

The target reader population of the Asthma Allergy Immunology includes specialists and residents of allergy and clinical immunology, pulmonology, internal medicine, pediatrics, dermatology and otolaryngology as well as physicians working in other fields of medicine interested in allergy and immunological diseases.

Asthma Allergy Immunology is indexed in Turkish Medical Index of TUBITAK/ULAKBIM, EBSCOhost Research Databases, Index Copernicus, CINAHL, Turkey Citation Index and ISI Web of Science - Emerging Sources Citation Index.

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INSTRUCTIONS TO THE AUTHORS

Submission Preparation Checklist

As part of the submission process, authors are required to check off their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.

Asthma Allergy Immunology uses a double-blind peer review system where reviewers do not know the names of the authors, and the authors do not know who reviewed their manuscript. Please, do not use proprietary names in the main text or in the Abstract. The Ethics Statement should be anonymized.

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- Abstract (All manuscripts except "Letters to the Editor and Editorials" should include abstract.)
- Key Words (two to five key words)
- Main Text (Committee of Ethics Approval should be included for all research articles in the method section.)
- Acknowledgments (If applicable, the acknowledgments should be placed after the Discussion.)
- References
- Tables (at the end of the manuscript in the same file as the text)
- Figures (Each figure should be loaded as a separate file.)
- Figure Legends (Legends for figures, graphics and pictures should be typed in the manuscript file, on a separate page after the tables.)

Guide for Authors

1. Asthma Allergy Immunology is the periodical journal of the Turkish National Society of Allergy and Clinical Immunology, which is published three times a year.
2. The aim of the journal; is to present advances in the field of allergic diseases and clinical immunology to the readers. In accordance with this goal, manuscripts in the format of research article, review article, case report, letters to the editor and editorials about allergic diseases and clinical immunology are published in the journal.
3. The official language of the journal is English.

INSTRUCTIONS TO THE AUTHORS

4. All manuscripts submitted for publication should comply with "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" produced and updated by the International Committee of Medical Journals Editors (www.icmje.org).
5. **Ethical Principles:** Compliance with the Declaration of Helsinki Principles (http://www.wma.net/en/30publications/ 10policies/ b3/index.html) is accepted as the policy of Asthma Allergy Immunology. Therefore, all manuscripts concerning human subjects must contain a statement in the "Materials and Methods" section, indicating that the study was approved by the Institutional Review Board. All manuscripts dealing with animal subjects must contain a statement indicating that the study was performed according to "The Guide for the Care and Use of Laboratory Animals" (www.nap.edu/catalog/5140.html) with the approval of the Institutional Review Board, in the "Materials and Methods" section. The Editor may ask for a copy of the approval document.
6. The Committee of Ethics is an institutional committee that reviews the methods and their ethical appropriateness of researches. This committee provides an approval and document this approval as an official record by reviewing the methods of researches. This journal accepts the International Standards for COPE (Committee on Publication Ethics).

   In studies requiring ethics committee permission, information about the approval (name of the board, date and number) should be included in the method section. In case reports, a note about informed consent form signed by the patient should be included in the article.

   Researchers who are not affiliated with any institution should apply to the Committee of Ethics of the universities in their provinces for the Committee of Ethics approval of their articles. In articles derived from theses and dissertations, it is sufficient to submit the Committee of Ethics approval document received for the thesis or dissertations. A separate Committee of Ethics approval document is not expected for the candidate article. Institutional and individual research permissions obtained in the scope of the research are not accepted as a committee of ethics approval.
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    In your submission cover letter, include the following information:

    - Address the editor
    - Manuscript's title
    - Article type
    - Name of the journal
    - Statement that your paper has not been previously published and is not currently under consideration by another journal
    - Brief description of the research you are reporting in your paper, why it is important, and why you think the readers of the journal would be interested in it
    - Corresponding author contact information
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13. **Manuscript Preparation (General Points):** The manuscript text should be written in Times New Roman font, 10 point-type, double-spaced with 2 cm margins on the left and right sides. The article should be prepared with IBM compatible computer programs (Microsoft Windows, Word 98). All sections of the manuscripts should start on a new page. Pages should be numbered consecutively, beginning with the abstract. Page numbers should appear at the bottom right corner of every page. The main text file should not contain any information regarding author names and affiliations.
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15. **Title Page:** The title page of the manuscript should include title of the article, running title not exceeding 40 characters including spaces as well as the full names, surnames and academic degrees of the authors. The department, division and institution of the authors should be indicated. The Journal requires all authors to acknowledge, on the title page of the manuscript, all funding sources that supported their work and any commercial associations that might pose a conflict of interest. The Corresponding Author is responsible for obtaining each authors statement and all authors should see and approve the complete disclosure before submission to the Journal. The manuscript which has been presented previously as an abstract in any congress or symposium may be mentioned on condition with the statement of the date and the place of the meeting in the title page. Title page should also include address, e-mail, phone and fax number of the corresponding author. Title page should be submitted as a separated file.
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INSTRUCTIONS TO THE AUTHORS

18. **Review Articles:** Manuscripts in the form of "Reviews" are accepted when "invited" since 2009. In case of wishing to write a review about a current topic without being "invited", the editor should be contacted before the manuscript is submitted. Review Articles should include; title, abstract, and key words. The abstract should be prepared as one paragraph and limited to 300 words. Structured abstract is not required. Number of references should be limited to 40 if possible. Manuscripts must be no longer than 5000 words.

19. **Case Reports:** Case reports should include title, abstract, key words, introduction, case presentation, discussion and references. Introduction and discussion sections of the case reports should be short and concise. The abstract should be prepared as one paragraph and limited to 300 words.Structured abstract is not required. Case reports should not exceed 1500 words and the number of references should not exceed 20.

20. **Letters to the Editor:** The Asthma Allergy Immunology considers two types of Letters to the Editor. An abstract is not required.

1) Correspondence Letters: Correspondences are letters regarding articles published in Asthma Allergy Immunology. Letters should be received less than six months after publication of the original work in question. If the correspondence is considered acceptable, a response will be requested from the authors of the referenced Asthma Allergy Immunology article. Upon review and approval by the Editor and peer-reviewed, the Correspondence and relevant Reply will both be published together. The Correspondence manuscripts must have a short, relevant title, distinct from the title of the referenced article. All Replies should have the title "Reply to first author's name. Correspondence Letters should be no longer than 500 words and cite no more than 6 references. Illustrations and tables are discouraged.

2) Short Reports: Short reports should include research results in the related field in a short and concise form or a discussion of patient cases. Short reports should be no longer than 1500 words, and no more than 20 references. Number of tables should be limited to 2 and that of the figure/graphic/picture should be limited to 1.

21. **Editorials:** All editorials topics must be expressing objective opinions, experiences or perspectives on an important area relevant to the Asthma Allergy Immunology. Editorials are commissioned by the Editorial board. Editorials are limited to 1000 words and contain no more than 15 references and may include maximum 1 table and 1 figure.

22. **Acknowledgments:** All acknowledgments should be grouped into one paragraph and placed after the Discussion. All the entities that provide contribution to the technical content, data collection and analysis, writing, revision etc. of the manuscript and yet do not meet the criteria to be an author should be mentioned in the acknowledgement part. If the contribution of the sponsor is only in the form of financial support, this should be stated in the "Acknowledgement" section. If the sponsor has participated in the methods, statistical analysis or manuscript preparation, this contribution should also be stated in the "Materials and Methods" section. If there is no conflict of interest it should also be stated.

23. **References:** Data and manuscript not published yet should not be included among the references. These should be stated in the main text as "author(s), unpublished data, year".

Reference numbers should be referred to in parentheses at the end of sentences within the text and references should be numbered consecutively in the order they are mentioned in the text. Journal names should be abbreviated as listed in "Index Medicus" or in "ULAKBIM/Turkish Medical Index". References should be typed in consistence with the following examples. National references should be used as much as possible.

If the reference is a journal;

Author(s)' surname and initial(s) of the first name (all authors if the number of authors are 6 or less, first 6 authors if the number of authors of an article is more than 6 followed by "et al.").Title of the article, title of the manuscript abbreviated according to Index Medicus (http://www.ncbi.nlm.nih.gov/sites/entrez/query.fcgi?db=nlmcatalog). Year;Volume:First and last page number.

Example: Benson M, Reinholdt J, Cardell LO. Allergen-reactive antibodies are found in nasal fluids from patients with birch polen induced intermittent allergic rhinitis, but not in healthy controls. Allergy 2003;58:386-93.

If the reference is a journal supplement;

Author(s)' surname and initial(s) of the first name. Title of the article. Title of the manuscript abbreviated according to Index Medicus (http://www.ncbi.nlm.nih.gov/sites/entrez/query. fcgi?db=nlmcatalog). Year;Volume (Suppl. Supplement number):First and last page number.

Example: Queen F. Risk assessment of nickel carcinogenicity and occupational lung cancer. Envirol Health Perspect 1994;102 (Suppl. 1): 2755-2782.

If the reference is a book;

Author(s)' surname and initial(s) of the first name. Title of the book. Edition number. City of publication: Publisher, Year of Publication.

Example: Ringsven MK, Bond N. Gerontology and leadership skills for nurses. 2nd ed. Albany, NY: Delmar, 1996.

If the reference is a book chapter;

Surname and initial(s) of the first name of the author(s) of the chapter. Title of the chapter. In: Surname and initial(s) of the first name(s) of the editor(s) (ed) or (eds). Title of the book. Edition number. City of publication: Publisher, Year of publication: First and last page numbers of the chapter.

Example: Phillips SJ, Whistant JP. Hypertension and stroke. In: Laragh JH, Brenner BM (eds). Hypertension: Pathophysiology, Diagnosis and Management. 2 nd ed. New York: Raven P, 1995:466-78.

If the reference is an article presented in a meeting;

Author(s)' surname and initial(s) of the first name (all authors if the number of authors are 6 or less, first 6 authors if the number of authors of an article is more than 6 followed by "et al.").Title of the article, If applicable In:Surname and initial(s) of the first name(s) of the editor(s) (ed) or (eds). Title of the book. Title of the meeting; Date; City of the meeting; Country. Publisher; Year. Page numbers.

Example: Bengtsson S, Solheim BG. Enforcement of data protection, privacy and security in medical informatics. In: Lun KC, Degoulet P, Piemme TE, Reinhoff O (eds). MEDINFO 92. Proceedings of the 7th World Congress on Medical Informatics; 1992 Sep 6-10; Geneva, Switzerland. North-Holland; 1992. p. 1561-5.

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Author(s)' surname and initial(s) of the first name (all authors if the number of authors are 6 or less, first 6 authors if the number of authors of an article is more than 6 followed by "et al.").Title of

INSTRUCTIONS TO THE AUTHORS

the article, title of the manuscript abbreviated according to Index Medicus Year; Volume (Number). Available from:URL address. Accessed date:day.month.year.

Example: Morse SS. Factors in the emergence of infectious disease. Emerg Infect Dis 1995;1(1). Available from: URL:http://www/cdc/gov/ncidoc/EID/eid.htm. Accessed date:25.12.1999.

If the reference is a website;

Name of the web site. Access date. Available from: address of the web site.

World Health Organization (WHO). Access date: 9 July 2008. Available from: http://www.who.int

If the reference is a thesis;

Author's surname and initial of the first name. Title of the thesis (thesis). City; Name of the university (if it is a university); Year.

Example: Erkan ML. Investigation of clinical and laboratory features of asthma patients with aspirin sensitivity (Thesis). Ankara: Hacettepe Üniversity; 1989.

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Figures should be either professionally drawn or photographed, and these items should be submitted as photographic-quality digital images. Figures should be submitted in a format that will produce high-quality image (for example, JPEG or GIF). Authors should control the images of such files on a computer screen before submitting them to be sure they meet their own quality standards. Please, do not put a caption above a figure. The title for a figure should be described only in the figure legend, and not appear on the figure. Labels should be placed within the body of the figure. Figures explanations of symbols, arrows, numbers or letters should appear only in the figure legend, and not in the actual figure. Each figure should be loaded as a separate file.

X-ray films, scans and other diagnostic images, as well as pictures of pathology specimens should be submitted as sharp, glossy, black-and-white or color photographic images. Letters, numbers, and symbols on figures should be clear and consistent throughout, and large enough to remain legible when the figure is reduced for publication. Figures should be made as self-explanatory as possible. For recognizable photographs of patients, signed releases of the patient or of his/her legal representative should be submitted; otherwise, patient names or eyes must be blocked out to prevent identification.

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If quoted parts, tables, figures, graphics, pictures etc. exist in the manuscript, the authors should obtain written permission from the author and copyright holder and indicate this.

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Revised manuscripts must:

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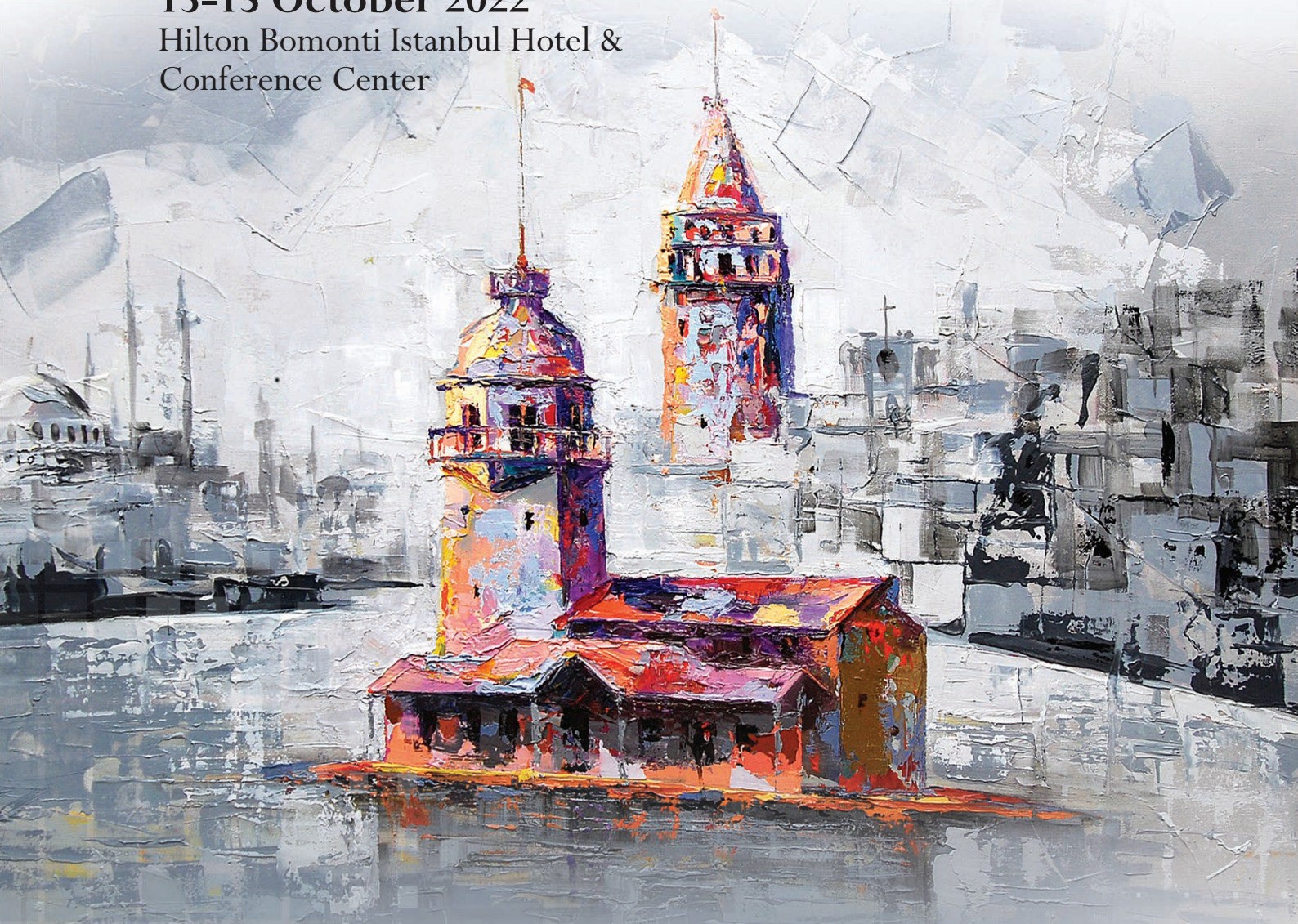
WAC 2022 Istanbul

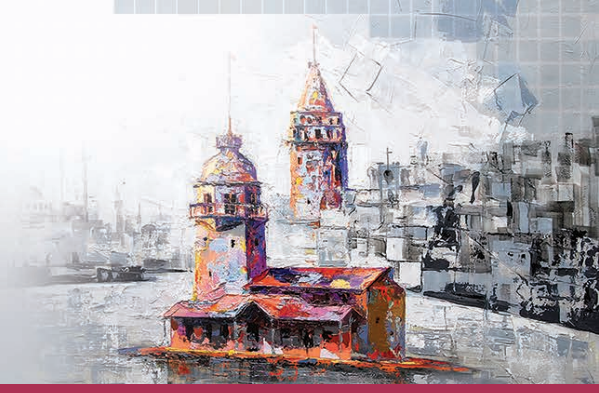
World Allergy Congress

İstanbul, TÜRKİYE

13-15 October 2022

Hilton Bomonti Istanbul Hotel &
Conference Center

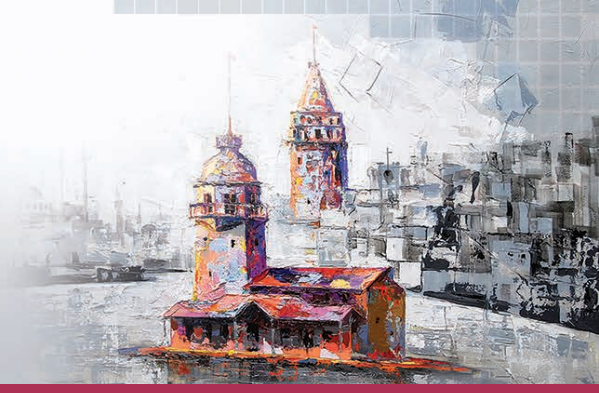




OCTOBER 13, 2022

Time	HALL I	HALL II	HALL III	HALL IV	HALL V	POSTER HALL
09:00-10:30	**SYM-1** Hereditary Angioedema: Present and Future	**SYM-2** Current Perspectives of Immune Dysregulation	**SYM-3** Food Allergy Management	**NAT-1**	**OAS-1**	
10:30-11:00	**COFFEE BREAK**					
11:00-12:30	**PL-1** Basic Allergy and Immunology	**PL-2** Asthma				
12:30-13:30	**SATELLITE**	**SATELLITE**	**PRO/CON**		**LB-OAS-1**	
13:30-15:00	**SYM-4** Emerging Diagnostics in Food Allergy	**SYM-5** Mast Cell Abnormalities	**EAACI SIST SOC-** Tackling severe asthma in the clinic	**NAT-2**	**JM-PG COURSE-1**	
15:00-15:10	**BREAK**					
15:10-16:40	**SYM-6** Chronic Urticaria in Advance	**SYM-7** Pediatric Asthma	**JSA SIST SOC-** Cutting edge of pathophysiology of allergic diseases	**NAT-3**	**JM-PG COURSE-2**	
16:40-17:10	**COFFEE BREAK**					
17:10-18:40	**SYM-8** Nasal Polyposis	**THAILAND SIST SOC-** Harmonizing Allergy Care: From Advances to Practice	**ACAAI SIST SOC-** Pediatric Asthma Update	**NAT-4**	**OAS-2**	**17:00-18:00 POSTER WALK**
19:00-19:30	**OPENING CEREMONY**					
19:30-20:30	**WELCOME RECEPTION**					

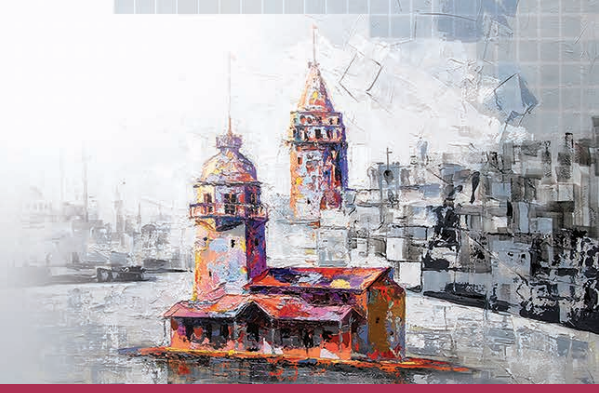
PL : PLENARY SESSION
OAS : ORAL ABSTRACT SESSION
SYM : SYMPOSIUM
SIST SOC : SISTER SOCIETY
SAT : SATELLITE SYMPOSIUM
NAT : TURKISH NATIONAL SOCIETY
PRO/CON



OCTOBER 14, 2022

Time	HALL I	HALL II	HALL III	HALL IV	HALL V	POSTER HALL
07:50-08:50	**OAS-3**	**OAS-4**	**OAS-5**	**NAT** year in Review-1	**OAS-6**	
08:50-09:00	**BREAK**					
09:00-10:30	**PL-3** Biologicals	**PL-4** Environment, Climate & Allergic diseases	**JM-SYMPOSIUM**			
10:30-11:00	**COFFEE BREAK**					
11:00-12:30	**SYM-9** Allergen Specific Immunotherapy	**SYM-10** Drug Allergy	**SYM-11** Basic Allergy Immunology	**NAT-5**	**JM-PG** COURSE-3	
12:30-13:30	**SATELLITE**	**SATELLITE**	**PRO/CON**			
13:30-15:00	**SYM-12** Occupational Allergy: Is the Cause in the Workplace?	**SYM-13** Vaccine or Vaccine Hesitancy	**AAAAI -** Updates on drug allergy	**NAT-6**	**JM-PG** COURSE-4	
15:00-15:10	**BREAK**					
15:10-16:40	**SYM-14** Food Allergy	**SYM-15** Optimization of Asthma Management	**APAPARI -** Novel approach diag&treat seafood allergy	**NAT-7**	**JM-PG** COURSE-5	
16:40-17:10	**COFFEE BREAK**					
17:10-18:40	**SYM-16** Adult Asthma	**OAS-7**	**Polish SOC-** CSU-Diagnosis & Management	**NAT-8**	**JM-PG** COURSE-6	**17:00-18:00 POSTER WALK**

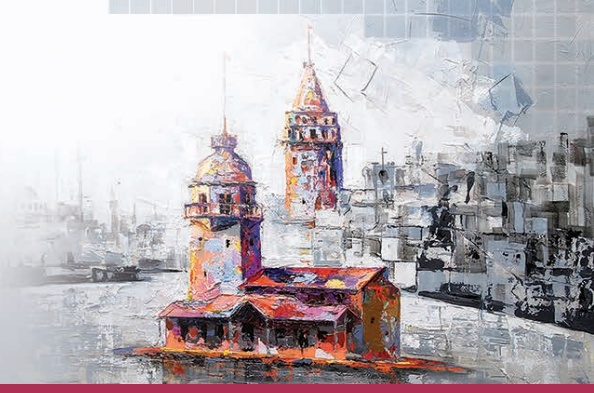
PL : PLENARY SESSION
OAS : ORAL ABSTRACT SESSION
SYM : SYMPOSIUM
SIST SOC : SISTER SOCIETY
SAT : SATELLITE SYMPOSIUM
NAT : TURKISH NATIONAL SOCIETY
PRO/CON



OCTOBER 15, 2022

Time	HALL I	HALL II	HALL III	HALL IV	HALL V	POSTER HALL
07:50-08:50	**OAS-8**	**OAS-9**	**OAS-10**	**NAT** year in Review-2	**OAS-11**	
08:50-09:00	**BREAK**					
09:00-10:30	**PL-5** Food Allergy	**PL-6** Allergen Specific Immunotherapy				
10:30-11:00	**COFFEE BREAK**					**10:30-11:30 POSTER WALK**
11:00-12:30	**SYM-17** Drug Allergy in Adults	**SYM-18** Future of Immunotherapy	**SYM-19** Many Faces of COVİD-19	**NAT-9**	**LB-OAS-2**	
12:30-13:30			**PRO/CON**	**SATELLITE**	**OAS-12**	
13:30-15:00	**SYM-20** Understanding the Mechanisms of Imm. Disease	**SLAAI SIST SOC-** New insights in to Allergic Diseases	**APAAACI -** Allergies, asthma & viral infec: Current perspectives & future directions	**NAT-10**	**OAS-13**	
15:00-15:10	**BREAK**					
15:10-16:40	**SYM-21** Relationship of Exposome and Systems in Allergic Diseases	**SYM-22** Venom Allergy	**PASAAI SIST SOC-** Hereditary Angioedema (HAE) In Pan Arabia	**NAT-11**	**JM-PG** COURSE-7	
16:40-17:10	**COFFEE BREAK**					
17:10-18:40	**SYM-23** Management of Atopic Dermatitis	**LB-OAS-3**	**GAA INTERASMA SIST SOC-** Asthma and Allergic Rhinitis	**NAT-12**	**JM-PG** COURSE-8	
19:00-19:30	**CLOSING CEREMONY**					

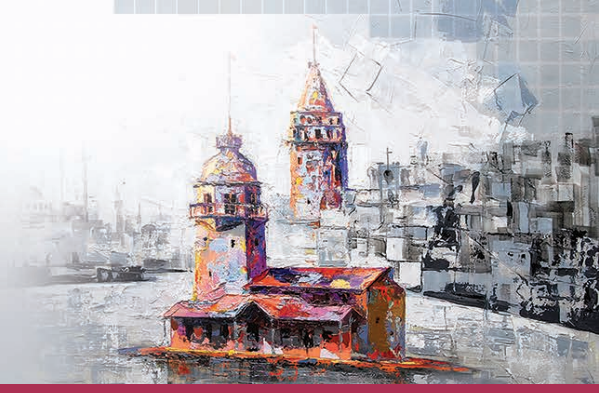
PL : PLENARY SESSION
OAS : ORAL ABSTRACT SESSION
SYM : SYMPOSIUM
SIST SOC : SISTER SOCIETY
SAT : SATELLITE SYMPOSIUM
NAT : TURKISH NATIONAL SOCIETY
PRO/CON



13 October 2022

PROGRAM

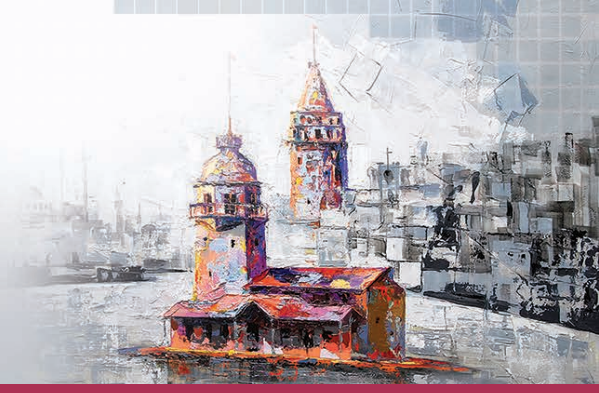
09:00-10:30	**SYM-1** **HEREDITARY ANGIOEDEMA (HEA): PRESENT AND FUTURE** ***CHAIRS: Jonathan Bernstein, Gül Karakaya***	**HALL-1**
	Clinical features and treatment principles in HAE with normal C1 inhibitor	*Konrad Bork*
	Special considerations in patients with HAE: Pregnancy, cancer, fertility, birth control etc	*Henriette Farkas*
	Current treatment modalities in patients with HAE with C1 inhibitor deficiency	*Emel Aygören Pürsün*
09:00-10:30	**SYM-2** **CURRENT PERSPECTIVES OF IMMUNE DYSREGULATIONS** ***CHAIRS: Hasibe Artaç, Ahmet Özen***	**HALL-2**
	A general perspective to inborn errors of immunity	*Sevgi Keleş*
	What we have learnt from chapple disease?	*Ahmet Özen*
	Tregopathies; IPEX and Beyond	*Talal Chatila*
09:00-10:30	**SYM-3** **FOOD ALLERGY MANAGEMENT** ***CHAIRS: Hugh Sampson, Gülbin Bingöl***	**HALL-3**
	Global trends in the epidemiology	*Garry Wong*
	Restoration of skin barrier and feeding practices for prevention	*Cansın Saçkesen*
	Recent developments and highlights	*Helen Brough*
09:00-10:30	**OAS-1** **RISK FACTORS AND MANAGEMENT OF ASTHMA** ***CHAIRS: Mark Corbett, Sevim Bavbek***	**HALL-5**
	ORAL ABSTRACTS: OP-01, OP-03, OP-04, OP-05, OP-06	
10:30-11:00	**Coffee Break**	
11:00-12:30	**PL-1** **BASIC ALLERGY AND IMMUNOLOGY** ***CHAIRS: Motohiro Ebisawa, Bülent Enis Şekerel***	**HALL-1**
	Interventions through microbiome	*Liam O'Mahony*
	The tropics, helminth infections and hygiene hypothesis	*Luis Caraballo*
	Helminth mechanisms in allergy and respiratory viral infection	*Jurgen Schwarze*



13 October 2022

PROGRAM

11:00-12:30	**PL-2** **ASTHMA** ***CHAIRS: Bryan Martin, Dilşad Mungan***	**HALL-2**
	Unmet needs in non-eosinophilic severe asthma	*Ioana Agache*
	Molecular and cellular intersections of obesity and asthma	*Philip Hansbro*
	Identifying wheezing heterogeneity with machine learning	*Adnan Custovic*
12:30-13:30	**SATELLITE SYMPOSIUM-1**	**HALL-1**
12:30-13:30	**SATELLITE SYMPOSIUM-2**	**HALL-2**
12:30-13:30	**PC-1** **LOCAL ALLERGIC RHINITIS: DOES IT EXIST?** ***CHAIR: Banu Bozkurt***	**HALL-3**
	PRO / Yes	*Füsun Kalpaklıoğlu*
	CON / No	*Philippe Gevaert*
12:30-13:30	**LB-OAS-1** ***CHAIRS: Arzu Bakırtaş, Özlem Göksel***	**HALL-5**
	ORAL ABSTRACTS: LB-OP-01, LB-OP-02, LB-OP-03, LB-OP-04	
13:30-15:00	**SYM-4** **EMERGING DIAGNOSTICS IN FOOD ALLERGY** ***CHAIRS: Nikos Papadopoulos, Cansın Saçkesen***	**HALL-1**
	Basophil and mast cell activation in food allergy	*Alexandra F. Santos*
	Component resolved diagnosis	*Bülent Enis Şekerel*
	Epitop mapping and beyond	*Hugh Sampson*
13:30-15:00	**SYM-5** **MAST CELL ABNORMALITIES** ***CHAIRS: Luis Caraballo, Mustafa Güleç***	**HALL-2**
	Mastocytosis and new treatments	*Cem Akın*
	Mast cell activation syndrome	*Luciana Kase Tanno*
	Anaphylaxis and mast cell	*Lawrence B. Schwartz*



13 October 2022

PROGRAM

13:30-15:00 **SISTER SOCIETY SYMPOSIUM** **HALL-3**
EUROPEAN ACADEMY OF ALLERGY & CLINICAL IMMUNOLOGY
TACKLING SEVERE ASTHMA IN THE CLINIC
CHAIRS: Mohamed Shamji, Maria Jose Torres

The endotype driven approach	*Ioana Agache*
Is allergen immunotherapy an option?	*Marek Jutel*
Which biological is best?	*Stefano del Giacco*

13:30-15:00 **JUNIOR MEMBERS - PRACTICAL COURSE-1** **HALL-5**
SKIN TESTING FOR ALLERGY DIAGNOSIS: PRICK TEST, INTRADERMAL AND PATCH TEST*
CHAIRS: Sandra N.Gonzalez-Diaz, Pınar Uysal

Speakers: *Tu HK Trinh, Pamir Çerçi*

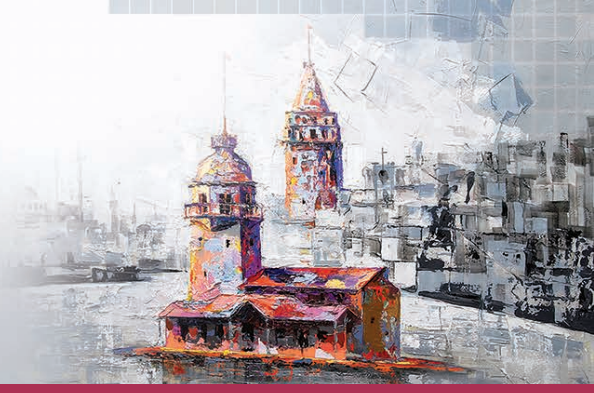
15:00-15:10 **Break**

15:10-16:40 **SYM-6** **HALL-1**
CHRONIC URTICARIA: IN ADVANCE
CHAIRS: Cem Akın, Emek Kocatürk

The current guideline and unmet needs	*Torsten Zuberbier*
Other than biologicals	*Jonathan Bernstein*
Chronic urticaria: natural course and predictors of persistance and recurrence	*Ümit Murat Şahiner*

15:10-16:40 **SYM-7** **HALL-2**
PEDIATRIC ASTHMA
CHAIRS: Adnan Custovic, Haluk Çokuğraş

Update in the treatment of pediatric asthma	*Mario Morais-Almeida*
The role of respiratory syncytial virus- and rhinovirus-induced bronchiolitis in recurrent wheeze and asthma	*Nikos Papadopoulos*
Epithelial barrier dysfunction and oxidative stress	*Özge Yılmaz*



13 October 2022

PROGRAM

15:10-16:40 **SISTER SOCIETY SYMPOSIUM** **HALL-3**
THE JAPANESE SOCIETY OF ALLERGOLOGY
CUTTING-EDGE OF PATHOPHYSIOLOGY OF ALLERGIC DISEASES
CHAIR: Motohiro Ebisawa

Role of transcription factor Blimp1 in Type 2 immune responses	*Koji Matsumoto*
Refractory ocular complications of atopic dermatitis	*Akira Matsuda*
Allergen components and diagnosis of allergic diseases	*Sakura Sato*

15:10-16:40 **JUNIOR MEMBERS - PRACTICAL COURSE-2** **HALL-5**
CHALLENGE TESTS AND DESENSITIZATION IN DRUG ALLERGY *
CHAIRS: Yoon-Seok Chang, Emine Vezir

Speakers: *Ivana Filipovic, Nida Öztop*

16:40-17:10 **Coffee Break**

17:00-18:00 **POSTER WALK*** **POSTER HALL**

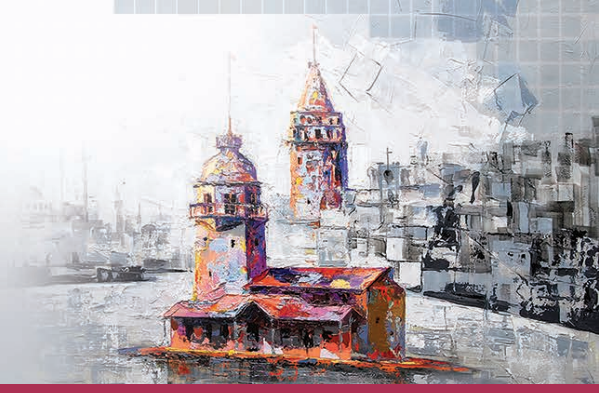
Listed on page 26-31

17:10-18:40 **SYM-8** **HALL-1**
NASAL POLYPOSIS
CHAIRS: Philippe Gevaert, Kemal Uygur

Emerging role of biologicals	*Lanny J. Rosenwasser*
Desensitization with aspirin in nasal polyposis: Way to go?	*Gül Karakaya*
When to consider sinus surgery	*Philip Rouadi*

17:10-18:40 **SISTER SOCIETY SYMPOSIUM** **HALL-2**
THE ALLERGY, ASTHMA AND IMMUNOLOGY ASSOCIATION OF THAILAND
HARMONIZING ALLERGY CARE: FROM ADVANCES TO PRACTICE
CHAIRS: Hiroshi Chantaphakul, Wasu Kamchaisatian

Applying AI for Airway Allergy Care	*Adnan Custovic*
Difficult to Treat Allergic Rhinitis	*Hiroshi Chantaphakul*
Practical Implementation in Allergy Prevention	*Gary Wong*



13 October 2022

PROGRAM

17:10-18:40 **SISTER SOCIETY SYMPOSIUM** **HALL-3**
AMERICAN COLLEGE OF ALLERGY ASTHMA AND IMMUNOLOGY
PEDIATRIC ASTHMA UPDATE

Pediatric asthma guideline updates	*Kathleen May*
Biologics in pediatric asthma	*Mark Corbett*
Innovations in improving the management of asthma	*James Sublett*

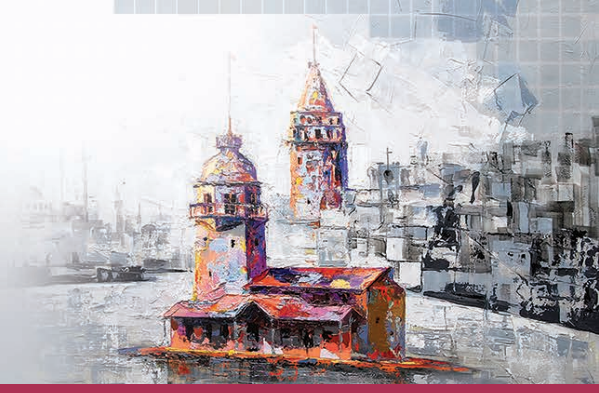
17:10-18:40 **OAS-2** **HALL-5**
ASTHMA
CHAIRS: Philip Hansbro, Arzu Yorgancıoğlu

ORAL ABSTRACTS: OP-07, OP-08, OP-09, OP-10, OP-11, OP-12

19:00-19:30 **OPENING CEREMONY**

19:30-20:30 **WELCOME RECEPTION**

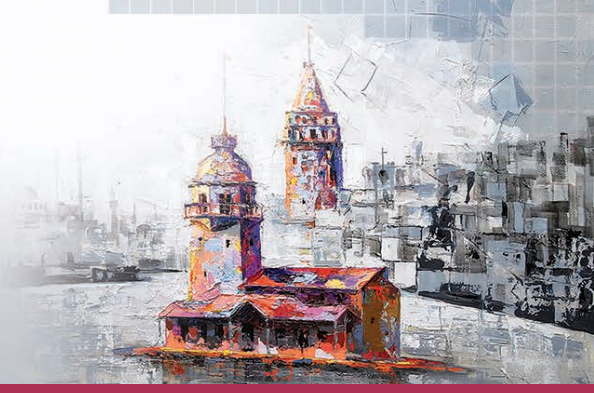
*Junior Member Practical Courses and Poster Exhibition generously supported by MENARINI



14 October 2022

PROGRAM

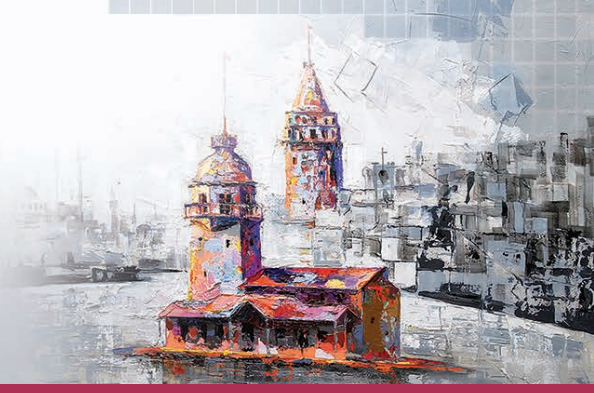
07:50-08:50	**OAS-3** **ATOPIC DERMATITIS** ***CHAIRS: Philippe Eigenmann, Mustafa Arga***	**HALL-1**
	ORAL ABSTRACTS: OP-13, OP-14, OP-15, OP-16	
07:50-08:50	**OAS-4** **URTICARIA** ***CHAIRS: Marek Kulus, A. Berna Dursun***	**HALL-2**
	ORAL ABSTRACTS: OP-17, OP-18, OP-19, OP-20	
07:50-08:50	**OAS-5** **EAR, NOSE AND THROAT** ***CHAIRS: Philippe Gevaert, Füsun Kalpaklıoğlu***	**HALL-3**
	ORAL ABSTRACTS: OP-21, OP-22, OP-23, OP-24	
07:50-08:50	**OAS-6** **AIR POLLUTION AND OCCUPATIONAL ALLERGIES** ***CHAIRS: Monika Raulf, Nihat Sapan***	**HALL-5**
	ORAL ABSTRACTS: OP-25, OP-26, OP-27, OP-28	
08:50-09:00	**Break**	
09:00-10:30	**PL-3** **BIOLOGICALS** ***CHAIRS: Alan Kaplan, Mübeccel Akdiş***	**HALL-1**
	The role of biologicals in atopic dermatitis	*Oscar Palomares*
	Emerging therapies in chronic urticaria: When and which?	*Marcus Maurer*
	The use of biologicals in severe asthma	*Giorgio Walter Canonica*
09:00-10:30	**PL-4** **ENVIRONMENT, CLIMATE AND ALLERGIC DISEASES** ***CHAIRS: Mario Morais-Almeida, Hasan Bayram***	**HALL-2**
	Does the epithelial barrier hypothesis explain the increase in allergy	*Cezmi Akdiş*
	Climate change and allergen exposure	*Kari Nadeau*
	Development of childhood asthma and air pollution	*David Peden*



14 October 2022

PROGRAM

09:00-10:30	**JUNIOR MEMBER SYMPOSIUM: ACADEMIC PROMOTION TOOLS FOR JUNIOR MEMBERS*** ***CHAIRS: Ivana Filipovic, Nida Öztop***	**HALL-3**
	Time management skills for WAO Junior Members	*James Sublett*
	Tips to manuscript writing	*Alessandro Fiocchi*
	How to do most for your oral presentation	*Luciana Kase Tanno*
10:30-11:00	**Coffee Break**	
11:00-12:30	**SYM-9** **ALLERGEN SPECIFIC IMMUNOTHERAPY** ***CHAIRS: Paolo M. Matricardi, Aytül Sin***	**HALL-1**
	COVID-19 pandemic and allergen immunotherapy	*Leyla Pur Özyiğit*
	Allergen immunotherapy: The growing role of observational and randomized trial "Real-World Evidence"	*Ayfer Yükselen*
	Allergen immunotherapy for long-term tolerance and prevention	*Marek Jutel*
11:00-12:30	**SYM-10** **DRUG ALLERGY** ***CHAIRS: Dean Naisbitt, Mehtap Yazıcıoğlu***	**HALL-2**
	What is new in beta-lactam allergy in children?	*Marina Atanaskovic-Markovic*
	Controversies in drug allergy: Testing for delayed reactions	*Gülfem Çelik*
	Clinical phenotypes of severe cutaneous drug hypersensitivity reactions	*Emine Mısırlıoğlu*
11:00-12:30	**SYM-11** **BASIC ALLERGY IMMUNOLOGY** ***CHAIRS: Yıldız Camcıoğlu, Philip Rouadi***	**HALL-3**
	Novel diagnostic techniques in allergic diseases	*Günnur Deniz*
	Innate lymphoid cells in nasal polyps	*Korneliusz Golebski*
	The use of systems biology in allergic diseases	*Çağatay Karaaslan*
11:00-12:30	**JUNIOR MEMBERS - PRACTICAL COURSE-3** **IMMUNODEFICIENCIES*** ***CHAIRS: Sandra Gonzalez-Diaz, Semra Demir***	**HALL-5**
	Speakers: *Tu HK Trinh, Saliha Esenboğa*	



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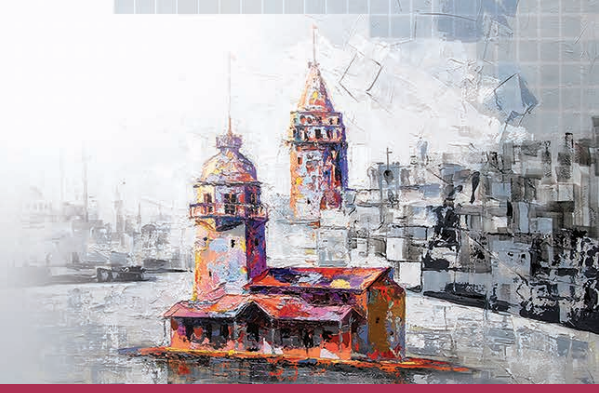
PROGRAM

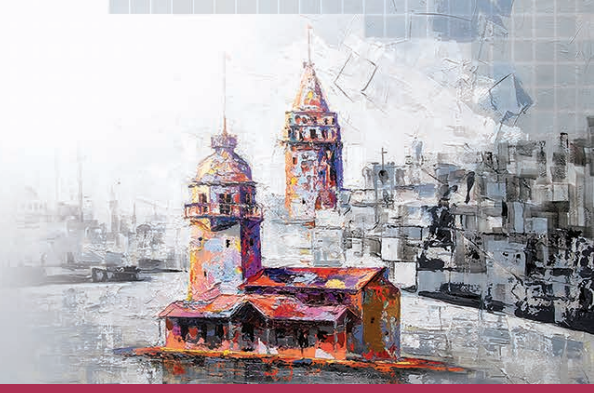
12:30-13:30	**SATELLITE SYMPOSIUM-3**	**HALL-1**
12:30-13:30	**SATELLITE SYMPOSIUM-4**	**HALL-2**
12:30-13:30	**PC-2** **FOOD ELIMINATION IN EOSINOPHILIC ESOPHAGITIS?** ***CHAIRS: Gülbin Bingöl***	**HALL-3**
	PRO / Necessary	*Arzu Bakırtaş*
	CON / Unnecessary	*Oral Alpan*
13:30-15:00	**SYM-12** **OCCUPATIONAL ALLERGY: IS THE CAUSE IN THE WORKPLACE?** ***CHAIRS: Lanny J. Rosenwasser, Emel Kurt***	**HALL-1**
	Diagnosis of occupational respiratory allergies	*Monika Raulf*
	Cleaning and disinfectant agents: A threat for respiratory allergies	*Ferda Öner Erkekol*
	Baker's asthma and rhinitis: All the time together	*Dilşad Mungan*
13:30-15:00	**SYM-13** **VACCINE OR VACCINE HESITANCY** ***CHAIRS: Milena Sokolowska, Özlem Göksel***	**HALL-2**
	Vaccine development for Covid-19	*Mayda Gürsel*
	Covid-19 Related adverse vaccine reactions	*A. Berna Dursun*
	Vaccine communication and hesitancy	*Bryan Martin*
13:30-15:00	**SISTER SOCIETY SYMPOSIUM** **AMERICAN ACADEMY OF ALLERGY ASTHMA AND IMMUNOLOGY** DRUG ALLERGY UPDATES FROM THE US PRACTICE PARAMETERS ***CHAIRS: David Khan***	**HALL-3**
	Diagnostic testing: To test or not to test?	*Jonathan Bernstein*
	What's new in antibiotic allergy	*David Khan*
	Approach to NSAID hypersensitivity phenotypes	*David Lang*



14 October 2022

PROGRAM

13:30-15:00	**JUNIOR MEMBERS - PRACTICAL COURSE-4** **ALLERGEN IMMUNOTHERAPY: HOW TO BE EFFECTIVE AND SAFE*** ***CHAIRS: Luciana Kase Tanno, Özlem Keskin***	**HALL-5**
	Speakers: *Ivana Filipovic, Özge Öztürk Aktaş*	
15:00-15:10	**Break**	
15:10-16:40	**SYM-14** **FOOD ALLERGY** ***CHAIRS: Oral Alpan, Fazıl Orhan***	**HALL-1**
	From atopic dermatitis to food allergy — *Philippe Eigenmann* Food protein induced allergic proctocolitis and phenotypes — *Özge Soyer* Mechanisms of sensitization in food allergy — *Hideaki Morita*	
15:10-16:40	**SYM-15** **OPTIMIZATION OF ASTHMA MANAGEMENT** ***CHAIRS: Yoon-Seok Chang, Özlem Yılmaz Özbek***	**HALL-2**
	Endotype and regiotype of allergic diseases and asthma — *Cevdet Özdemir* GINA 2022: Update on asthma — *Arzu Yorgancıoğlu* Indoor environment and asthma — *James Sublett*	
15:10-16:40	**SISTER SOCIETY SYMPOSIUM** **THE ASIA PACIFIC ACADEMY OF PEDIATRIC ALLERGY, RESPIROLOGY & IMMUNOLOGY** NOVEL APPROACHES TO THE DIAGNOSIS AND TREATMENT OF SEA FOOD ALLERGIES ***CHAIRS: Motohiro Ebisawa, Gary Wong***	**HALL-3**
	Seafood allergy- Difference between East and West — *Punchama Pacharn* Oral food challenges for shrimp allergy — *Noriyuki Yanagida* Novel diagnostics approaches for shrimp allergy — *Christine Wai*	
15:10-16:40	**JUNIOR MEMBERS - PRACTICAL COURSE-5** **LUNG FUNCTION TESTS AND BRONCHIAL HYPERREACTIVITY TESTS*** ***CHAIRS: Mario Morais-Almeida , Ayşe Baççıoğlu***	**HALL-5**
	Speakers: *Elif Soyak Aytekin, Alp Kazancıoğlu*	
16:40-17:10	**Coffee Break**	

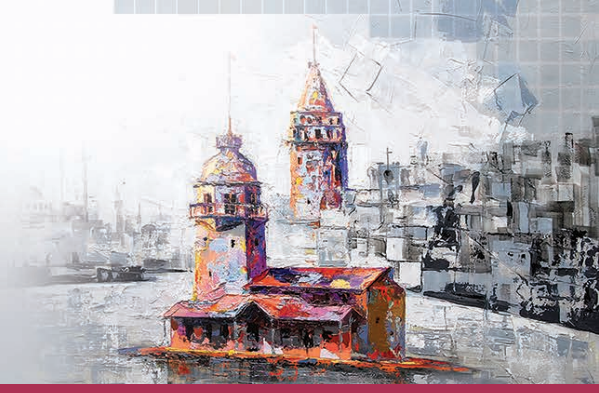


14 October 2022

PROGRAM

17:00-18:00	**POSTER WALK***	**POSTER HALL**
	Listed on page 26-31	
17:10-18:40	**SYM-16** **ADULT ASTHMA** ***CHAIRS: James Sublett, İnsu Yılmaz***	**HALL-1**
	Cough variant asthma	*Yoon-Seok Chang*
	Asthma in the elderly	*Anahi Yanez*
	Asthma and obesity	*Zeynep Çelebi Sözener*
17:10-18:40	**OAS-7** **COVID-19** ***CHAIRS: Bryan Martin, Mayda Gürsel***	**HALL-2**
	ORAL ABSTRACTS: OP-29, OP-30, OP-31, OP-32, OP-33, OP-34	
17:10-18:40	**SISTER SOCIETY SYMPOSIUM** **POLISH SOCIETY OF ALLERGOLOGY** CHRONIC SPONTANEOUS URTICARIA - DIAGNOSIS AND MANAGEMENT ***CHAIR: Maciej Kupczyk***	**HALL-3**
	Chronic spontaneous urticaria - patomechanisms and clinical picture	*Maciej Kupczyk*
	Chronic spontaneous urticaria – management	*Radoslaw Gawlik*
	Urticaria in children - do we have problem with diagnosis?	*Marek Kulus*
17:10-18:40	**JUNIOR MEMBERS - PRACTICAL COURSE-6** **HOW TO DIAGNOSE FOOD ALLERGIES IN ADULTS AND CHILDREN*** ***CHAIRS: Motohiro Ebisawa, Ayşegül Ertuğrul***	**HALL-5**
	Speakers: *Thulja Trikamjee , Burçin Beken*	

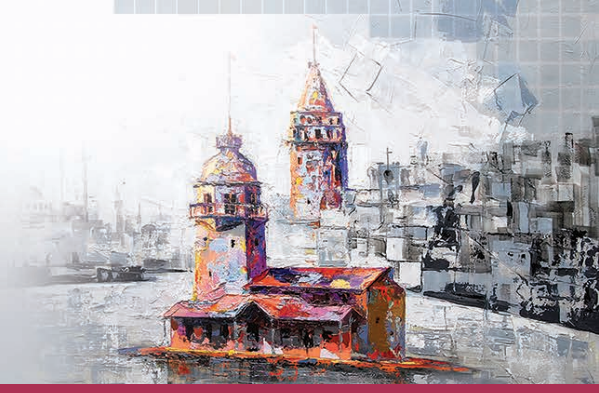
*Junior Member Practical Courses and Poster Exhibition generously supported by MENARINI



15 October 2022

PROGRAM

07:50-08:50	**OAS-8** **FOOD ALLERGY-I** ***CHAIRS: Michael Levin, Zeynep Tamay***	**HALL-1**
	ORAL ABSTRACTS: OP-35, OP-36, OP-37, OP-38	
07:50-08:50	**OAS-9** **IMMUNODEFICIENCIES** ***CHAIRS: Nima Rezaei, Ahmet Özen***	**HALL-2**
	ORAL ABSTRACTS: OP-39, OP-40, OP-41, OP-42	
07:50-08:50	**OAS-10** **DRUG HYPERSENSITIVITIES** ***CHAIRS: Marina Atanaskovic-Markovic, Berna Dursun***	**HALL-3**
	ORAL ABSTRACTS: OP-43, OP-44, OP-45, OP-46	
07:50-08:50	**OAS-11** **MISCELLANEOUS** ***CHAIRS: Oscar Palomares, Esra Birben***	**HALL-5**
	ORAL ABSTRACTS: OP-47, OP-48, OP-49, OP-50	
08:50-09:00	**Break**	
09:00-10:30	**PL-5** **INSIGHTS OF FOOD ALLERGY MANAGEMENT** ***CHAIRS: Gary Wong, Cevdet Özdemir***	**HALL-1**
	Oral and sublingual immunotherapy for food allergy	*Motohiro Ebisawa*
	Current Management in cow's milk allergy	*Alessandro Fiocchi*
	Oral tolerance induction for prevention of food allergy-Where are we now?	*Gideon Lack*
09:00-10:30	**PL-6** **ALLERGEN SPECIFIC IMMUNOTHERAPY** ***CHAIRS: Micheal Levin, Jose Antonio Ortega-Martell***	**HALL-2**
	Allergen-specific B cell tolerance in food allergy	*Mübeccel Akdiş*
	Novel targets in allergen specific immunotherapy	*Mohamed Shamji*
	Personalized medicine for allergy treatment: Allergen immunotherapy	*Ignacio Ansotegui*
10:30-11:00	**Coffee Break**	



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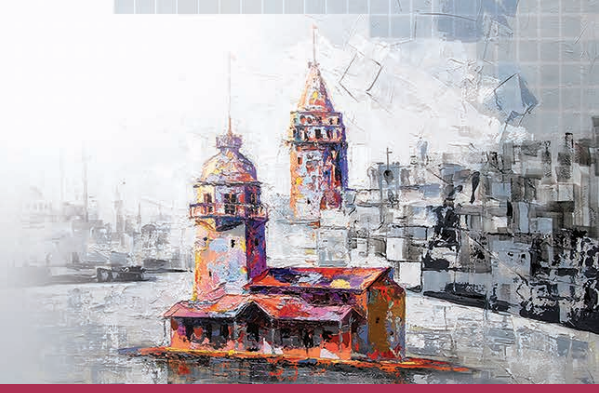
PROGRAM

10:30-11:30	**POSTER WALK***	**POSTER HALL**
11:00-12:30	**SYM-17** **DRUG ALLERGY IN ADULTS** ***CHAIRS: Knut Brockow, Özge Uysal Soyer***	**HALL-1**
	Hypersensitivity to biologicals & desensitization	*Sevim Bavbek*
	Deciphering adverse drug reactions	*Dean Naisbitt*
	Drug desensitizations for chemotherapy: Safety and efficacy in preventing anaphylaxis	*Maria Jose Torres*
11:00-12:30	**SYM-18** **FUTURE OF IMMUNOTHERAPY** ***CHAIRS: Gunter Sturm, Ümit Murat Şahiner***	**HALL-2**
	Molecular allergy and its impact in diagnosis and therapy	*Paolo M. Matricardi*
	Preventive allergen immunoterapy: Why, when, and how?	*Jose Antonio Ortega-Martell*
	New ways of allergen immunotherapy	*Nerin Bahçeciler*
11:00-12:30	**SYM-19** **MANY FACES OF COVID-19** ***CHAIRS: Korneliusz Golebski, İhsan Gürsel***	**HALL-3**
	Underlying genetic background of MIS-C	*Shen-Ying Zhang*
	Difference between SARS-COV-2 associated molecules in health and asthma	*Milena Sokolowska*
	Novel vaccine development and cross reactivities with Non-SARS COV-2	*Willem Van de Veen*
11:00-12:30	**LB-OAS-2** ***CHAIRS: Motohiro Ebisawa, Özlem Yılmaz***	**HALL-5**
	ORAL ABSTRACTS: LB-OP-05, LB-OP-06, LB-OP-07, LB-OP-08, LB-OP-09, LB-OP-10	
12:30-13:30	**PC-3** **MANAGEMENT OF NON-IMMEDIATE DRUG REACTIONS: DESENSITIZATION OR TREATING THROUGH?** ***CHAIRS: Ebru Damadoğlu***	**HALL-3**
	PRO / Desensitization	*Aslı Akkor*
	CON / Treating Through	*Knut Brockow*



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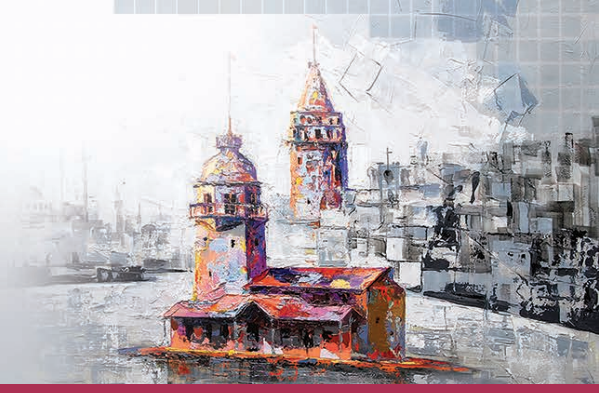
12:30-13:30	**OAS-12** **FOOD ALLERGY-II** ***CHAIRS: Hideaki Morita, Arzu Bakırtaş***	**HALL-5**
	ORAL ABSTRACTS: OP-51, OP-52, OP-53	
13:30-15:00	**SYM-20** **UNDERSTANDING THE MECHANISMS OF IMMUNE DISEASES** ***CHAIRS: Oral Alpan, İsmail Reisli***	**HALL-1**
	Inborn errors of immunity with atopic manifestations	*Ayça Kıykım*
	Endothelial dysfunction and toll like receptors	*Nima Rezaei*
	Immune system and vitamin D	*Manana Chikhladze*
13:30-15:00	**SISTER SOCIETY SYMPOSIUM** **SLAAI: SOCIEDAD LATINOAMERICANA DE ALERGIA, ASMA E INMUNOLOGIA** NEW INSIGHTS INTO ALLERGIC DISEASES: WHAT TO EXPECT IN A POST-PANDEMIC SCENARIO ***CHAIRS: Patricia Latour, Anahí Yanez***	**HALL-2**
	Biologics in the treatment of allergic conjunctivitis	*Herberto Chong*
	Challenges in treating RSCwNP in low income countries	*Maximiliano Gomez*
	Impact of long COVID in allergic diseases	*Sandra Nora Gonzalez Diaz*
13:30-15:00	**SISTER SOCIETY SYMPOSIUM** **THE ASIA PACIFIC ASSOCIATION OF ALLERGY, ASTHMA AND CLINICAL IMMUNOLOGY** ALLERGIES, ASTHMA AND VIRAL INFECTIONS: CURRENT PERSPECTIVES & FUTURE DIRECTIONS ***CHAIRS: Ruby Pawankar***	**HALL-3**
	Novel therapeutic targets for allergic airway disease	*Ruby Pawankar*
	The role of virus infection in the development and exacerbation of asthma	*Jiu Yao Wang*
	Current updates on the management of pediatric asthma: role of biologics	*Wasu Kamchaisatian*
13:30-15:00	**OAS-13** **BASIC IMMUNOLOGY** ***CHAIRS: Willem Van de Veen, Çağatay Karaaslan***	**HALL-5**
	ORAL ABSTRACTS: OP-54, OP-55, OP-56, OP-57, OP-58, OP-59	
15:00-15:10	**Break**	



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PROGRAM

15:10-16:40 **SYM-21** **HALL-1**
RELATIONSHIP OF EXPOSOME AND SYSTEMS IN ALLERGIC DISEASES
CHAIRS: Anahi Yanez, Ayşe Bilge Öztürk

The role of microbiome on gut-skin axis in atopic dermatitis	*Michael Levin*
Environmental factors and respirotory diseases: An exposome-wide approach	*Hasan Bayram*
Microbiome, pregnancy and allergic diseases	*Sandra N.Gonzalez-Diaz*

15:10-16:40 **SYM-22** **HALL-2**
VENOM ALLERGY
CHAIRS: Betül Sin, Koray Harmancı

Epidemiology of venom allergy	*Hanneke Oude Elbrink*
Component resolved diagnosis in venom immunotherapy	*Aytül Sin*
Unmet needs in venom allergen immunotherapy	*Gunter Sturm*

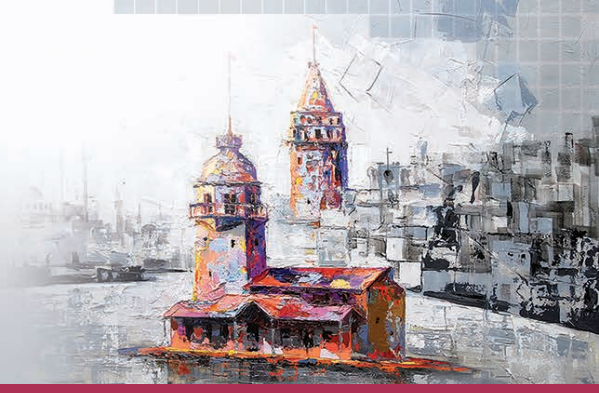
15:10-16:40 **SISTER SOCIETY SYMPOSIUM** **HALL-3**
PAN-ARAB SOCIETY OF ALLERGY, ASTHMA, AND IMMUNOLOGY
HEREDITARY ANGIOEDEMA (HAE) IN PAN ARABIA: BREAKING BARRIERS TO PATIENT CARE
CHAIRS: Mona Al-Ahmad, Marcus Maurer

Global & regional challenges in patient identification, diagnosis & management	*Elham Hossny*
The HAE experience in the GULF & MENA regions	*Mohammad Abuzakouk*
The Pan-Arabian/Middle East HAE expert consensus: An accord on real world experience and practice recommendations	*Fares Zaitoun*

15:10-16:40 **JUNIOR MEMBERS - PRACTICAL COURSE-7** **HALL-5**
PRACTICAL MANAGEMENT OF ANAPHYLAXIS*
CHAIRS: Jose Antonio Ortega Martell, Pınar Gür Çetinkaya

Speakers: *Thulja Trikamjee , Özge Yılmaz Topal*

16:40-17:10 **Coffee Break**



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17:10-18:40 **SYM-23** **HALL-1**
MANAGEMENT OF ATOPIC DERMATITIS
CHAIRS: David Peden, Demet Can

New approaches in topical treatment of atopic dermatitis	*Emek Kocatürk*
New systemic treatments in severe atopic dermatitis	*Özlem Cavkaytar*
The role of allergen specific immunotherapy in atopic dermatitis	*Jose Antonio Ortega-Martell*

17:10-18:40 **LB-OAS-3** **HALL-2**
CHAIRS: Sakura Sato, Murat Türk

ORAL ABSTRACTS: LB-OP-11, LB-OP-12, LB-OP-13, LB-OP-14, LB-OP-15, LB-OP-16

17:10-18:40 **SISTER SOCIETY SYMPOSIUM** **HALL-3**
GLOBAL ASTHMA ASSOCIATION-INTERASMA
ASTHMA AND ALLERGIC RHINITIS
CHAIRS: Ignacio Ansotegui

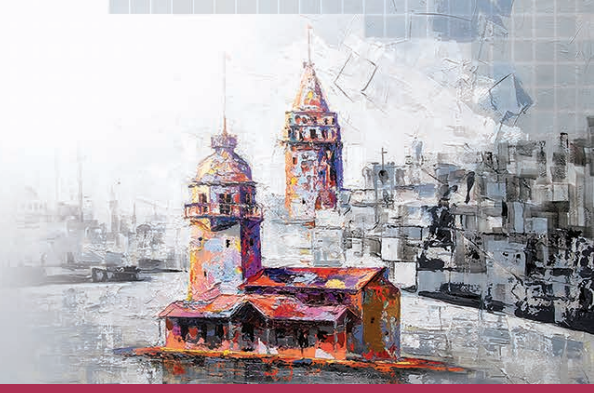
The involvement of small airways in bronchial pathologies	*Jonathan Bernstein*
The united airway diseases	*Giorgio Walter Canonica*
Triple inhalation therapy in asthma	*Fulvio Braido*

17:10-18:40 **JUNIOR MEMBERS - PRACTICAL COURSE-8** **HALL-5**
PRACTICAL APPROACH OF URTICARIA & ANGIOEDEMA*
CHAIRS: Alan Kaplan, İnsu Yılmaz

Speakers: *Duy Pham, Gülden Paçacı*

19:00-19:30 **CLOSING CEREMONY**

*Junior Member Practical Courses and Poster Exhibition generously supported by MENARINI



13 October 2022

POSTER HALL

17:00-18:00 POSTER WALK*

PAS-1 / BIOLOGICS
Moderator: Luciana Kase Tanno, Fatma Merve Tepetam
PP-001, PP-002, PP-003, PP-004, PP-005, PP-006, PP-007, PP-008

PAS-2 / CASE REPORTS-I
Moderator: Lawrence B Schwartz, Pınar Uysal
PP-009, PP-010, PP-011, PP-012, PP-013, PP-014, PP-015, PP-016, PP-017

PAS-3 / CASE REPORTS-II
Moderator: Manana Chikhladze, Özlem Cavkaytar
PP-018, PP-019, PP-020, PP-021, PP-022, PP-023, PP-024, PP-025, PP-026

PAS-4 / COVID-19-I
Moderator: Willem Van de Veen, Emine Mısırlıoğlu
PP-027, PP-028, PP-029, PP-030, PP-031, PP-032, PP-033, PP-034, PP-035

PAS-5 / IMMUNODEFICIENCIES-I
Moderator: Shen-Ying Zhang, Sevgi Keleş
PP-036, PP-037, PP-038, PP-039, PP-040, PP-041, PP-042, PP-043, PP-044

PAS-6 / AIR POLLUTION
Moderator: Kari Nadeau, Ayse Baççıoğlu
PP-045, PP-046, PP-047, PP-048, PP-049, PP-050, PP-051, PP-052, PP-053

PAS-7 / ALLERGEN IMMUNOTHERAPY AND PREVENTION
Moderator: Paolo M. Matricardi, Nerin Bahçeciler
PP-054, PP-055, PP-056, PP-057, PP-058, PP-059, PP-060, PP-061, PP-062, PP-063

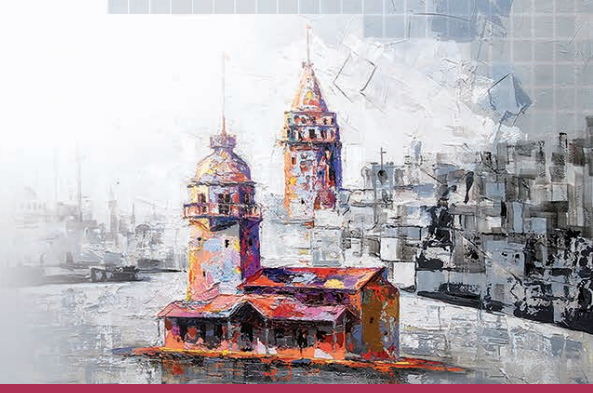
PAS-8 / ANAPHYLAXIS
Moderator: Cem Akin, Zeynep Ferhan Özşeker
PP-064, PP-065, PP-066, PP-067, PP-068, PP-069, PP-070, PP-071, PP-072, PP-073

PAS-9 / BASIC IMMUNOLOGY
Moderator: Jurgen Schwarze, Günnur Deniz
PP-074, PP-075, PP-076, PP-077, PP-078, PP-079, PP-080, PP-081, PP-082, PP-083

PAS-10 / ATOPIC DERMATITIS
Moderator: Yasutaka Mitamura, Özlem Yılmaz
PP-084, PP-085, PP-086, PP-087, PP-088, PP-089, PP-090, PP-091

LB-PAS-1 / MISCELLANEOUS
Moderator: Özge Soyer, Seçil Kepil Özdemir
LB-PP-01, LB-PP-02, LB-PP-03, LB-PP-04, LB-PP-05, LB-PP-06, LB-PP-07, LB-PP-08, LB-PP-09, LB-PP-10

LB-PAS-2 / MISCELLANEOUS
Moderator: Hasan Bayram, Ayça Kıykım
LB-PP-11, LB-PP-12, LB-PP-13, LB-PP-14, LB-PP-15, LB-PP-16, LB-PP-17, LB-PP-18, LB-PP-19, LB-PP-20



14 October 2022

POSTER HALL

17:00-18:00 POSTER WALK*

PAS-11 / ADULT ASTHMA-I
Moderator: Ioana Agache, Ferda Öner Erkekol
PP-092, PP-093, PP-094, PP-095, PP-096, PP-097, PP-098, PP-099

PAS-12 / COVID-19-II
Moderator: Milena Sokolowska, Özlem Göksel
PP-100, PP-101, PP-102, PP-103, PP-104, PP-105, PP-106, PP-107, PP-108

PAS-13 / DRUG HYPERSENSITIVITY-I
Moderator: Sandra N.Gonzalez-Diaz, Özge Soyer
PP-109, PP-110, PP-111, PP-112, PP-113, PP-114, PP-115, PP-116, PP-117, PP-118

PAS-14 / DRUG HYPERSENSITIVITY-II
Moderator: David Lang, Bülent Bozkurt
PP-119, PP-120, PP-121, PP-122, PP-123, PP-124, PP-125, PP-126, PP-127, PP-128

PAS-15 / EAR NOSE THROAT
Moderator: Yavuz Demirel, Kemal Uygur
PP-129, PP-130, PP-131, PP-132, PP-133, PP-134, PP-135, PP-136, PP-137, PP-138, PP-139

PAS-16 / FOOD ALLERGY-I
Moderator: Hideaki Morita, Gülden Paşaoğlu Karakış
PP-140, PP-141, PP-142, PP-143, PP-144, PP-145, PP-146, PP-147, PP-148

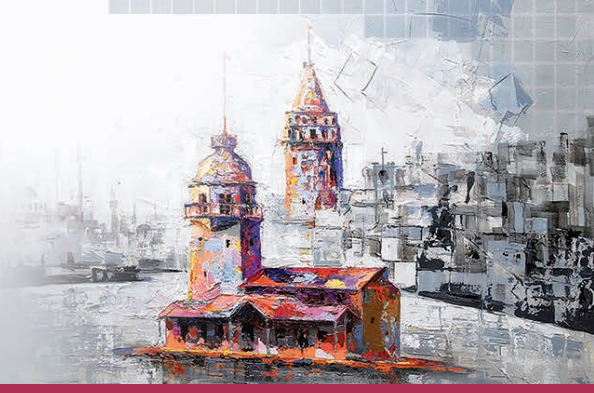
PAS-17 / ADULT ASTHMA-II
Moderator: Zeynep Ferhan Özşeker, Dane Ediger
PP-149, PP-150, PP-151, PP-152, PP-153, PP-154, PP-155, PP-156

PAS-18 / FOOD ALLERGY-II
Moderator: Gideon Lack, Cansın Saçkesen
PP-157, PP-158, PP-159, PP-160, PP-161, PP-162, PP-163, PP-164

PAS-19 / FOOD ALLERGY-III
Moderator: Gary Wong, Gülbin Bingöl
PP-165, PP-166, PP-167, PP-168, PP-169, PP-170, PP-171, PP-172, PP-173

LB-PAS-3 / MISCELLANEOUS
Moderator: Özge Yılmaz, Ömür Aydın
LB-PP-21, LB-PP-22, LB-PP-23, LB-PP-24, LB-PP-25, LB-PP-26, LB-PP-27, LB-PP-28, LB-PP-29, LB-PP-30

LB-PAS-4 / MISCELLANEOUS
Moderator: Fazıl Orhan, Ümit Murat Sahiner
LB-PP-31, LB-PP-32, LB-PP-33, LB-PP-34, LB-PP-35, LB-PP-36, LB-PP-37, LB-PP-38, LB-PP-39, LB-PP-40



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POSTER HALL

10:30-11:30 POSTER WALK*

PAS-20 / CASE REPORTS-III
Moderator: Henriette Farkas, Melike Ocak
PP-174, PP-175, PP-176, PP-177, PP-178, PP-179, PP-180, PP-181, PP-182

PAS-21 / FOOD ALLERGY-IV
Moderator: Noriyuki Yanagida, Esen Demir
PP-183, PP-184, PP-185, PP-186, PP-187, PP-188, PP-189, PP-190, PP-191

PAS-22 / IMMUNODEFICIENCIES-II
Moderator: Hasibe Artaç, Saliha Esenboğa
PP-192, PP-193, PP-194, PP-195, PP-196, PP-197, PP-198, PP-199, PP-200

PAS-23 / OCCUPATIONAL ALLERGIES
Moderator: Ömür Aydın, Semra Demir
PP-201, PP-202, PP-203, PP-204, PP-205, PP-206, PP-207, PP-208, PP-209, PP-210

PAS-24 / URTICARIA-I
Moderator: Elham Hossny, Murat Türk
PP-211, PP-212, PP-213, PP-214, PP-215, PP-216, PP-217, PP-218, PP-219

PAS-25 / URTICARIA-II
Moderator: Fares Zaitoun, Özlem Cavkaytar
PP-220, PP-221, PP-222, PP-223, PP-224, PP-225, PP-226, PP-227

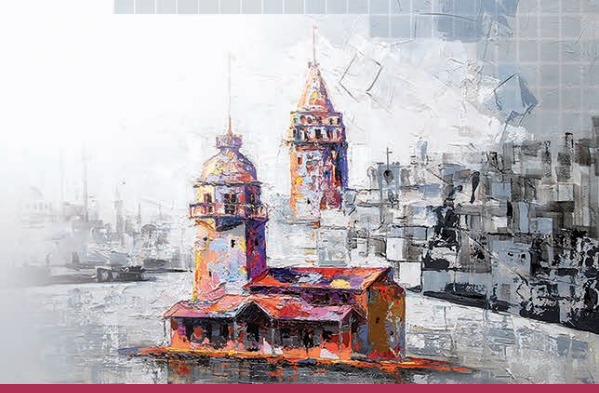
PAS-26 / MISCELLANEOUS-I
Moderator: Christine Wai, Seçil Kepil Özdemir
PP-228, PP-229, PP-230, PP-231, PP-232, PP-233, PP-234, PP-235, PP-236, PP-237

PAS-27 / MISCELLANEOUS-II
Moderator: Hanneke Oude Elbrink, Betül Ayşe Sin
PP-238, PP-239, PP-240, PP-241, PP-242, PP-243, PP-244, PP-245, PP-246

PAS-28 / ADULT ASTHMA-III
Moderator: Leyla Pür Özyiğit, Rana Işık
PP-247, PP-248, PP-249, PP-250, PP-251, PP-252, PP-253, PP-254

PAS-29 / PEDIATRIC ASTHMA
Moderator: Kathleen May, Özge Yılmaz
PP-255, PP-256, PP-257, PP-258, PP-259, PP-260, PP-261, PP-262

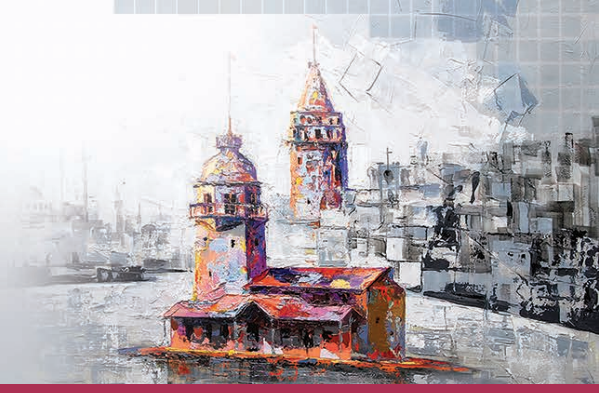
LB-PAS-5 / MISCELLANEOUS
Moderator: Mayda Gürsel, Günnur Deniz
LB-PP-42, LB-PP-43, LB-PP-44, LB-PP-45, LB-PP-46, LB-PP-47, LB-PP-48, LB-PP-49, LB-PP-50, LB-PP-51



13 Ekim 2022

PROGRAM

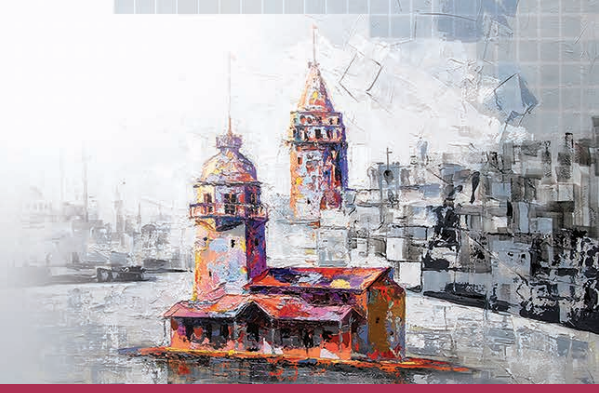
09:00-10:30	**SEMPOZYUM - 1** **İLAÇ ALERJİLERİNDE GÜNCELLEME** ***Oturum Başkanları: Mehtap Yazıcıoğlu, Seçil Kepil Özdemir***	**SALON 4**
	Antiepileptikler	*Hakan Güvenir*
	Aspirin desensitizasyonunda neredeyiz?	*Bülent Bozkurt*
	NERD tedavisinde biyolojiklerin yeri	*Ebru Damadoğlu*
13:30-15:00	**SEMPOZYUM - 2** **KRONİK ÜRTİKERE BAKIŞ** ***Oturum Başkanları: Fadıl Öztürk, İnsu Yılmaz***	**SALON 4**
	Kronik ürtikerde patogenez	*Murat Türk*
	Hastalık takibinde biyobelirteçler	*İnsu Yılmaz*
	Uyarılabilir ürtikerde yaklaşım	*Seçil Kepil Özdemir*
15:10-16:40	**SEMPOZYUM - 3** **BESİN ALERJİSİNİN FARKLI BOYUTLARI** ***Oturum Başkanları: Zeynep Tamay, Serap Özmen***	**SALON 4**
	İnek sütü alerjisinde süt merdiveni	*Derya Ufuk Altıntaş*
	Besin alerjisinde immunoterapi farklı yollar farklı sonuçlar	*Esen Demir*
	Besin alerjisinde prognoz ve biyobelirteçler	*Ayşen Bingöl*
17:10-18:40	**SEMPOZYUM - 4** **PEDİATRİK ALERJİDE TEDAVİ UYUMU VE YAŞAM KALİTESİ** ***Oturum Başkanları: Esen Demir, Fulya Tahan***	**SALON 4**
	Astımda klinik kontrol ve yaşam kalitesi	*Ersoy Civelek*
	Atopik dermatit izleminde yaşam kalitesi ve değerlendirilmesi	*Feyzullah Çetinkaya*
	Kronik ürtiker takibinde klinik ölçekler	*Reha Cengizlier*



14 Ekim 2022

PROGRAM

07:50-08:50	**YILIN MAKALELERİ-1** ***Oturum Başkanları: Müge Toyran, Saliha Esenboğa***	**SALON 4**
	Besin alerjisi	*Metin Aydoğan*
	Deri alerjileri	*Şükrü Nail Güner*
11:00-12:30	**SEMPOZYUM - 5** **ASTIMI ENDOTİPLEMEDE NEREDEYİZ?** ***Oturum Başkanları: Bilun Gemicioğlu, Ayşe Baççıoğlu***	**SALON 4**
	Tip-2 inflamasyon	*Dane Ediger*
	Gri zon: Tip-2 olmayan inflamasyon	*Rana Işık*
	Biyobelirteçlerin yeri	*Ömür Aydın*
13:30-15:00	**SEMPOZYUM - 6** **ALERJEN İMMUNOTERAPİDE AZ KONUŞULANLAR** ***Oturum Başkanları: Figen Gülen, Semra Demir***	**SALON 4**
	Venom alerjisi tanısında ve tedavisinde zorluklar	*Ayşe Betül Sin*
	Çoklu alerjenle duyarlanmada AIT	*Zülfikar Akelma*
	Alternaria ve evcil hayvanlar ile AIT	*Sait Yeşillik*
15:10-16:40	**SEMPOZYUM - 7** **ANAFİLAKSİ/MAST HÜCRE BOZUKLUKLARI** ***Oturum Başkanları: Suna Asilsoy, Kurtuluş Aksu***	**SALON 4**
	Yeni anafilaksi rehberleri neler getirdi?	*Zeynep Ferhan Özşeker*
	Besin anafilaksisinde gizli tehditler, yeni tanımlar	*Demet Can*
	Mastositozis ve venom allerjisi	*Osman Şener*
17:10-18:40	**SEMPOZYUM - 8** **İMMÜN YETMEZLİKLER** ***Oturum Başkanları: Mutlu Yüksek, Sevgi Keleş***	**SALON 4**
	CVID'i anlamak	*Hasibe Artaç*
	COVID-19'un farklı immün yetmezlik tiplerindeki seyri	*Tuba Erdoğan*
	MISC'de immünoptaogenez ve klinik bulgular	*İlknur Külhaş Çelik*



15 Ekim 2022

PROGRAM

07:50-08:50 **YILIN MAKALELERİ-2** **SALON 4**
Oturum Başkanları: Derya Erdoğdu Ünal, Hakan Güvenir

Astım — *Gülden Paşaoğlu Karakış*
İlaç alerjileri — *Ayşe Bilge Öztürk*

11:00-12:30 **SEMPOZYUM - 9** **SALON 4**
ANJİOÖDEM YÖNETİMİ
Oturum Başkanları: Koray Harmancı, Mustafa Arga

Histamin aracılı anjioödem — *İlbilge Ertoy Karagöl*
Bradikinin aracılı anjioödem — *Şadan Soyyiğit*
Herediter anjioödem takibinde öne çıkanlar — *Özlem Keskin*

12:30-13:30 **UYDU SEMPOZYUM** **SALON 4**
Ağır Astımı Tedavi Etme Sanatı
Moderatör: Özge Uysal Soyer

Konuşmacılar: Sevim Bavbek, Bülent Enis Şekerel

13:30-15:00 **SEMPOZYUM - 10** **SALON 4**
YENİ REHBERLE RİNİTE BAKIŞ (PROF. DR. YAVUZ SELİM DEMİREL ONURUNA)
Oturum Başkanları: Ayfer Tuncer, Zeynep Mısırlıgil

Ulusal alerjik rinit rehberinde neler değişti? — *Yavuz Demirel*
Non-alerjik rinit'e yaklaşım — *Kemal Uygur*
Alerjik rinit tedavisinde AIT: Kanıta dayalı yaklaşım ve gerçek yaşam verileri — *Emel Kurt*

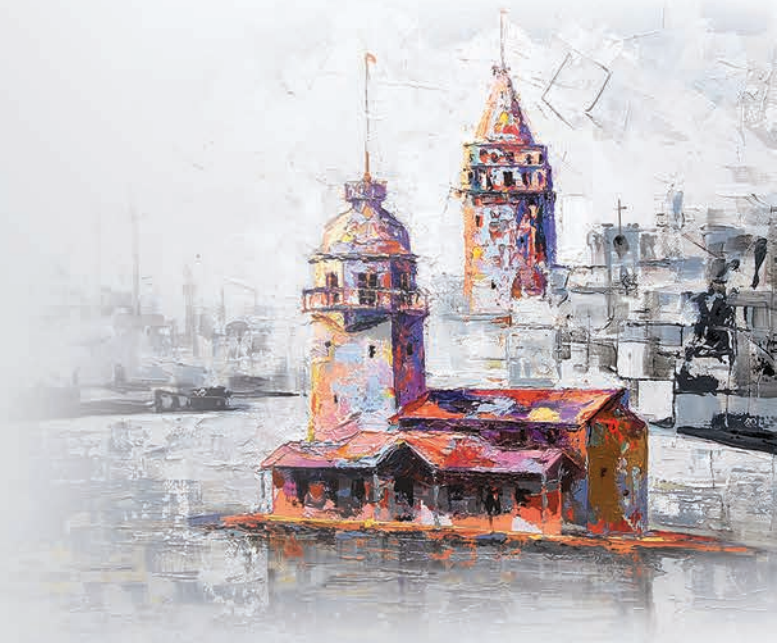
15:10-16:40 **SEMPOZYUM - 11** **SALON 4**
ÇAĞIMIZIN PROBLEMİ: KÜRESEL ISINMA VE HAVA KİRLİLİĞİ
Oturum Başkanları: Fuat Kalyoncu, Osman Şener

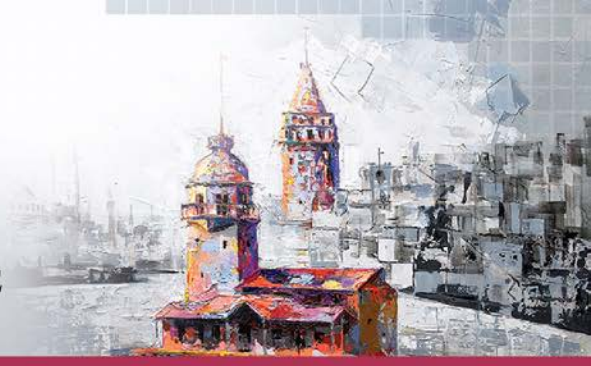
Polen haritası değişiyor mu? — *Özlem Göksel*
Hava kirliliği ve sonuçları — *Ercan Küçükosmanoğlu*
Ekstrem hava olayları ve alerjik hastalıklar — *Nihat Sapan*

17:10-18:40 **SEMPOZYUM - 12** **SALON 4**
ATOPİK YÜRÜYÜŞ YOLCULUĞU (PROF. DR. ÖZKAN KARAMAN ONURUNA)
Oturum Başkanları: Nevin Uzuner, Fazıl Orhan

Besin duyarlılığından besin alerjisine — *Fazil Orhan*
Besin alerjisi atopik dermatit ilişkisi — *Özlem Yılmaz Özbek*
Pediatrik astım — *Suna Asilsoy*

Oral Abstracts





LB-OP-01

GEO-CLIMATIC RISK FACTORS FOR CHILDHOOD ASTHMA HOSPITALIZATION

Mohammad Shomali[1], Zahra Kananneja[2], Mohammad Amin Ghatee[3], Soheila Alyasin[2]
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[3]Cellular and Molecular Research Center, Yasuj University of Medical Sciences, Yasuj, Iran

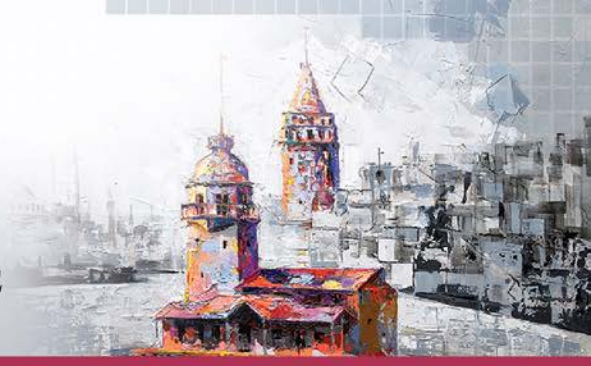
Background and Objectives: Asthma is a chronic respiratory disease resulting from a complex interaction between genetic and environmental factors. Among environmental factors, climatic and geographical variations have important role in increasing asthma hospitalization. The current study aimed to investigate the effect of geo-climatic factors on the occurrence of childhood asthma hospitalization in Fars province, southwest Iran.

Materials-Methods: We mapped the addresses of 211 hospitalized patients with childhood asthma (2016-2019) and investigated the effects of different temperature models, mean annual rainfall and humidity, number of frosty and rainy days, evaporation, slope, and land covers on the occurrence of childhood asthma hospitalization using a geographical information system (GIS). The kriging and spline methods have been used for generating interpolated models. Data were analyzed using logistic regression.

Results: In the multivariate model, urban setting was recognized as the most important childhood asthma hospitalization predictor (p value<0.001, OR=35.044, CI=9.096-135.018). The slope was considered as the determinant of childhood asthma hospitalization when analyzed independently and its increase was associated with decreased childhood asthma hospitalization (p value=0.01, OR=0.914, CI=0.849-0.984).

Conclusions: In the current study, the urban setting was the most important risk factor associated with increased childhood asthma hospitalization.

Keywords: Childhood asthma, Asthma hospitalization, Geo-climatic factors, GIS



LB-OP-02

COMPARATIVE EFFICACY AND SAFETY BETWEEN BUDESONIDE-FORMOTEROL AND FLUTICASONE-SALMETEROL COMBINATION INHALERS FOR ASTHMA MANAGEMENT: RETROSPECTIVE ANALYSIS FROM THE COMMON DATA MODEL

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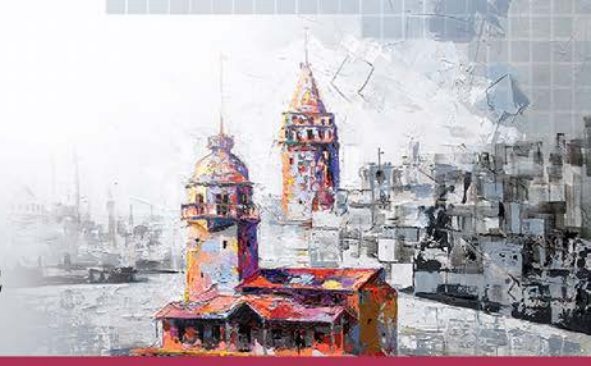
Background and Objectives: Choosing the effective device (inhaled corticosteroid <ICS>-long-acting β2 agonist <LABA> combination inhaler), as a maintenance treatment is critical in the management of moderate-to-severe asthmatics. The aim of this study was to evaluate the comparative efficacy and safety of the budesonide-formoterol combination (BFC) and the fluticasone-salmeterol combination (FSC) therapy in the real-world settings in South Korea.

Methods: This retrospective cohort study was performed using databases transformed to the Observational Medical Outcomes Partnership Common Data Model (OMOP-CDM) version 5.3.1 that maps international coding systems into standard vocabulary concepts. Asthma exacerbation rates and short-acting β2 agonists (SABAs) prescription were compared, as assessed in a time-to-event analysis. Safety including pneumonia and bronchitis was also compared.

Results: A total of 16299 eligible patients were included, of whom 4794 per cohort were matched and balanced by propensity score. During 3 years, the rate of asthma exacerbation and SABA prescription were lower in the BFC than in the FSC (hazard ratio [HR], 0.87; 95% confidence interval [CI], 0.81-0.95 and HR, 0.86; 95% CI, 0.79-0.94, respectively). The safety outcome analysis showed lower risks of pneumonia (HR, 0.86; 95% CI, 0.77-0.96) and bronchitis (0.92; 0.86-0.98) in the BFC group than in the FSC group.

Conclusion: These results suggest that the BFC is better than the FSC in the treatment of asthma in aspects of efficacy and safety. OMOP-CDM in an open collaborative research network can be used to perform a large international study examining the efficacy and safety of inhalation devices for ICS-LABA combination therapy.

Keywords: Asthma, ICS-LABA, OMOP-CDM



LB-OP-03

DISAGGREGATING ASTHMA: PATTERNS OF RESPIRATORY SYMPTOMS IN SCHOOL-AGE CHILDREN IN THREE BIRTH COHORTS

Alex Cucco[1], Angela Simpson[2], Sadia Haider[1], Clare Murray[2], Stephen Turner[3], Paul Cullinan[1], Sarah Filippi[4], Sara Fontanella[1], Adnan Custovic[1]
[1]National Heart and Lung Institute, Imperial College London, UK
[2]Division of Infection, Immunity and Respiratory Medicine, School of Biological Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, UK
[3]Royal Aberdeen Children's Hospital NHS Grampian Aberdeen, UK
[4]Department of Mathematics, Imperial College London, UK

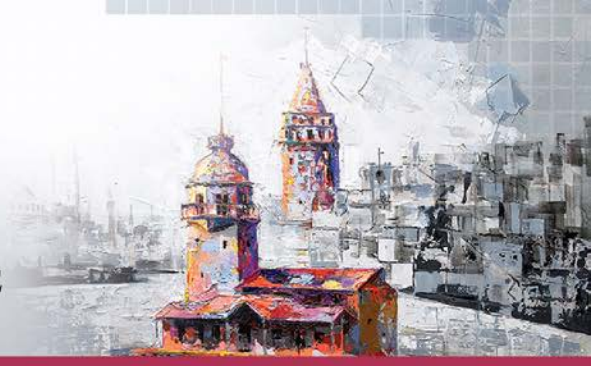
Background and Objectives: Most studies use binary information on wheeze to determine asthma-related phenotypes. We propose that more clinically intuitive subgroups which reflect underlying mechanisms can be identified by applying data-driven techniques to detailed information on presence/frequency/triggers of different respiratory symptoms, and by using the asthma diagnosis to support clustering.

Materials-Methods: We performed a multi-domain clustering of extensive questionnaire data on multiple respiratory symptoms collected at school-age in 3 population-based birth cohorts using Partition-Around-Medoids. We applied 'guided' clustering by introducing information on asthma diagnosis to select the number of clusters.

Results: Five-clusters solution was optimal ("Healthy", two asthma clusters, Transient wheeze, and Post-bronchiolitis wheeze). "Asthma 1" cluster had the highest proportion of asthmatics (95.89%) and was characterised by multiple triggers of wheezing. The proportion of asthmatics was high in "Asthma2" (78.13%), but wheezing in this cluster was related predominantly to colds/flu. "Post-RSV-bronchiolitis recurrent wheeze" was characterised by shortness of breath and chest tightness; the proportion of children with RSV-bronchiolitis in infancy was the highest in this cluster, and most did not report wheezing after age 5-6 years. Children in "Transient wheeze" cluster reported occasional wheeze, but not in relation to any specific trigger. Children in Asthma 1 cluster had the lowest lung function, high sensitisation rate, and the highest FeNO and exacerbation rate.

Conclusions: Patterns of coexisting symptoms reflect underlying mechanisms of asthma-related diseases. We identified three distinct subtypes of asthma: Multiple-trigger disease characterised by sensitisation, frequent/severe symptoms and impaired lung function; milder infection-induced disease; and post-RSV wheeze.

Keywords: Asthma phenotypes, disease heterogeneity, semi-supervised clustering



LB-OP-04

EXOGENOUS SEX STEROID HORMONES AND NEW-ONSET ASTHMA IN WOMEN: A MATCHED CASE-CONTROL STUDY

Guo-Qiang Zhang[1], Rani Basna[1], Maya B. Mathur[2], Cecilia Lässer[1], Roxana Mincheva[1], Linda Ekerljung[1], Göran Wennergren[3], Madeleine Rådinger[1], Bo Lundbäck[1], Hannu Kankaanranta[4], Bright I. Nwaru[5]
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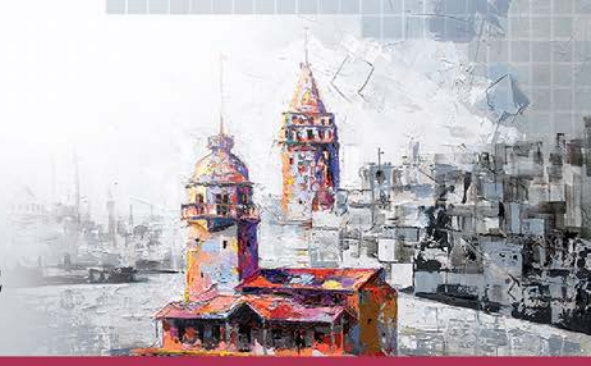
Background and Objectives: There remains controversy on the role of exogenous sex steroid hormones in the development of asthma in women. To quantify the relation of hormonal contraceptives and menopausal hormone therapy (MHT) in the development of new-onset asthma.

Materials-Methods: We conducted a matched case-control study based on the West Sweden Asthma Study (WSAS), including women aged 16–75 years followed from 2008 to 2016. We applied Frequentist and Bayesian conditional logistic regression models.

Results: We included 114 cases and 717 controls. In Frequentist analysis, the odds ratio (OR) for ever use of hormonal contraceptives was 2.13 (95% confidence interval [CI] 1.03–4.38). Subgroup analyses showed that the point estimate increased consistently with older baseline age: ≥ 25 years: 2.07; ≥ 35 years: 2.69; ≥ 45 years: 3.07; ≥ 55 years: 4.13; and ≥ 65 years: 4.98. The OR for ever use of MHT among menopausal women was 1.17 (95% CI 0.49–2.82). In Bayesian analysis, the OR for ever use of hormonal contraceptives and MHT had a 95% probability of falling between 0.79 and 1.55 and between 0.92 and 1.52, respectively. The respective probability of OR being larger than 1 was 72.3% and 90.6%.

Conclusions: For use of hormonal contraceptives, selection bias due to selection of women by baseline asthma status may likely explain the upward trend in the effect estimate with older age. This suggests that use of hormonal contraceptives may decrease asthma risk in women. Use of MHT increases asthma risk in menopausal women.

Keywords: asthma, women, sex hormones, hormonal contraceptives, menopausal hormone therapy, case-control



LB-OP-05

ANAPHYLAXIS AMONG FOOD ALLERGY: RESULTS FROM THE WAO-FASE SURVEY

Alessandro Fiocchi[1], Carina Venter[2], Olga Patricia Monge Orgega[3], Daniel Munblit[4], Antonella Muraro[5], Giovanni Pajno[6], Marcia Podestà[7], Pablo Rodriguez Del Rio[8], Maria Said[9], Alexandra Santos[10], Marcus Shaker[11], Andrew Stoddart[12], Hania Szajewska[13], Monserrat Alvaro – Lozano[14], Elham Hossny[15], Carla Jones[16], Paula Kauppi[17], Miqdad Asaria[18], Philippe Begin[19], Motohiro Ebisawa[20]

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[7]Food Allergy Italia, Italy;

[8]Hospital Universitario Infantil Niño Jesus, Madrid, Spain

[9]Allergy & Anaphylaxis Australia, Sydney, Australia;

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[13]Department of Paediatrics, The Medical University of Warsaw, Warsaw, Poland

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[19]1) Allergy, immunology and rheumatology division, Department of Pediatrics, CHU Sainte-Justine, Montreal, QC, Canada; 2) Allergy and clinical immunology division, Department of Medicine, Centre Hospitalier de l'Université de Montréal, QC, Canada.

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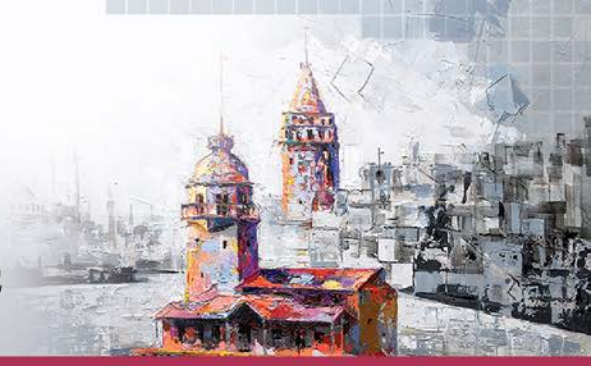
Background and Objectives: a minority of patients with food allergy develop anaphylactic reactions. As part of the Food Allergy Severity (FASE) survey, we aimed to explore the proportion of these reactions as estimated by allergists worldwide.

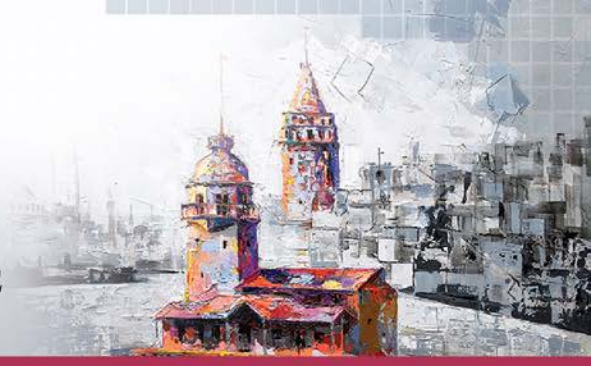


Materials-Methods: FASE was emailed to 36,000 members of the World Allergy Organization (WAO) in November 2021. Reminders were launched to re-engage potential respondents. Herein we report its results on anaphylaxis and its treatment.

Results: We got answers from 50 countries. 35% of food reactions reported in the previous 12 months were classified as anaphylactic. They involved the lower respiratory tract or the cardiovascular system in 26% of cases, and caused respiratory or circulatory insufficiency in 11% of cases. Anaphylaxis was more frequent in South Africa (43%), Western Europe (30%) and Western Asia (24.4%) than in Southeast Asia (6.5%), Northern Europe (13.4%) or Central America (16.9%). It was particularly severe in Western Asia (31.4%), North Europe (13%), South (13.8%) and North America (11.1%). The use of epinephrine was necessary in practically all the anaphylactic episodes (24%). In one out of five episodes of anaphylaxis (5.6%) the use of three or more doses was required.

Conclusions: the proportion of patients with anaphylaxis followed by allergists worldwide is higher where there are no universal assistance systems. In these regions, especially the most serious cases come to the attention of the allergist. A substantial number of anaphylactic episodes may need three or more adrenaline injections.

Keywords: Food allergy, epidemiology, DEFASE.



LB-OP-06

MODELLING TRAJECTORIES OF ATOPIC DERMATITIS: A POOLED ANALYSIS OF FIVE BIRTH COHORT STUDIES

Sadia Haider[1], Raquel Granell[2], John Curtin[3], Stephen Turner[4], Angela Simpson[3], Graham Roberts[5], Clare S Murray[3], John W Holloway[5], Graham Devereux[6], Paul Cullinan[1], Syed Hasan Arshad[5], Adnan Custovic[1], Sara Fontanella[1]
[1]National Heart and Lung Institute, Imperial College London, London, United Kingdom
[2]Medical Research Council Integrative Epidemiology Unit, Population Health Sciences, Bristol Medical School, University of Bristol, Bristol, United Kingdom
[3]Division of Infection, Immunity and Respiratory Medicine, School of Biological Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester Academic Health Science Centre, Manchester, United Kingdom
[4]Department of Child Health, University of Aberdeen, Aberdeen, United Kingdom
[5]Clinical and Experimental Sciences and Human Development, University of Southampton, Southampton, United Kingdom
[6]Clinical Sciences, Liverpool School of Tropical Medicine, Liverpool, United Kingdom

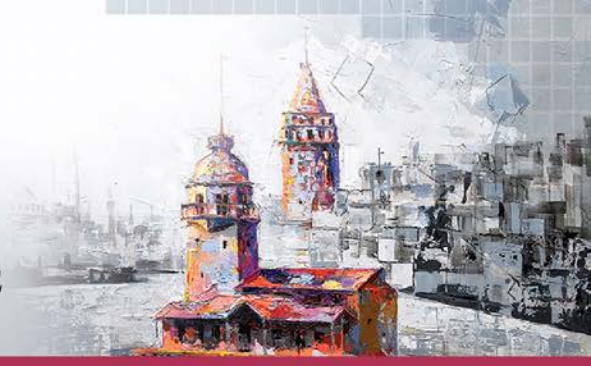
Background and Objectives: Longitudinal modelling of current atopic dermatitis (AD) identified similar phenotypes, but their characteristics often differ between studies. We propose that more comprehensive description of AD symptoms may better describe trajectories than binary information on its presence/absence.

Materials-Methods: We derived 6 multi-dimensional variables of AD spells from birth to adolescence (including duration, temporal sequencing, and the extent of persistence/recurrence). We applied Partition-Around-Medoids clustering on these variables to derive AD clusters in five birth cohorts. We investigated phenotypic stability and associations with risk factors, including filaggrin (*FLG*) loss-of-function mutations.

Results: Analysis among 7646 participants with complete data identified five AD clusters: 1) No AD (NOAD) (51%); 2) Early transient (ETAD) (21.6%); (3) Late-onset (LOAD) (8.1%) 4) Intermittent (INT) AD (7.5%); 5) Persistent (PAD) (11.8%). There was a very high agreement between assignment of individual children into clusters when using complete (n=7646) or imputed (n=15,848) data (ARI=0.99). Clusters were characterised by different profiles of risk factors (e.g., parental AD and asthma were associated with all clusters apart from LOAD; sensitisations to cat, HDM or grass was associated with all clusters, with highest risk of PAD). All clusters apart from LOAD were associated with *FLG* loss-of-function mutations. The strongest association was for PAD (RRR, 2.7; 95% CI, 2.24-3.26; P<0.0001) followed by INT (RRR, 2.29; 95% CI, 1.82-2.88; P<0.001).

Conclusions: Clustering of multi-dimensional variables identified stable AD clusters with a differential genetic architecture. Using multidimensional variables may better capture AD development and provide a more robust input for phenotype derivation.

Keywords: disease subtyping, atopic, dermatitis, cluster analysis, filaggrin



LB-OP-07

INCIDENCE OF ALLERGIC REACTIONS ON INITIAL FEEDING OF A MULTI-ALLERGEN FOOD PRODUCT IN INFANTS IN THE INTENT STUDY

David Jeong[1], Audrey W. Hou[2], Aruna Rikhi[3], Claire Beard[3], Christoph P. Hornik[3], Wendy Sue Swanson[4]
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[4]Sean N. Parker Center for Allergy and Asthma Research, Stanford University School of Medicine, Stanford, California, USA

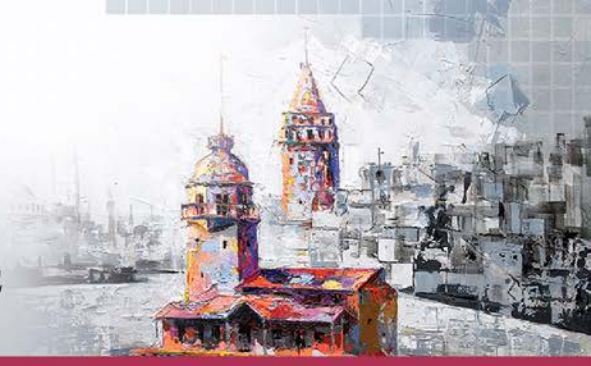
The INTENT study evaluates the early introduction of food allergens using a multi-allergen food product (MAFP) and its effect on parent-reported tolerance of common foods. We assessed safety upon first MAFP feeding.

Infants 4-6 months of age, with or without eczema, were randomized 1:1 to daily, early introduction of an MAFP containing 16 common food allergens (30mg each) or non-intervention control (parent-guided food allergen introduction). Participants complete regular e-questionnaires on diet diversity, tolerance to common food allergens, and adherence to daily feeding recommendations.

We enrolled 1705 active participants at the close of recruitment (intervention: n=837; control: n=868), including 496 eczematous infants. Of the participants with ≥1 confirmed MAFP feeding, 2 reported allergic reactions after the first ingestion (2/876; 0.2%). The number of confirmed first feedings exceeds the active participants at close of recruitment due to rolling enrollment and withdrawals before enrollment ended. One participant with severe eczema at baseline (POEM score=17) experienced facial swelling with lip involvement within 30 minutes of ingestion; parents later reported an allergist-administered skin prick test (SPT) positive for cow's milk and egg. The other participant was non-eczematous and experienced gassiness, projectile vomiting, and diarrhea within 1 hour of ingestion; parents later reported an allergist-administered SPT positive for egg. Both reactions were consistent with an IgE-mediated food allergy, and both participants were withdrawn.

We report a low parent-reported reaction rate (0.2%) upon first feeding of an MAFP in infants participating in the INTENT study, which is commensurate with the real-world reported commercial reaction rate of <1%.

Keywords: food allergy, safety, INTENT, eczema, anaphylaxis, oral allergen introduction



LB-OP-08

REAL-WORLD SAFETY AND EFFECTIVENESS OF LANADELUMAB IN PATIENTS AGED 12 YEARS AND OLDER WITH HEREDITARY ANGIOEDEMA (HAE) IN ARGENTINA: INTERIM ANALYSIS OF A POST-MARKETING SURVEILLANCE (PMS) STUDY

Daniel Osvaldo Vázquez[1], Darío Josviack[2], Fili Natalia[3], Ricardo Zwiener[4], Abel Adrian Maldonado[5], Carina Luna[6], Claudio Fantini[7], Griselda Liliana Moreno Andreatta[8], Luis Humberto Sayago[9], Alejandra Schmid[10], Gonzalo Chorzepa[11], Vijoditz Gustavo[12], Ledit Ardusso[13], María Eugenia Bessone[14], María Soledad Crisci[15], Mónica Marocco[16], Marcela Chinigo[17], Matías Oleastro[18], Carla Ritchie[19], Lionel David Alfie[20], Georgina Fernández[20], Laura Arias[20]

[1]Servicio de Alergia, Clínica Privada Monte Grande, Bs. As, Argentina
[2]Instituto de Medicina Respiratoria Rafaela, Santa Fe, Argentina
[3]Hospital Público Materno Infantil de Salta, Salta, Argentina
[4]Hospital Universitario Austral, Pilar, Bs. As., Argentina
[5]Centro de Especialidades Pediátricas "Sagrada Familia", La Rioja, Argentina
[6]Hospital Ibarreta, Formosa, Argentina
[7]Hospital Interzonal de Agudos Oscar Alende, Mar del Plata, Argentina
[8]Centro médico integral de Salud Plena, Catamarca, Argentina
[9]Centro de Alergia, Asma y Vías Respiratorias, Santiago del Estero, Argentina
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[13]Departamento de Alergia e Inmunología, Escuela de Medicina Universidad de Rosario, Rosario, Argentina
[14]Hospital Provincial de Rosario, Rosario, Argentina
[15]Instituto Especialidades de la Salud Rosario, Rosario, Argentina
[16]Hospital Aeronáutico de Córdoba, Córdoba, Argentina
[17]Servicio de Alergia, Hospital Interzonal Especializado de Agudos y Crónicos "San Juan de Dios", La Plata, Argentina
[18]Servicio de Inmunología, Hospital Garrahan, CABA, Argentina
[19]Hospital Italiano, Caba, Argentina
[20]Takeda, Argentina

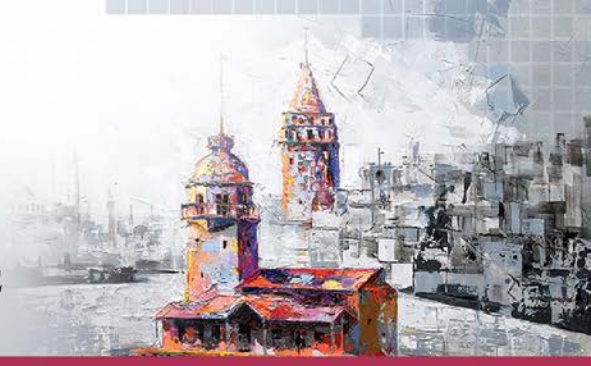
Background and Objectives: Assessing real-world safety and clinical effectiveness of lanadelumab in HAE is relevant in evaluating the external validity of registrational trials.

Materials and Methods: This is a prospective, non-interventional PMS study (NCT04955964) that includes patients (≥12 years old) with HAE and treated with lanadelumab 300mg every two weeks. Primary safety outcome: Incidence of treatment-emergent adverse events (TEAEs). Secondary effectiveness outcome: Mean monthly rate of investigator confirmed HAE attacks-NNA (normalized number of attacks) at 12/24 weeks of follow-up. Statistics: NNA = 30.4 x (number of attacks during treatment period)/(days of treatment); 95% confidence interval (CI) were calculated using exact Poisson, and p-values with Poisson regression

Results: Thirty-two patients, mean (±SD) age 39 ±13 years (72% female) with type I-HAE were included in the safety population. The most reported TEAE was headache (18.7%). All TEAEs were mild to moderate, and none led to treatment discontinuation. Nineteen patients were included in per-protocol population with effectiveness assessment at 12 weeks, and sixteen at 24 weeks follow-up. The NNA was reduced from 8.22 (95% CI: 7.02; 9.60) at baseline to 0.87 (95% CI: 0.52; 1.36; p<0.0001) at 12 weeks, and 9.09 (95% CI: 7.7; 10.66) at baseline to 0.86 (95% CI: 0.47; 1.38; p<0.0001) at 24 weeks. Similar reductions were observed in the NNA requiring on demand treatment, and moderate or severe attacks.

Conclusion: The interim results of this PMS study are consistent with registrational studies and support safety and effectiveness of lanadelumab in patients with HAE in real-world clinical practice in Argentina.

Keywords: hereditary angioedema, lanadelumab, real-world, safety, effectiveness



LB-OP-09

EVALUATION OF CLINICAL AND TREATMENT FEATURES OF INFANT ANAPHYLAXIS CASES: MULTICENTER STUDY

Ahmet Selmanoglu[1], Idil Akay Hacı[2], Fatih Sultan Mehmet Koc[3], Yuksel Kavas Yildiz[4], Ebru Arık Yılmaz[5], Dilek Azkur[6], Semiha Bahceci[7], Hakan Güvenir[8], Deniz Ozceker[9], Belgin Usta Guc[10], Aylin Kont Ozhan[11], Ayça Demir[2], Fazıl Orhan[3], Emine Vezir[4], Demet Can[2], Müge Toyran[1], Ersoy Civelek[1], Emine Dibek Mısırlıoglu[1]
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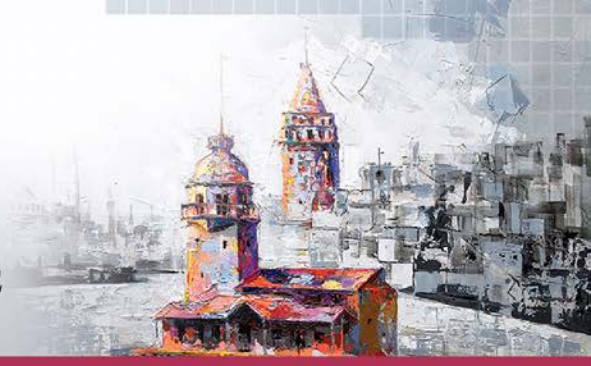
Background: Diagnosis may be difficult, as signs and symptoms of anaphylaxis can be confusing and management can be challenging in infants. The aim of the present study was to determine the clinical course and management strategies used for anaphylaxis in infancy.

Methods: Patients under the age of two years who applied to 11 pediatric allergy clinics in different cities in Turkey with symptoms of anaphylaxis between 2016 and 2021 were evaluated.

Results: In the present study, 402 anaphylaxis cases experienced by 360 patients (68.7% male) were included in the study, the mean age was 10.4±5.9 months. Infants experienced anaphylaxis mostly at home (87.2%) and 67.3% were alone with their mothers. Food was the most common causative agent (n= 380, [94.5%]), cow's milk (n=179[44%]), hen's egg (n=95,[23 %]), hazelnut (n=23,[5.7%]) and drugs were the second triggers (n=15, [3.7%]). Most common clinical findings were cutaneous (95%) and respiratory (72%); vague symptoms such as restlessness (n=78,19.4%) and hoarseness (n=14,3.4%) were also present. There was biphasic course in three infants (0.08 %). Of the patients 272 (72.5%) antihistamines, 238 corticosteroids (63.6%) and 184 (49.3%) adrenaline. Only five of 43 parents who had an autoinjector used them during anaphylaxis. Six patients required intensive care (1.6%).

Conclusion: Infants experience anaphylaxis most commonly at home when they are alone with their mothers and foods are the most common susceptible cause. Increasing awareness of anaphylaxis symptoms among mothers may help management. Besides cutaneous and respiratory symptoms, vague symptoms such as restlessness and hoarseness were detected.

Keywords: infant anaphylaxis, food allergy, drug allergy, anaphylaxis, pediatric



LB-OP-10

AN ATYPICAL CLINICAL CASE OF FOOD PROTEIN-INDUCED ENTEROCOLITIS SYNDROME

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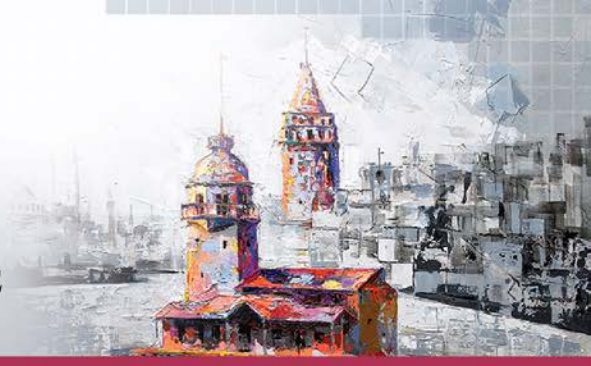
Background and Objectives: Food protein-induced enterocolitis syndrome (FPIES) is a non-IgE mediated food allergy characterized by delayed and severe gastrointestinal symptoms that typically occurs within the first year of life and outgrows by the age of 3. We aimed to report an atypical FPIES case with delayed tolerance acquisition to egg yolk.

Materials-Methods: We analyzed the evolution of an 11 years old boy with FPIES to egg-yolk, through successive skin prick tests (SPT), specific IgE blood measurements (sIgE) and oral provocation test (OPT).

Results: 11-years-old boy with first episode of allergy to boiled yolk at 9 months, with repeated vomiting after 6 hours. At 12 months old, SPT and sIgE for egg-yolk and white, ovalbumin and ovomucoid were negative. At 16 months old, OPT for boiled yolk was positive with vomiting and prostration 2 hours after the ingestion. At 4,7 and 9 years old, he continued with negative SPT and positive OPT for yolk egg. At 10 years old, he did OPT with boiled egg-white, that he tolerated and was indicated to maintain gradual intake at home. 7 months later, he tolerated OPT with the whole boiled egg (5g of yolk) and by the age of 11 he had no reaction to OPT with 16,4g of boiled yolk. Nowadays he´s on a free diet for boiled egg and eviction for raw egg.

Conclusions: It´s reasonable trying to induce tolerance with baked foods, even in a non-igE mediated food allergy.

Keywords: FPIES, non-IgE-mediated food allergy, egg-yolk, late tolerance acquisition



LB-OP-11

Immunotherapy for wheat allergy and celiac disease

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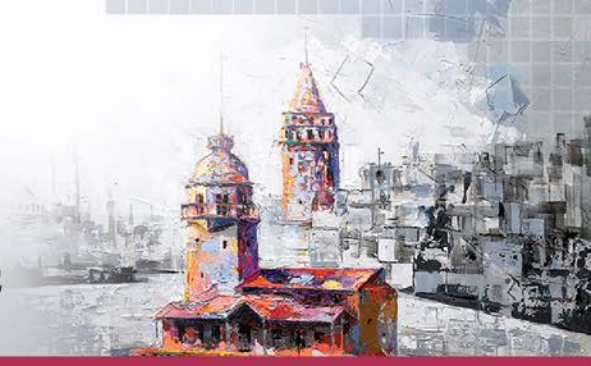
Background and Objectives: Celiac Disease (CD), Gluten Sensitivity (GS), and Wheat Allergy (WA) are all due to wheat or components of wheat. Four major proteins in wheat can cause allergy and coeliac disease i.e., albumins, globulins, prolamins, and gluten. Wheat allergy, Gluten sensitivity, and Celiac disease are caused by gluten-containing major proteins glutenin and gliadins. CD is autoimmune. There are numerous reports of the association of CD with other wheat-related disorders and the coexistence of wheat-associated disorders.

Materials-Methods: SLIT containing extracts of wheat and other relevant foods, Rapid Immunotherapy protocol for SLIT, Skin Prick Tests for aeroallergens and foods, 10 patients ages 5 years to 25 years

Results: 80% of patients showed higher total IgE levels. All showed positive skin tests for wheat and other commonly eaten foods like milk, egg, and lamb but wheat was given positive in all. All patients showed higher levels of tTG.

Conclusions: Most of the patients suffering from Celiac Disease have higher IgE levels and show positive skin test results for other commonly eaten foods also. Immunotherapy improves IgE mediated Wheat Allergy and Gluten sensitivity (by induction of tolerance). Gluten presented by Dendritic Cells recognized by TCR on CD4 + T cells leading to increased production of IL10. Repeated exposure to gluten in vaccines develops tolerance. This is an observational study done with limited resources, but it can be proven if a multicenter study is done with the collaboration of WAO

Keywords: Celiac Disease, Wheat Allergy, Anti Tissue Trans glutaminase, Gluten, Gliadin



LB-OP-12

IS THERE A NEED FOR DRUG PROVOCATION TESTS WITH HYPNOTICS, OPIOIDS AND NEUROMUSCULAR BLOCKING AGENTS IN THE DIAGNOSIS OF SUSPECTED PERIOPERATIVE HYPERSENSITIVITY?

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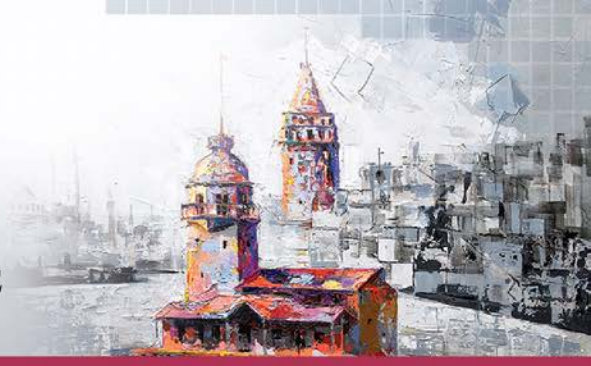
Background: Drug provocation tests(DPTs) are considered the reference test in drug hypersensitivity, but have not been recommended in perioperative hypersensitivity(POH). This mainly because of the pharmacologic effects of anaesthetic drugs and the necessity to test multiple potential culprits. Hence this study that aims to ascertain the need for systematic DPTs to hypnotics, opioids and neuromuscular blocking agents (NMBAs)

Methods: Data from subsequent anaesthesia was analysed in 344 patients who had an allergic work-up for a suspected POH at our hospital.

Results: 344 patients were re-exposed to one or more drugs that were deemed safe after negative conventional testing (skin testing(ST) and specific IgE(sIgE) quantification). We report only one potentially false negative ST. We report 141 re-exposures to propofol after a negative ST. One of these patients experienced a potential subsequent POH to propofol. 129 patients were re-exposed to the same opioid as used during the index reaction. All re-exposures were uneventful. For NMBAs we report 125 re-exposures. However, only 34/125 patients were re-exposed to the same NMBA as used during the index reaction. Our data show that anaesthetists frequently (49/125) changed the compound, even though the drug was deemed safe by our investigations. In another 42/125 patients, the NMBA used during the index reaction was the culprit, hence it was substituted in subsequent surgery.

Conclusion: Our study reveals that systematic DPTs with all anaesthetic drugs are not warranted nor critical for correct diagnosis patients with a suspected POH reaction. However, in specific situations, DPT might benefit individual diagnosis.

Keywords: Drug hypersensitivity, perioperative anaphylaxis, drug provocation test;



LB-OP-13

STUDY OF EFFICACY OF SUB LINGUAL IMMUNOTHERAPY (SLIT) IN CASES OF SEVERE PERSISTENT ALLERGIC RHINITIS

Subir Jain
ENT centre Indore India

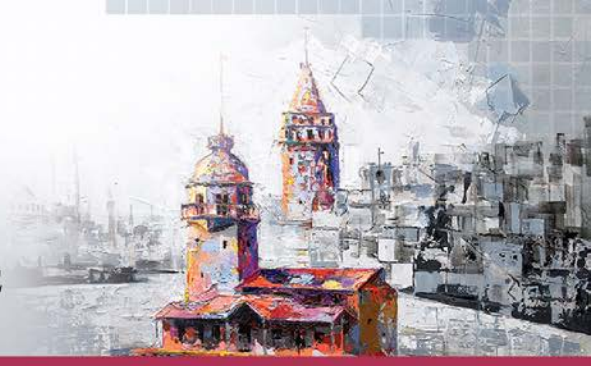
Purpose: To asses efficacy of Sub Lingual Immuno Therapy [SLIT] in treatment severe persistent allergic rhinitis in the age group from 6 years to 66 years of age of either sex.

Material & Method: 570 patients of severe persistent allergic rhinitis were included to asses efficacy of sub Lingual immuno Therapy [SLIT]. Number of Aero Allergens included ranges from average of 2 to 4. Glycerinated aqueous allergenic extract from various allergens were taken as per their sensitivity pattern. Different allergen extracts suspended in solution containing 50% glycerine i.p. and normal saline solution. SLIT was prescribed in the concentration of 1:500,1:250,1:150,1:100, 1:50, 1:20 and maintenance dose of 1:10. These patients were regular in treatment for more than 36 months. Symptom score were recorded on regular intervals. 1st at the beginning of SLIT,than every six months.All patients regular follow up done every six months.

Result: In above study results were encouraging. In symptom score scale of 0 to 3.[0= no symptoms,1= mild,2 = moderate,3=severe]Allpatientswerehavingseveresymptomsbeforestartingofsub LingualImmunoTherapy.Atthe completionof36monthsofsubLingualImmunoTherapy.Outof570patients370patientswereonscore0,180patients onscore1and20patientsonscore2.Numberofrescuemedicationswasremarkablyreducedevenduringpollenseason.

Conclusion: Sublingual Immuno Therapy showing promising results in cases of Severe Persistent Allergic Rhinitis.

Keywords: Immuno Therapy, Severe Persistent Allergic Rhinitis, Sub Lingual Immuno Therapy, Tolerance



LB-OP-14

A CASE OF TOXIC EPIDERMAL NECROLYSIS TREATED WITH CORTICOSTEROIDS AND LOW DOSE INTRAVENOUS IMMUNOGLOBULINS

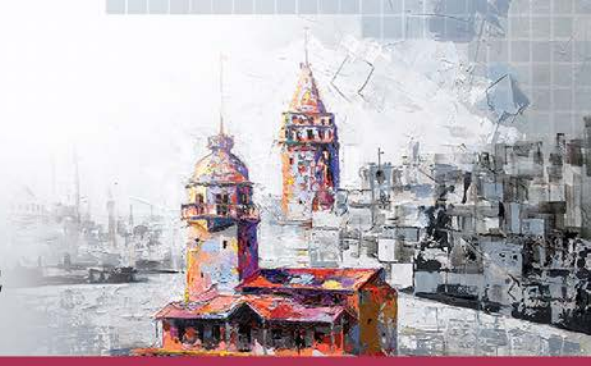
Vanessa Gail Lanuzo Borja
Department of Internal Medicine, Bicol Medical Center, Naga City, Philippines

Background and Objectives: Toxic Epidermal Necrolysis (TEN) is an acute, life-threatening mucocutaneous reaction primarily precipitated by drugs. At present, there is still controversy on the different treatment options in TEN. This case report details how corticosteroids and low dose intravenous immunoglobulins (IVIg) were used to manage a case of TEN with extensive lesions.

Case Presentation: This is a case of a 23-year old Filipino male with a 1 month history of Allopurinol intake who developed painful blisters involving the trunk and extremities and formed crusted lesions on the periorbital and perioral areas. Inspection of the lesions revealed flaccid bullae surrounded by patches of erythematous and hyperpigmented skin, covering a total of 81% body surface area. Skin biopsy done revealed a histologic pattern consistent with an early lesion of TEN. Patient was treated with Hydrocortisone 100 mg intravenous every 6 hours and IVIg 0.5 g/kg as continuous infusion for 3 days. Signs of arrest of the progression of the disease were noted starting on the 3rd hospital day and continued until patient was discharged improved by 14th hospital day.

Conclusions: This case demonstrates that a short course of corticosteroids and low dose IVIg has produced clinical improvement in a TEN patient with extensive lesions. This will be a valuable contribution to the existing management of TEN in countries with limited availability of IVIg such as in the Philippines.

Keywords: toxic epidermal necrolysis, intravenous immunoglobulins, corticosteroids, allopurinol



LB-OP-15

THE PREVALENCE OF SELF-REPORTED RHINOCONJUCTIVITIS SYMTOMS AMONG YOUNG ADOLESCENTS IN PRISHTINA

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This was a cross-sectional study conducted in the town of Prishtina, Kosovo in 2018. The study was part of the project "Project of the Global Asthma Network (GAN) Phase One".

Out of 1056 school children 493 (46,64%) were male and 563 (53,26%) were female. This section covered 7 questions on nose problems (in the absence of colds or flu). The analysis of the questions indicated that:

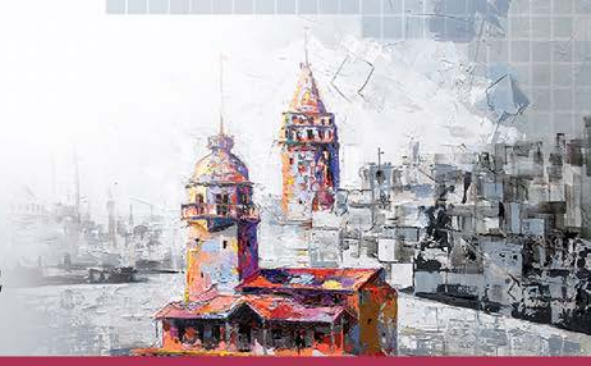
a) problems with sneezing/runny/ block nose EVER - reported 372 (35,2%) adolescents, 159 (32,2%) of males and 213 (37,8%) of females. There was no significant association between adolescent gender and presence of the nose problem (Pearson Chi-square: 3,589; df=1; p=0,0582).

b) problems with sneezing, runny or block nose in the last 12 MONTHS - had 320 (30,3%) adolescents, 132 (26,8%) of males and 188 (33,4%) of females. These problems were 1,371 times significantly more common in girls compared to boys [OR=1,371(1,05 – 1,79) 95% CI].

c) nose problem accompanied by itchy-nose in the last 12 months - reported 177 (16,8%) adolescents, 69 (14%) of males and 108 (19,2%) of females. We found that these problems were 1,459 times significantly more common in girls compared to boys [OR=1,459 (1,05 – 2,03) 95% CI].

d) nose problem accompanied by itchy-watery eyes in the last 12 months - reported 166 (15,7%) adolescents, 63 (12,8%) of males and 103 (18,3%) of females. The analysis indicated that this kind of problems were 1,528 times significantly more frequent in girls compared to boys [OR=1,528 (1,09 – 2,15) 95% CI].

Keywords: Rhinoconjuctivitis, Prevalence



LB-OP-16

RE-STING REACTIONS IN HYMENOPTERA VENOM ALLERGIC CHILDREN

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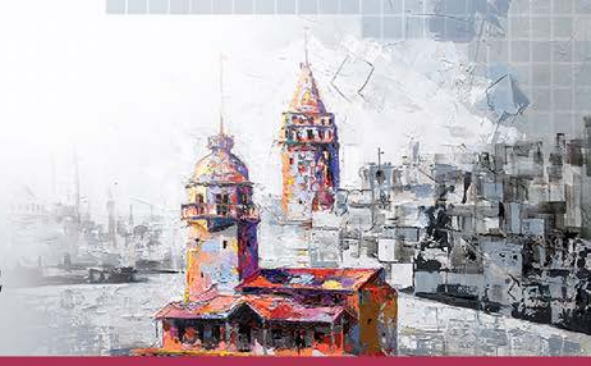
Background: Hymenoptera venom allergy (HVA) is a potentially life-threatening allergic reaction following a honeybee or vespid. We aimed to evaluate re-sting reactions during or after venom immunotherapy(VIT) in children with systemic reaction to bee or wasp venom.

Method: Total of 78 patients on VIT who experienced grade 3,4 or 5 systemic reaction were included in the study. They were asked if they were re-stung with confirmed allergic hymenoptera and the re-sting reaction was evaluated through a questionnaire.

Results: There were 17 (21,8%) bee and 61 (78,2%) wasp allergic children. Most common symptoms were dyspnea (93,6%), angioedema (93,6%) and generalized urticaria (67,9%). Fourty three patients (55,1%) had a history of sting against the hymenoptera to which they were allergic. Of the stings 19 were during and 24 were after immunotherapy. Fourteen of 19 patients (73,6%) and 13 of 24 patients (54,1%) who experienced hymenoptera sting had reaction during and after immunotheraphy, respectively. Most of the reactions were local reaction (70%), only one patient (0.3%) had grade 5 systemic reaction. Common symptoms were pruritus (79,3%), erythema (79,3%) and localized urticaria (44,8%). Systemic reactions to injection during immunotherapy were 8/78 (10.3%) in patients and 8/6295 (0.0013%) per injection.

Conclusion: Re-sting reactions were less severe in children who had completed or who were on venom immunotherapy. Immunotherapy-related systemic reactions during immunotherapy were rare and tolerable. This study supports the idea that venom immunotherapy is highly effective in the treatment of HVA it persists effectivity even after treatment cessation.

Keywords: hymenoptera, immunotherapy, venom



OP-01

EFFECTIVENESS OF LOW-DOSE MEPOLIZUMAB IN THE TREATMENT OF EOSINOPHILIC GRANULOMATOSIS WITH POLYANGIITIS (EGPA): A REAL-LIFE EXPERIENCE

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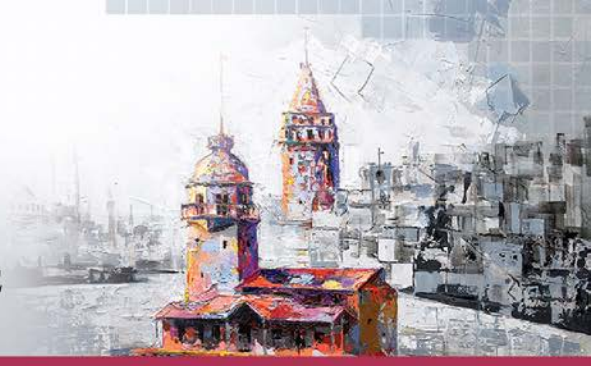
Background and Objectives: Data showing effectiveness of mepolizumab in patients with EGPA are limited.

Materials-Methods: This is a single-center retrospective chart review of patients with EGPA treated with mepolizumab. Clinical, laboratory, functional parameters and asthma, rhinitis control and quality of life scores (ACT, AQLQ, RQLQ and SNOT-22) were evaluated at the baseline, 6th month and 12th month. Complete response was defined as the absence of asthma and/or ear, nasal symptoms and exacerbations with a prednisone of ≤7.5 mg/day, partial response if it was achieved with a prednisone of >7.5 mg/day.

Results: Overall, 25 patients (15F/7M, mean age:46.8±12.2 years) were enrolled. Mepolizumab 100mg/month was administered (dose increased to 300 mg/month in three patients). Mepolizumab significantly decreased daily dose of oral corticosteroid (OCS) from 11.04 mg to 3.65 mg together with a significant improvement in ACT, AQLQ, RQLQ and SNOT-22 scores and a significant reduction in asthma exacerbations and blood eosinophil count at the 6th and 12th month. The mean FEV1 increased (at baseline: 1.88L, to 2 2.46L at the 12th month (p=0.037). Seventy-six percent of patients responded completely at the 6th month and 81.25% at the 12th month. The complete responders at the 6th and 12th month were older than partial responders and non-responders (p=0.030 and p=0.057 respectively). Patients with complete response at the 6th month were on lower doses of OCS than partial responders and non-responders (p=0.029).

Conclusions: Low-dose mepolizumab was effective in EGPA patients by improving sinonasal and asthma outcomes while reducing the need for OCS.

Keywords: Eosinophilic granulomatosis with polyangiitis, mepolizumab, asthma, vasculitis



OP-02

MEPOLIZUMAB: LONG-TERM EFFICACY IN PATIENTS WITH SEVERE ASTHMA, IN THE SUBPOPULATION WITH CONCOMITANT CHRONIC RHINOSINUSITIS

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University of Genoa / Policlinico San Martino / Via Leon Battista Alberti, Genova, Italy

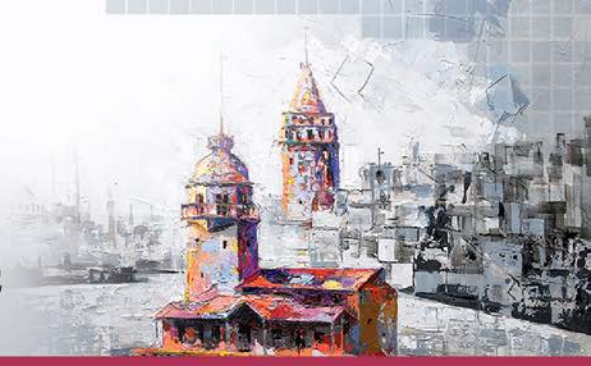
Background and Objectives: Mepolizumab (MEP) is a monoclonal antibody against IL-5, available in Italy for severe hypereosinophilic asthma, rhinosinusitis with nasal polyposis (CRSwNP), eosinophilic granulomatosis with polyangiitis and idiopathic hypereosinophilic syndrome. The main purpose of the study is to assess the long-term (3 years, compared to 52 weeks in previous studies) efficacy of MEP in patients with severe asthma and concomitant CRSwNP.

Materials-Methods: A retrospective multicenter observational study was developed, involving multiple centers afferent to the Severe Asthma Network Italy registry. The patients had to meet the diagnostic criteria for severe asthma and the prescription criteria of the drug. They received MEP at a 100mg subcutaneous dose every four weeks. The main endpoints concerned the efficacy in reducing disease exacerbations, the use of OCS, the hospitalizations, and the persistence of efficacy. Pulmonary function tests, ACT and FeNO were performed to evaluate asthma control, while endoscopic studies, thoracic TC and SNOT-22 were done in order to evaluate the rhinosinusitis assessment.

Results: The study enrolled 157 patients. The exacerbation rate decreased by 95% from baseline to the third year. OCS-dependent patients decreased from 54 to 6% and the mean OCS dose decreased from 15mg to 6.3 mg. Improved symptom control was achieved and ACT and SNOT-22 showed a 35% increase and 49% decrease, respectively, compared to baseline.

Conclusions: The study demonstrated the efficacy of mepolizumab, with a progressive improvement after 3 years of observation in patients with severe asthma and concomitant CRSwNP.

Keywords: mepolizumab, asthma, rhinosinusitis



OP-03

Real life vs RCTs in severe asthma: a different effectiveness of mepolizumab between RL and RCTs

Diego Bagnasco, Laura Melissari, Elisa Testino, Federica Piccardo, Giovanni Passalacqua
Department of Internal Medicine, University of Genoa, Italy

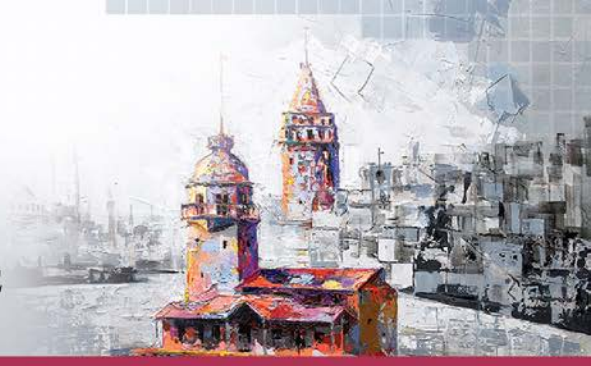
Background and Objectives: With this paper we aim to look for reasons for the different efficacy of mepolizumab, between clinical trials and real life.

Materials-Methods: We analyzed data from 3 years of real-life observation of patients with severe asthma, afferent to the national SANI (severe asthma network Italy) registry, treated with mepolizumab. Data from these patients were compared with those from the COSMOS trial, an open-label extension of the various registration trials, and with those from patients defined as super responders by Kavanagh in his recently published work.

Results: Patients treated in real life, in the observed cohort, turn out to be very similar to those defined as "super responders" by Kavanagh, compared with the characteristics of patients enrolled in clinical trials, which turned out to be different from the cohort of patients who demonstrated excellent response. Particularly similar where exacerbation rate, presence of nasal polyps and high FEV1 value.

Conclusions: In conclusion, the difference in drug efficacy, which from all the real-life studies seems to be greater in patients treated in the real world, could be attributable to the characteristics of the treated subjects. Specifically, in real life, patients with higher respiratory function, a higher number of exacerbations at baseline, and a more frequent co-presence of nasal polyposis are treated with mepolizumab, all of which predict a prior better response to therapy.

Keywords: severe asthma, real life, RCTs, mepolizumab, IL-5



OP-04

PREVENTABLE RISK FACTORS FOR HOSPITAL ADMISSIONS AMONG ASTHMATIC CHILDREN AND ADOLESCENT: A TERTIARY CENTER EXPERIENCE, BANGLADESH

Nabila Akand[1], Probir Kumar Sarkar[2], Md. Jahangir Alam[3]
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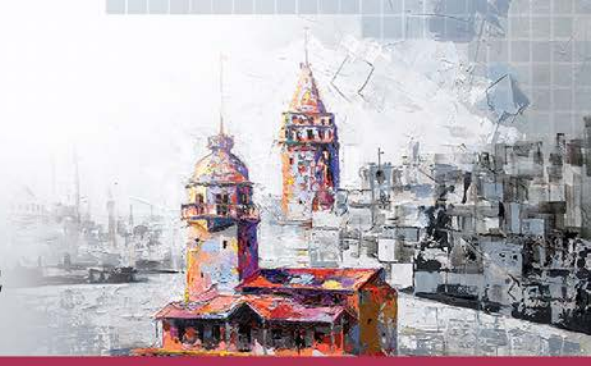
Background and Objectives: Asthma remains one of the common cause of hospital admissions for children till date despite extensive mass education and awareness programs. The aim of this study was to describe the characteristics of children admitted to hospital with an acute asthma exacerbation and to identify preventable factors that may prevent future hospital admissions.

Methods: We conducted a prospective analysis of all admitted patients (age 5-18years) with acute asthma exacerbation from April 2021 to April 2022 in Bangladesh Shishu Hospital & Institute. We interviewed the parents of the admitted patients and reviewed the child's case records including general aspects of hospital stay and biological, demographics, socioeconomic and asthma-related factors.

Results: Total 78 patients were hospitalized during the study period. Of the total, 69.2% had previously been hospitalized due to asthma, 67.9% developed recurrent asthma exacerbations, and 54.9% were hospitalized in their first year of life. Most (78.4%) suffering from mild persistent asthma. Inappropriate preventive treatment was observed% in 85.3 and 71.2% were not on regular controller medications and were treated only during isolated acute episodes. Low level of asthma knowledge observed among the parents were 89.31%. 82.3% child with persistent asthma were not visiting a physician regularly (at least every three months) and 45% had a delay of >12 h in starting β2 agonists at home after onset of asthma symptoms. 22% of the admitted patients were obese.

Conclusions: This study has identified potential risk factors where intervention may reduce frequencies of exacerbations and number of future admissions.

Keywords: asthma, hospital admission, risk factor, preventable



OP-06

SHARING EXPERIENCE IN THE USE OF MEPOLIZUMAB TREATMENT IN PEDIATRIC PATIENTS WITH SEVERE ASTHMA

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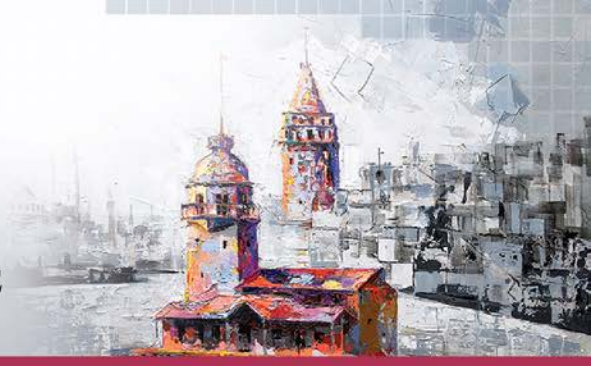
Background-Objectives: Severe asthma in children is rare but can be fatal. Worldwide guidelines recommend the use of biologics such as mepolizumab, an anti-IL5 biologic. Hence, the objective of this study was to evaluate the use of mepolizumab in pediatric and adolescent patients with severe asthma in a Mediterranean area.

Materials-Methods: Observational, retrospective, and medical record review study. The Inclusion criteria were: patients diagnosed of severe asthma from 6 to 17 years old, who started treatment with Mepolizumab at the Allergology and Pneumology Pediatric Units (Vall d'Hebron Hospital) during the years 2020-2021.

Results: Nine patients were included. At the start of mepolizumab treatment, seven patients (77.8%) were between 12-17 years-old and just two (22.2%) were <12 years-old. The asthma control test (ACT) was <21 in all patients and total eosinophil count >300 was present in seven of them (77.8%). Regarding lung function study, forced expiratory volume (FEV1) was <80% in five patients (55.6%), being increased after one year of mepolizumab treatment. Finally, the number of exacerbations was significantly reduced ($p<0.001$) after the first year of treatment, being classified as severe in five patients (55.6%) before starting mepolizumab.

Conclusions: Most pediatric and adolescent patients (66.7%,n=6) diagnosed of severe asthma treated with mepolizumab experienced a good clinical response. Moreover, lung function improved after one year of mepolizumab in more than half of the patients (55.6%,n=5).

Keywords: Mepolizumab, severe asthma, allergic asthma, interleukin 5 (IL-5), asthma control test (ACT).



OP-07

DID COVID-19 LEAD TO AIRWAY DYSFUNCTION IN PATIENTS WITH ASTHMA?

Bilun Gemicioğlu[1], Buket Çalışkaner Öztürk[1], Ilgım Vardaloğlu[1], Enes Furkan Aykaç[1], Nihal Enşen[1], Şermin Börekçi[1], Günay Can[2]
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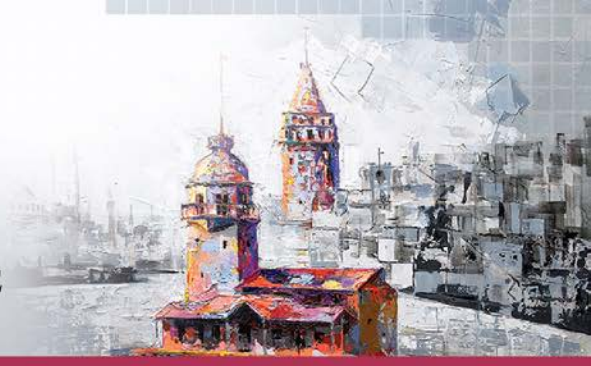
Background and Objectives: While it is known that COVID-19 affect the lung parenchyma and vascular structures, the effect on small airways is not yet to known. Impulse oscillometry (iOS) is an oscillation technique and can show impedance of the respiratory system and central and peripheral airway resistance. In this study, it was aimed to determine that airway resistance and obstruction are highly affected after mild-moderate COVID-19 disease in adults with the previous diagnosis of asthma.

Materials-Methods: A cross-sectional real-life study has designed to compare the spirometry and IOS measurements at third and sixth month after COVID-19 infection of the patients with asthma who are treating with low or medium inhaled steroids and long acting beta agonist.

Results: The mean age of 41 patients with asthma was 45.5±19.8. FVC and FEV1 were better in 6th month than 3th month after COVID-19 ($p<0.041$, $p<0.037$). But there were no difference between the FEV1/FVC, FEV3, FEV6, R5, R20, R5-R20, AX, x5, Fres in the 3rd and 6th month ($p>0.05$)

Conclusion: There wasn't any sign of affection of the airways and especially small airways at the 3 and 6 months after COVID-19 infection in patients with asthma. The affection of the FVC and relatively FEV1 were recovered after 6 month of COVID-19 infection.

Keywords: COVID-19, asthma, impulse oscillometry



OP-08

Characterization of asthma patients in an updated report from Iranian Asthma Registry

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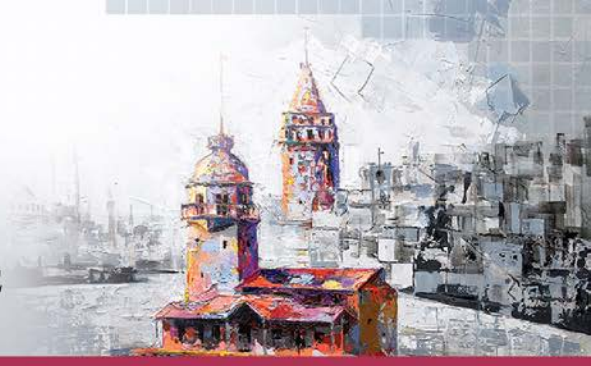
Background and Objectives: Asthma is a non-communicable disease of the airways with a heterogeneous presentation. Exact data on asthma prevalence is lacking. The Iranian Asthma Registry (IAR) was established in 2015 with the aim of determining the prevalence of asthma, its comorbidities, and risk factors in Iranian patients.

Materials-Methods: Data registration is ongoing in three Iranian centers. The data include the patients' demographics, thorough clinical history, laboratory and spirometry results, and the level of asthma control for each patient. IAR has collected and maintained entries in the three age groups of <6 years, 6-18 years, and >18 years.

Results: The patients (n=2333) comprised 1274 (55%) males and 1049 (45%) females, with 25% less than 6, 39% between 6 and 18, and 36% older than 18 years of age. Mild persistent asthma was the most prevalent type (n=648; 27.8%), followed by moderate persistent (n=368; 15.8%), severe persistent (n=105; 4.5%), and intermittent asthma (n=59; 2.5%). Cough was the most common chief complaint (n=1931; 82%), and rhinosinusitis (n=401; 17.2%) was the most prevalent comorbidity. Patients' symptoms were completely controlled in 22%, partially controlled in 49%, and not controlled in 18% of the patients. Influenza vaccination was not current in 1135 (48.6%) of the participants.

Conclusion: The development of patient registries provides valuable information on disease prevalence, risk factors, and comorbidities. This information can facilitate more educated decisions at the community, national and international levels. Collaboration of multiple centers can yield more accurate results.

Keywords: asthma, disease registry, patient registry, epidemiologic studies, Iran



OP-09

DERP1-MEDIATED CASPASE GENE EXPRESSION MAY OCCUR THROUGH A SERPINB3-INDEPENDENT PATHWAY IN BOTH ASTHMATIC AND HEALTHY BRONCHIAL EPITHELIAL CELLS

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Background and Objectives: Serine protease inhibitors (SERPINs), important molecules regulating proteolytic activity, are increased in inflammatory diseases including asthma. Derp1, a major house dust mite allergen with protease activity, is known to activate different signaling pathways, causing epithelial cell damage and cell death, especially in asthma. This study aimed to investigate the involvement of SERPINB3 in Derp1-mediated production of apoptotic caspases in healthy and asthmatic epithelial cells.

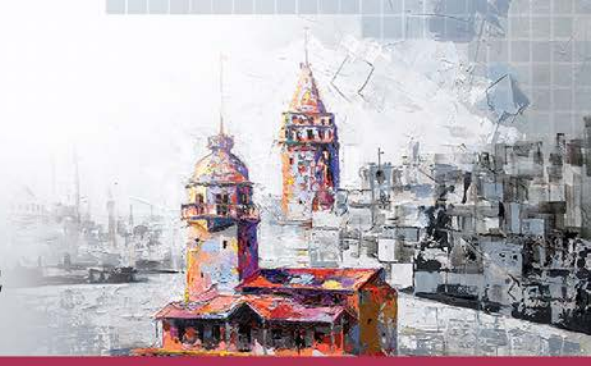
Materials-Methods: Healthy (n=5) and asthmatic (n=4) primary bronchial epithelial cells were cultured in a complete bronchial epithelial growth medium. Cells were harvested, seeded into 24-well plates, and transfected with SERPINB3 siRNA using Lipofectamine 3000 at 70% confluence to silence SERPINB3 gene expression. Transfected and non-transfected cells were then stimulated with 2µg/mL Derp1 for 24 hours and RNA isolation was performed. SERPINB3, Caspase-3,-8,-9, and Bcl-x gene expressions were evaluated by qPCR.

Results: SERPINB3 silencing was confirmed by qPCR. Derp1 stimulation increased all gene expressions including SERPINB3 in both healthy and asthmatic bronchial epithelial cells. The increase in Caspase-9 gene expression was higher in asthmatic samples compared to the healthy group. However, SERPINB3 silencing did not change the effects induced by Derp1 exposure.

Conclusions: There was an increase in caspase gene expression in both groups, with a higher expression of Caspase-9 in asthmatic cells, although SERPINB3 knockdown did not alter this result. This may suggest that Derp1-induced caspase expression may occur through a pathway independent from SERPINB3 production, at least at the mRNA level.

*This study was supported by TUBITAK (115S486).

Keywords: Asthma, epithelial cells, serine protease inhibitor, apoptosis, caspase



OP-10

DIFFERENTIATION OF BRONCHIAL EPITHELIAL SPHEROIDS IN THE PRESENCE OF IL-13 RECAPITULATES CHARACTERISTIC FEATURES OF ASTHMATIC AIRWAY EPITHELIA

Yagiz Pat[1], Beate Rückert[1], Ismail Ogulur[1], Duygu Yazici[1], Mario Perez Diego[2], Ozan Can Küçükkase[1], Manru Li[1], Cezmi Ali Akdis[1]
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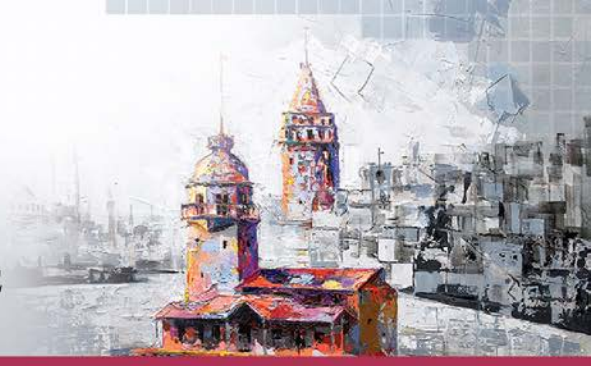
There is a substantial need to better understand the pathophysiology of asthma to develop preventive approaches and better treatments. In the present study, it was aimed to establish a 3D airway organoid model to investigate the characteristic features of asthma, such as epithelial cell differentiation, remodelling, and mucosal tight junction barrier impairment in the presence of a type 2 cytokine, IL-13. From primary bronchial epithelial cells, a 3D airway organoid model was established. Treatment of developing spheroids with IL-13 caused the development of thick-walled spheroids with small or no lumen resulting in a decreased ratio of "lumen-to-total spheroid area". The differentiation process was greatly affected by the presence of IL-13, resulting in increased differentiation towards goblet cells with a decrease in mRNA levels of ciliated cell markers. In addition, the mRNA level of the club cell marker, SCGB1A1, decreased in fully mature spheroids which is a predictive marker for the risk of impaired lung function, such as lung epithelial damage in asthma. IL-13 treatment resulted in an impaired epithelial barrier development evidenced with a high "lumen-to background intensity ratio" and decreased occludin mRNA and ZO-1 staining intensity on day 16, demonstrating that spheroid development under the influence of IL-13 leads to an epithelial barrier disorder similar to asthma. In conclusion, we successfully developed an in vitro type 2 asthma model with 3D airway organoids from primary bronchial basal cells that recapitulates characteristic features of asthmatic airway epithelia. The model is adaptable for high-throughput experiments, airway epithelial morphogenesis and development studies.

Keywords: asthma, barrier, epithelium, interleukins



OP-11

IMPULSE OSCILLOMETRY FOR DETECTION OF SMALL AIRWAY DYSFUNCTION IN ASTHMATIC PATIENTS WITH PRESERVED PULMONARY FUNCTION

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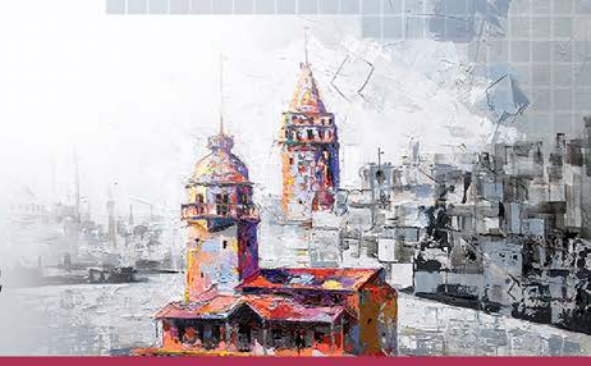
Background and Objectives: Many asthmatic patients have preserved lung function (PPF), despite having asthma symptoms. Conventional spirometry reflects the reversibility of central airway obstruction, but it is unable to sensitively evaluate small airways, which become abnormal on spirometry only when approximately 75% of them are obstructed. Impulse oscillometry (IOS) is a simple and noninvasive method based on the forced oscillation technique, for the detection of Small-Airway dysfunction (SAD). In this study we aimed to investigate prevalence, clinical characterization and impact on asthma control of IOS-defined and spirometry-defined SAD in patients with PPF.

Materials-Methods: All patients underwent standard spirometry and IOS at the first visit and they were stratified by the presence of SAD defined by IOS and spirometry. Univariable and multivariable analyses were used to analyze cross-sectional relationships between clinical variables and outcome.

Results: SAD was present in 58% of the cohort. The proportion of patients with FEF25–75%-defined SAD was lower than the IOS-defined one. Subjects with SAD showed a less well-controlled asthma, according to GINA definition, and a higher mean inhaled corticosteroid dosage use compared with subjects without SAD (both P<.0001). The multivariable analysis has identified exercise induced asthma (EIA) (OR, 11.41; p<.0001), overweight (OR, 1.13; p<0.002), night awakenings (OR, 2.98; p<0.006) and more than 1 flareup in the previous year (OR, 2.27; p<0.031) as independent predictors for SAD.

Conclusions: Due to its high prevalence in the PPF population (58%), the presence of SAD should always be assumed, especially in patients with poor disease control.

Keywords: Asthma, small airways, small airways dysfuction oscillometry, IOS.



OP-12

RESPIRATORY FUNCTIONS MEASURED USING IMPULSE OSCILLOMETRY AND SPIROMETRY IN CHILDREN WITH CAT EPITHELIAL SENSITIVITY

Simge Atar Beşe, Adnan Mercan, Duygu Erge, Pınar Uysal
Aydın Adnan Menderes University Hospital, Pediatric Allergy and Immunology Department

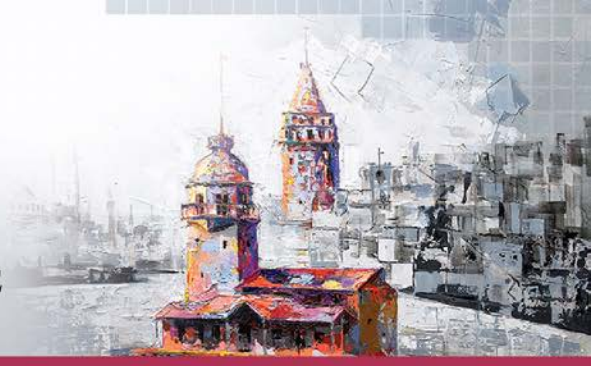
Background And Objective: To evaluate the respiratory functions using impulse oscillometry (IOS) and spirometry in children with cat epithelial sensitivity and to compare them with the values of healthy controls.

Materials-Methods: This prospective study included 74 children aged 3-17 years with cat epithelial sensitization and asthma and/or allergic rhinitis, and 70 age and sex matched healthy controls. Demographic parameters were recorded, respiratory functions were analyzed by IOS and spirometry. IOS parameters including z scores of R5 and R20, and Fres, AX, R5-20 represent airway resistance, while z scores of X5 and X20 reflect airway reactance. The association between the spirometric parameters FEV1, FVC, FEV1/FVC and IOS parameters were evaluated.

Results: There was no difference in terms of age, gender, z-score of weight, height and body mass index between patient and healthy control groups ($P>0.05$). In IOS, zR5, AX and R5-20 values were higher ($P=0.004$, $P=0.040$, and $P<0.001$, respectively) and zX5 and zX20 values were lower ($P=0.002$ and $P<0.001$) in patient group. In subgroup analysis, AX and R5-20 were higher in children with asthma than in children with allergic rhinitis as well as Fres, AX and R5-20 values were higher in children with asthma than that of children with asthma and allergic rhinitis association ($p<0.05$). No correlation was found between zFEV1, zFVC, and zFEV1/FVC and zR5 values in patient group ($p>0.05$).

Conclusions: The pulmonary resistance was higher and reactance was lower in entire airways in children with cat epithelial sensitization. Also airway resistance was higher in asthmatic group.

Keywords: impulse oscillometry, child, cat epithelium, asthma, allergic rhinitis



OP-13

DUPILUMAB REDUCES TYPE 2 INFLAMMATORY BIOMARKERS IN CHILDREN AGED 6 MONTHS TO 5 YEARS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS

Amy S Paller[1], Carsten Flohr[2], Emma Guttman Yasky[3], Mark Boguniewicz[4], Matthew F Wipperman[5], Ainara Rodríguez Marco[6], Kelley Wolfe[7], Sena Dericioğlu[8]
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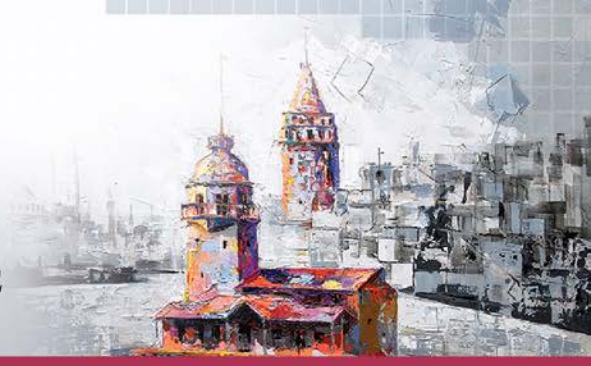
Background and Objective: Dupilumab was previously shown to reduce CC chemokine ligand 17 (CCL17) and total IgE levels in multiple type 2 inflammatory diseases. We evaluated the effects of dupilumab treatment on type 2 biomarkers in children aged 6 months to 5 years with moderate-to-severe atopic dermatitis (AD).

Materials-Methods: In LIBERTY AD PRESCHOOL (NCT03346434 part B), a phase 3, double-blind trial, children aged 6 months to 5 years with moderate-to-severe AD inadequately controlled with topical therapies were randomized 1:1 to subcutaneous dupilumab (200 mg if baseline weight 5 to < 15 kg, 300 mg if 15 to < 30 kg) or placebo every 4 weeks for 16 weeks.

Results: Baseline median serum CCL17 and total IgE levels for dupilumab/placebo groups (n = 83/79) were 3,295/3,190 pg/mL and 2,190/3,240 kU/L, respectively. After 16 weeks of treatment, median % change from baseline in dupilumab vs placebo groups was –83.1%/–12.8% for CCL17 and –71.2%/28.1% for total IgE (both $P < 0.0001$). Similar significant reductions were observed in dupilumab- vs placebo-treated patients at Week 16 for all tested serum allergen-specific IgEs: peanut (–63.9% vs –22.9%; $P < 0.0001$), egg white (–59.8% vs –3.3%; $P < 0.0001$), soybean (–58% vs –14.8%; $P < 0.001$), Dermatophagoides farinae (–66.2% vs 18.5%; $P < 0.0001$) and Dermatophagoides pteronyssinus (–62.9% vs 13.9%; $P < 0.0001$).

Conclusions: Dupilumab significantly reduces serum CCL17 and total and allergen-specific IgEs in children aged 6 months to 5 years with moderate-to-severe AD vs placebo-treated controls, reflecting reduction of systemic type 2 inflammation.

Keywords: Atopic dermatitis, biomarkers, children, type 2, CCL17, IgE



OP-14

ANTIMICROBIAL PEPTIDE HUMAN-B-DEFENSIN-3-INDUCED AUTOPHAGY ALLEVIATES ATOPIC DERMATITIS-LIKE SYMPTOMS

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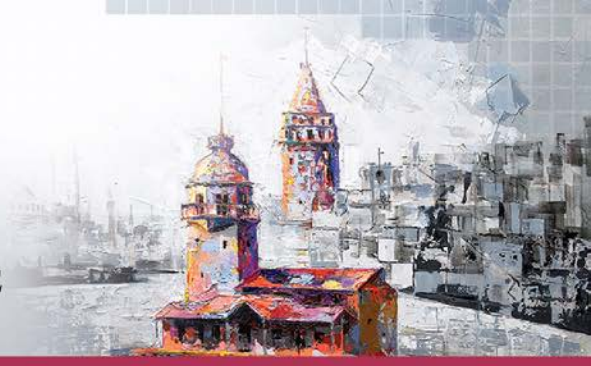
Background and Objectives: Among skin-derived antimicrobial peptides, human β-defensins (hBDs) are the most studied and are involved in various skin diseases, in which they exhibit pleiotropic antimicrobial and immunomodulatory activities, including the regulation of skin barrier function. We aimed to investigate the contribution of hBDs to autophagy regulation and the precise role of autophagy in the regulation of the epidermal barrier in atopic dermatitis (AD).

Materials-Methods: Western blotting was used to assess the expression of autophagy markers such as LC3 and p62, and tight junction (TJ)-related proteins and the signaling pathways in human keratinocytes. Autophagosome/autolysosome formation and distribution of TJ-related proteins was analyzed using immunofluorescence and electron microscopy. AD was induced in normal mice, skin autophagy conditional knockout mice and aryl hydrocarbon receptor (AhR)-suppressed mice to study the mechanism of hBD-3-induced therapeutic effects.

Results: Keratinocyte autophagy was restrained in the skin lesions of patients with AD and various murine models of AD. Interestingly, hBD-3 recovered the interleukin-4- and interleukin-13-mediated impairment of the TJ barrier through keratinocyte autophagy activation. Additionally, hBD-3-mediated autophagy activation was controlled by AhR signaling pathway. While autophagy deficiency impaired epidermal barrier and exacerbated inflammation in AD mice, hBD-3 attenuated skin inflammation and enhanced TJ barrier function in these mice. Importantly, hBD-3-mediated improvement of TJ barrier was abolished in autophagy-deficient AD mice, suggesting a role of hBD-3-mediated autophagy in regulation of epidermal barrier function and inflammation in AD.

Conclusions: Together, autophagy contributes the pathogenesis of AD and hBD-3 could be used for therapeutic purposes.

Keywords: human-β-defensin-3, autophagy, atopic dermatitis, epidermal barrier, inflammation



OP-15

SPATIAL AND SINGLE-CELL TRANSCRIPTOMICS PROVIDE INSIGHTS INTO THE COMPLEX INFLAMMATORY CELL NETWORK IN ATOPIC DERMATITIS

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[5]Department of Biosystems Science and Engineering, ETH Zurich

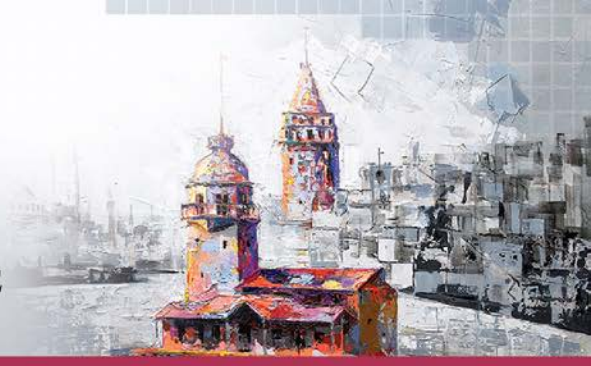
Background: Atopic dermatitis (AD) is a chronic inflammatory skin disease with complex pathogenesis. Recent studies have demonstrated the inflammatory characteristics of the AD skin. However, the detailed information on spatial and neighboring cells is still not fully understood.

Method: We performed Visium spatial transcriptomics sequencing in skin samples from 7 AD patients (lesion and non-lesion) and 6 healthy control (HC) donors. For single-cell analysis, we analyzed the previously published single-cell data from suction blister material from 4 AD lesions and 5 HCs and full-thickness skin biopsies from 4 ADs and 2 HCs. The multiple proximity extension assays were performed in the serum samples from 36 AD patients and 28 HCs.

Result: We identified unique clusters of dendritic cells (DCs), macrophages, fibroblasts, and T cells in the lesional AD skin. Spatial transcriptomics analysis showed the upregulation of COL6A5, COL4A1, TNC, and CCL19 in COL18A1-expressing fibroblasts and the migration of CCR7-expressing DCs in the leukocyte-infiltrated areas in lesions. Additionally, M2 macrophages expressed CCL13 and CCL18 in the same localization. Ligand–receptor interaction analysis identified cellular crosstalk between COL18A1-expressing fibroblasts, CCL13- and CCL18-expressing M2 macrophages, CCR7-expressing DCs, and T cells. As observed in skin lesions, serum levels of TNC and CCL18 were significantly elevated in AD, and correlated with clinical disease severity.

Conclusion: In this study, we showed that unique inflammatory fibroblasts, M2 macrophages, activated DCs, and T cells interact with each other and shape the molecular and cellular characteristics of AD in the leukocyte-infiltrated area in lesions.

Keywords: atopic dermatitis, spatial transcriptomics, single-cell transcriptomics, targeted proteomics



OP-16

THE ROLE OF INVARIANT NATURAL KILLER T CELLS IN CHILDHOOD ATOPIC DERMATITIS

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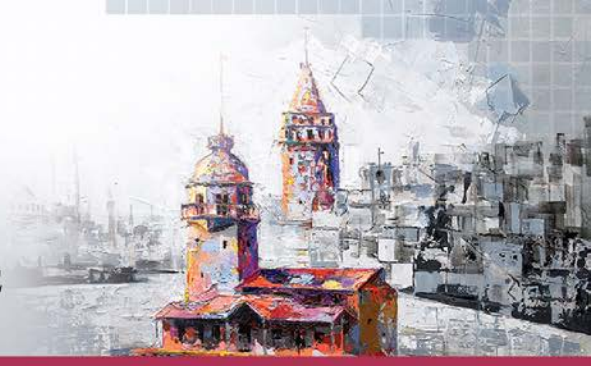
Background and Objectives: Invariant Natural Killer T (iNKT) cells may have an important role in atopic dermatitis (AD) development by forming a bridge between innate and adaptive immune response. The aim of our study was to investigate relationship between peripheral iNKT cells and childhood AD.

Materials-Methods: Twenty-one healthy children and 41 children with AD (19 with food allergies and 16 without food allergy) were included in our study. Invariant natural killer T cells were identified as CD3+Vβ11+6B11+ (CD3+6B11+iNKT) or CD3+Vβ11+Vα24+ (CD3+Vα24+iNKT) cells. Subgroups were identified according to whether they were stained with anti-CD4 and anti-CD8 antibodies (CD4+CD8-, CD4+CD8+, CD4-CD8-, CD4-CD8+).

Results: The rate and number of CD3+Vα24+iNKT were found to be high in healthy children. In the functional study, the percentage of intracellular INFγ-positive cells in total CD3+6B11+iNKT cells or subgroups were decreased in children with AD compared with healthy children. The percentage of intracellular INFγ-positive cells in CD3+Vα24+iNKT cells and in CD4+CD8-, CD4+CD8+, CD4-CD8- subgroups were decreased in children with AD compared with healthy children. The frequency and number of iNKT cells or subgroup of iNKT cells, and the percentage of intracellular INFγ-positive cells in total iNKT cells or subgroups were not associated with food allergy in children with AD.

Conclusions: The results of our study suggest that iNKT cells may play a role in the pathogenesis of AD. iNKT cells were not found to be associated with food allergy in children with AD.

Keywords: Atopic dermatitis, children, food allergy, Invariant Natural Killer T cells



OP-17

BASOPHIL ACTIVATION TEST WITH PATIENTS' SERUM REVEALS DISTINCT PHENOTYPES IN CHRONIC SPONTANEOUS URTICARIA

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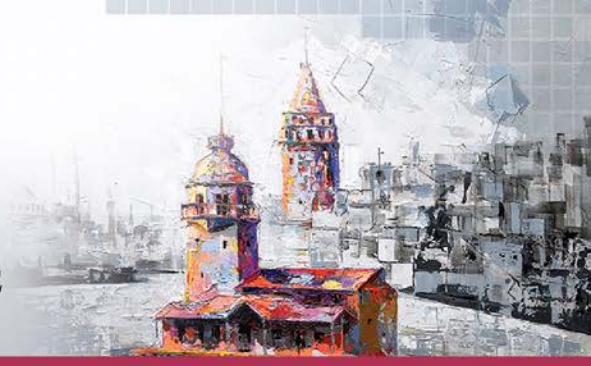
Background and Objectives: Basophils are one of the two important effector cells in Chronic Spontaneous Urticaria (CSU). Our aim was to identify the phenotypes based on the basophil responses and their association with biomarkers in CSU.

Materials-Methods: Three consecutive experiments were performed with blood serums and basophils of patients with CSU and healthy controls. Firstly, patients' serum was incubated with their own whole blood and basophil activation was analyzed with basophil activation test (BAT-P). Secondly, histamine release from healthy basophils upon serum incubation was evaluated with basophil histamine release assay (BHRA). Thirdly, serums incubated with healthy whole blood and basophil activation was analyzed with BAT (BAT-H). The association between these phenotypes and various parameters including autoimmune parameters were investigated.

Results: Forty-eight patients with CSU and six healthy controls were included in this study. The stimulation of healthy basophils (BAT-H) with patients' serum was significantly stronger than stimulation with healthy serums (p:0.026). Furthermore, in BAT-P experimental setup, we observed four distinct groups of basophil phenotypes: 1-Positive self-responders, 2-Negative self-responders, 3-IgE non-responders, 4-Basopenia (Basophils<200 cells in CCR3+ gate). The highest basophil histamine release and basophil activation was observed in basopenia group (p for trend 0.007 and 0.008, respectively). However, the highest anti-TG-IgG and anti-TPO-IgG levels were observed in IgE-non-responder group (p<0.0001 and 0.014).

Conclusions: Different groups, based on self-serum stimulated BAT, show distinct features of CSU, which can be associated with different clinical phenotypes. IgE non-responders have higher thyroid autoantibodies. In contrast, basopenia group shows higher basophil activation and histamine release response.

Keywords: Urticaria, CSU, Basophil, Histamine Release, Autoimmunity, Thyroid antibody



OP-18

CLINICAL VALIDITY OF DRIED BLOOD SPOT ASSAY FOR FUNCTIONAL C1 INHIBITOR MEASUREMENT IN HEREDITARY ANGIOEDEMA

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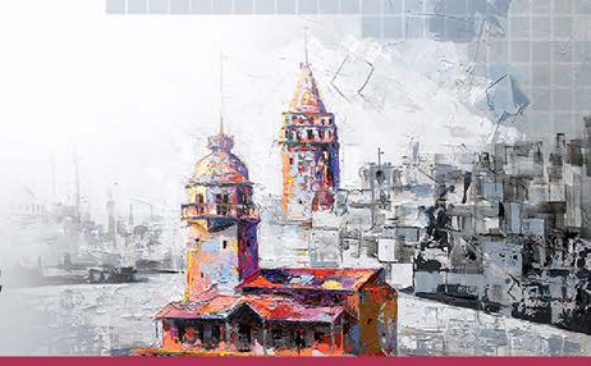
Background: Functional C1 inhibitor (fC1-INH) measurement is critical for diagnosis of hereditary angioedema (HAE). An in-development fC1-INH dried blood spot (DBS) assay allows sample collection without practical limitations of refrigeration or on-site processing; however, its sensitivity and specificity have not been characterized.

Methods: For the DBS assay, whole blood samples from 30 patients with confirmed HAE Type 1/2 and 100 healthy controls were spotted onto blotting paper and dried for ≥3 hours. fC1-INH was measured from DBS via its C1s inhibitory activity using liquid chromatography-mass spectrometry; sensitivity and specificity were evaluated using a negative sample mean-1.96 SD cutoff. fC1-INH ELISA and chromogenic assays were performed by reanalyzing a subset of samples (confirmed HAE: 29; healthy controls: 50).

Results: The fC1-INH DBS assay had a ROC curve with an AUC of 0.996 (95% CI 0.989, 1) and correctly identified samples from 28/30 patients with confirmed HAE (sensitivity 0.93) and 97/100 healthy controls (specificity 0.97). In the sample subset for which ELISA and chromogenic assay data were also available, DBS had a sensitivity of 0.93 and a specificity of 0.98, similar to the fC1-INH ELISA (sensitivity 1.00, specificity 0.98) and fC1-INH chromogenic assays (sensitivity 0.97, specificity 1.00).

Conclusions: The novel DBS assay for fC1-INH measurement demonstrated similar sensitivity and specificity to currently available tests in identifying patients with HAE. DBS may allow more widespread HAE diagnostic testing, especially in underserved areas of the world, due to its easier sample handling and similar results to existing fC1-INH measurement methods.

Keywords: dried blood spot assay, DBS assay, diagnostics, fC1-INH, hereditary angioedema



OP-19

PATIENT REPORTED OUTCOMES DURING LONG-TERM TREATMENT WITH LANADELUMAB IN THE HELP OPEN-LABEL EXTENSION STUDY FOR HEREDITARY ANGIOEDEMA

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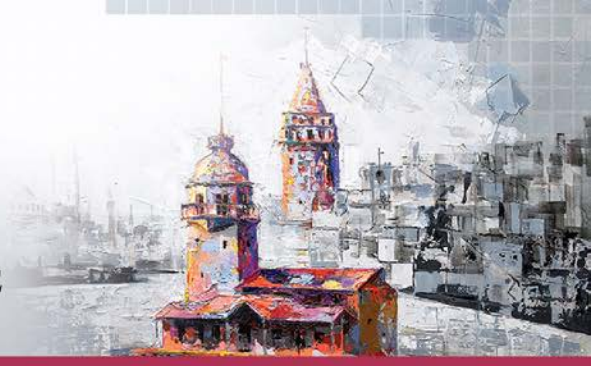
Background: Treatment with lanadelumab 300mg every 2 weeks for up to 33 months during the HELP open-label extension (OLE; NCT02741596) study reduced the rate of hereditary angioedema (HAE) attacks. Patients reported a clinically meaningful improvement in health-related quality of life and satisfaction with the effectiveness of treatment. We report results from the Angioedema Control Test (AECT) and the Hospital Anxiety and Depression Scale (HADS).

Methods: HELP OLE enrolled rollovers (patients who completed the 26-week HELP study; n=109) and nonrollovers (newly enrolled; n=103). HADS was measured starting on day 0, and AECT measurements started at week 52. Patients completed the AECT and HADS assessments every 4–8 weeks until the end of the study (EOS). An AECT total score of ≥10 met the threshold for controlled disease and HADS scores <7 indicated normal levels of anxiety or depression.

Results: At EOS, AECT scores for 90% of rollovers (n=82) and 96% of nonrollovers (n=74) indicated that their HAE was controlled. From weeks 52–EOS, the proportion of patients with AECT total scores ≥10 ranged from 87%–97%. Baseline HADS scores indicated normal to mild anxiety (mean[SD] total anxiety score 6.0[4.0] rollovers, 7.1[4.1] nonrollovers) and normal levels of depression (total depression score 3.0[2.8] rollovers, 3.5[3.1] nonrollovers). A slight decrease in anxiety was reported at EOS (4.6[4.7] rollovers, 4.6[3.9] nonrollovers). Depression scores were stable over the study (2.7[3.6] rollovers, 2.6[3.6] nonrollovers at EOS).

Conclusions: A high proportion of patients reported that their HAE was controlled, and anxiety and depression levels were normal with lanadelumab treatment.

Keywords: hereditary angioedema, patient reported outcomes, lanadelumab, long-term prophylaxis



OP-20

FEATURES OF LABORATORY TESTS IN VIETNAMESE PATIENTS WITH CHRONIC URTICARIA

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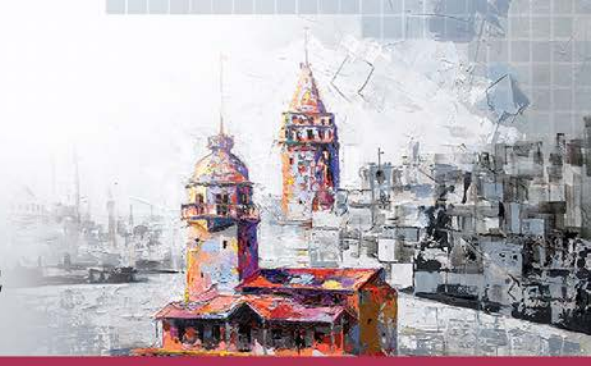
Background: The international guidelines for urticaria management recommend 3 laboratory tests that should be performed to diagnose the etiology of chronic urticaria (CU), including total blood cell count, CRP/ERS, and thyroid hormones. However, the application and usefulness of that recommendation in Vietnamese CU patients were not elucidated.

Materials-Methods: This study aimed to investigate the results of laboratory tests that were commonly indicated for CU patients in Vietnam. Four hundred and two patients with CU were recruited at the Allergy & Clinical Immunology Unit, University Medical Center, Ho Chi Minh City. Clinical characteristics of the CU patients and the results of laboratory tests were analyzed.

Results: Among CU patients, blood cell count (CBC) (93%), liver enzymes (84,8%), and serum total IgE (43.8%) were the most indicated laboratory tests, followed by kidney function test (38.6%), parasite test (37.1%), and urinalysis (25.6%). Only 3.2% of patients performed thyroid function tests and 2.5% of patients performed CRP test. Regarding CBC, 51.8% of patients had abnormal. 34.9% in total patients showed elevated liver enzyme levels. In addition, 51.7% of total patients had an elevated serum total IgE levels (> 100 IU/mL), 74.8% had elevated blood urea nitrogen levels (>20mg/dL), 11.4% were positive for parasite infection, 30.8% had abnormal serum TSH levels, and 15.4% had abnormal serum free-T4 levels.

Conclusion: The common laboratory tests that were performed in Vietnamese CU patients were different from the recommendations of international guidelines and those results seemed not useful in diagnosing the etiologies of CU.

Keywords: Chronic urticaria, laboratory test, University Medical Center, Ho Chi Minh City



OP-21

CHLORIDE INTRACELLULAR CHANNEL 4 INDUCES TISSUE REMODELING VIA ROS SIGNAL PATHWAY IN CHRONIC RHINOSINUSITIS

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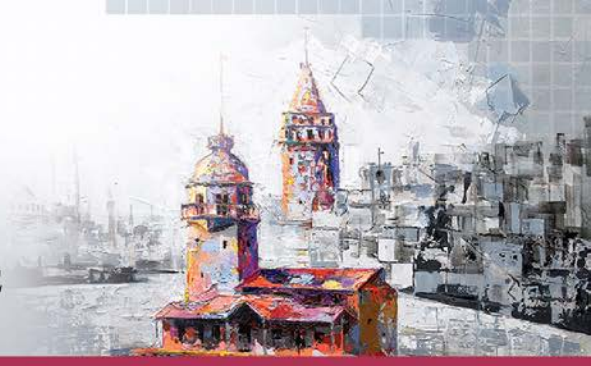
Background And Objective: Chronic rhinosinusitis is characterized by persistent inflammation and remodeling in the sinonasal mucosa. Fibroblast activation plays an important role in this remodeling process. The intracellular chloride channel 4 (CLIC4) is known to mediate the activation of cancer-associated fibroblasts. In this study we investigated the effect of CLIC4 on remodeling of the sinonasal mucosa.

Materials-Methods: CLIC4 expression in mRNA or protein level was investigated in the sinonasal mucosa of chronic rhinosinusitis patients and controls. Sinonasal fibroblasts were incubated and treated with TGF-β1. The expression of CLIC4, α-SMA, collagen type I, and fibronectin was determined by a real-time PCR, or western blotting. The reactive oxygen species (ROS) expression was determined using 2′,7′-dichlorofluorescein-diacetate or Mitosox Red fluorescence. Fibroblast migration was evaluated using the Transwell migration assay and the contractile activity was measured by using the collagen contraction assay.

Results: CLIC4 expression level was significantly increased in the sinonasal mucosa compared to the control. TGF-β1 treatment significantly induced CICL4, myofibroblast differentiation (α-SMA) and extracellular matrix (collagen type I, fibronectin) production in the fibroblasts. Blocking of CICL4 expression with siRNA reduced the myofibroblast differentiation and ECM production, migration, and contractile activity. TGF-β1 also increased the amount of ROS production, whereas pretreatment with ROS scavenger significantly decreased the level of CICL4 expression, myofibroblast differentiation and ECM production, migration, and collagen contraction.

Conclusions: CLIC4 plays an important role in TGF-β1-induced myofibroblast differentiation, extracellular matrix production, migration, and contractile activity through the ROS signaling pathway, which contributes to tissue remodeling in chronic rhinosinusitis.

Keywords: Chronic rhinosinusitis, chloride intracellular channel, tissue remodeling



OP-22

Effect of advanced glycation end products (AGEs) and the specific IgE Anti-AGEs on allergic rhinitis and its severity

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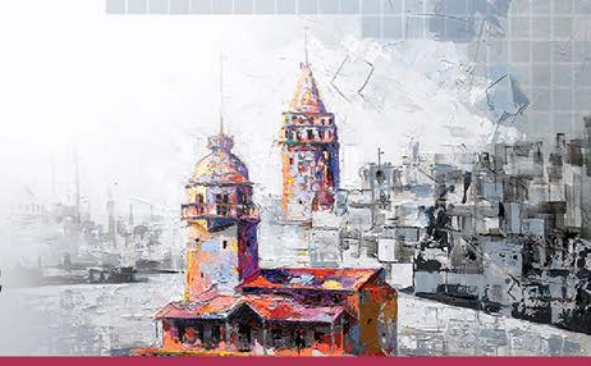
Background and Objectives: advanced glycation end products (AGEs) have been implicated in several non-transmissible chronic and metabolic diseases. However, the role in allergic diseases is not clear. Through a case-control study, we explored the relationship of serum levels of AGE and anti-AGE IgE with the allergic rhinitis (AR) and its severity.

Materials-Methods: one hundred forty cases (4-70 years) of patients with allergic rhinitis (70 with mild AR and 70 with moderate-severe AR) and 60 controls were selected (ARIA 2008). Fluorescent and non-fluorescent AGE levels in serum were measured through spectrofluorometry and ELISA (MyBioSourceTM), respectively, as well as anti-AGEs IgE by ELISA. The data was analyzed with the Mann-Whitney, Kruskal Wallis and Spearman correlation tests.

Results: sera fluorescent, non-fluorescent AGEs, and Anti-AGEs-IgE levels were significantly higher in patients with AR than in controls (409±70AU/g protein vs 370±22AU/g protein, p=<0.0001; 176±66 ng/mL vs 151±27 ng/mL, p=0.003; OD:0,169 vs 0,140, p=0.0019), respectively. However, no significatively differences were observed in AGEs and Anti-AGEs IgE related with severity.

Conclusions: The levels of non-fluorescent and fluorescent AGEs, and also Anti-AGEs-IgE were significantly higher in RA patients, suggesting a possible involvement of the AGEs in allergic diseases such as AR.

Keywords: Advanced Glycation End-Products (AGEs), Allergic rhinitis (AR), Anti-AGEs-IgE



OP-23

SENSITIZATION TO S. AUREUS SPLA PROTEINASE IN PATIENTS WITH ALLERGIC RHINITIS

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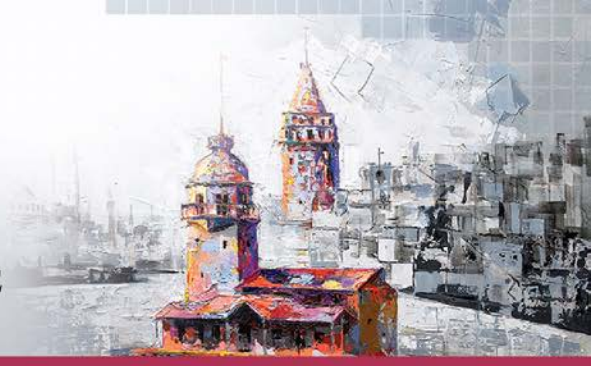
Background and objectives: The allergenic properties of proteins from the group of S.aureus serine Spl-proteinases in patients with allergic diseases of the upper respiratory tract were studied.

Materials and Methods: Patients with allergic rhinitis (AR). Bacteriological examination of nasal mucosa. Preparation and purification of recombinant S. aureus SplA proteinase (producer of E. coli). Determination of specific IgE to SplA S. aureus was carried out by enzyme immunoassay. The production of cytokines by peripheral blood mononuclear cells was determined by enzyme immunoassay.

Results: In patients with perennial and seasonal AR, specific binding of IgE antibodies to S. aureus secretome proteins identified as S. aureus Spl-proteinase was revealed. Titer of specific IgE antibodies to S. aureus rSplA proteinase in seasonal AR in children older than 7 years and adults was more than 4 times higher than in children under 7 years of age. Stimulation of the peripheral blood MC culture of patients with AR with recombinant Spl-proteinase produced predominantly Th2 cytokines (IL-13, IL-5, IL-4), in contrast to stimulation of these cells with protein A of S. aureus, where the production of predominantly Th1 cytokines was noted (IL1, IL10).

Conclusions: Patients with AR were found to be sensitized to S. aureus Spl proteinases, confirmed by the presence of IgE antibodies to SplA and production by peripheral blood mononuclear cells during stimulation of SplA predominantly of Th2 profile cytokines.

Keywords: allergic rhinitis, SplA-proteinase, sensitization



OP-24

IS CHRONIC RHINOSINUSITIS OF PATIENTS RECEIVING BIOLOGICAL TREATMENT FOR SEVERE ASTHMA UNDER CONTROL?- SINGLE CENTER REAL-LIFE DATA

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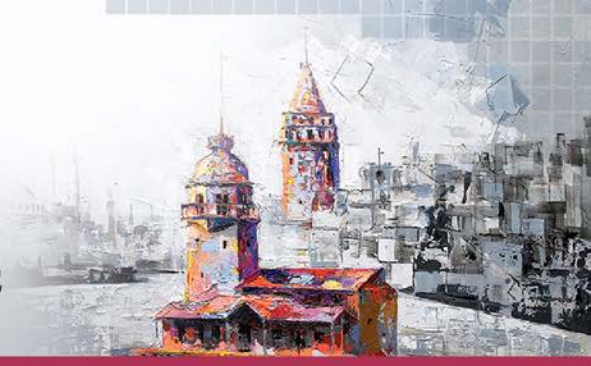
Background and objective: Chronic rhinosinusitis (CRS) is an important comorbidy of severe asthma. In this study we aimed to determine the frequency and types of CRS in severe asthma patients receiving biological treatment and to evaluate CRS control status cross-sectionally.

Materials and Methods: Patients with severe asthma who had been on biologicals for more than 6 months were included. CRS diagnosis and control status was determined according to European Position Paper on Rhinosinusitis and Nasal Polyps 2020. The patients were evaluated as CRS with nasal polyps (CRSwNP) and without polyps (CRSsNP), based on nasal endoscopy and computed tomography reports.

Results: Among 148 severe asthma patients, 97 (65.5%) were diagnosed as CRS (67F/30M, mean age: 48.7±13.3 years). Sixty eight (70.1%) patients had CRSwNP and 29 (29.9%) had CRSsNP. Fifty four (55.6%) patients were on omalizumab, 43 (44.3%) were on mepolizumab treatment. CRS was controlled, partly controlled and uncontrolled in 32 (32.9%), 35 (36%) and 30 (30.9%) patients, respectively. There was no difference in control neither between the omalizumab and mepolizumab groups, nor between CRSwNP and CRSsNP groups. Early-onset asthma was significantly more common in the controlled group ($p<0.001$). Uncontrolled CRS tend to be higher in those with house dust sensitivity ($p=0.07$) and comorbid NERD ($p=0.06$). The median BMI of the uncontrolled group was significantly higher ($p=0.014$).

Conclusions: Our results demonstrate that biologicals has an impact on accompanying CRS symptoms in severe asthma patients and two-thirds of the patients with CRS are in a controlled or partly controlled state under biological treatment.

Keywords: rhinosinusitis, severe asthma, biologicals



OP-25

Associations between occupational exposures and current eczema in adults

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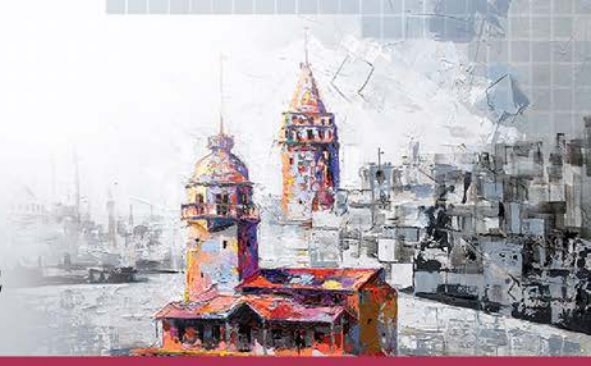
Background and Objectives: Exposures in the workplace may act as environmental risk factors for adult eczema but the evidence available is limited. We aimed to investigate these associations in middle-aged adults.

Materials-Methods: A lifetime work history calendar was collected from participants of the Tasmanian Longitudinal Health Study, when they were 53-years old. We used the Occupational Asthma Job Exposure Matrix to determine current (current job, n=2328) and cumulative (lifetime, n=2934) occupational exposures. Current eczema (in the last 12-months) was determined using the International Study of Asthma and Allergies in Childhood definition. Skin prick test positivity was used to subgroup into atopic eczema (AE) and non-atopic eczema (NAE). Logistic and multinomial regression models were used.

Results: Cumulative exposure to mould was associated with an increased odds of current eczema (Odds ratio *OR*:1.08 [95%CI:1.00-1.18] per 5 years exposure-equivalent), cumulative metal working fluids exposure increased the risk of NAE (OR:1.11, 95%CI: 1.01-1.23). Likewise, current occupational exposure to animals (OR: 2.88 [95%CI 1.34-6.22]), storage mites (OR:2.78 [95%CI 1.29-5.99]) and endotoxin (OR: 1.96 [95%CI 1.05-3.66]) were associated with increased risk of current eczema. Furthermore, current exposure to animals (OR:5.33 [95%CI 1.37-20.7]) and storage mites (OR:5.39 [95%CI:1.39-20.9]) was associated with increased risk of NAE, Current exposure to acrylates (OR:8.04 [95%CI:1.5-24.8]) and isocyanates (OR: 4.65 [95%CI 1.04-21.4]) was associated with increased the odds of AE.

Conclusions: Our findings suggested that several occupational exposures were associated with greater risk of current eczema in middle aged adults. Limiting workplace exposures may reduce burden of eczema in adults.

Keywords: occupational, eczema, adults, workplace



OP-26

EFFECT OF DIESEL EXHAUST PARTICLES AND ENGINEERED NANOPARTICLES ON THE EXPRESSION OF GENES RELATED TO OXIDATIVE STRESS IN AIRWAY EPITHELIAL CELLS

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Background and Objectives: Studies suggest that diesel exhaust particles (DEP) and engineered nanoparticles (NP) induce oxidative stress at cellular levels that may play role in the pathogenesis of airway diseases including asthma. Our aim was to investigate effects of DEP and NP on the expression of oxidative stress related genes in bronchial epithelial cells (BEAS-2B) in a dose and time-dependent manner.

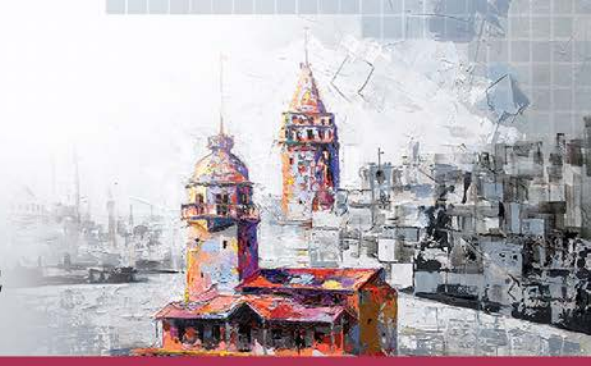
Materials-Methods: BEAS-2B cell cultures were incubated with DEP, titanium dioxide (TiO_2) and multiwalled carbon nanotubes (MWCNT) at concentrations of 0-100 µg/ml for 6, 24 and 48 hours. mRNA expression of oxidative stress related genes (*GCLC* and *CYP1B1*) was analyzed by qRT-PCR. Ct of target genes were normalized by *GAPDH*, and the fold changes of gene expression between groups were calculated according to the 2^-(ΔΔCt) method.

Results: DEP significantly increased expression of *GCLC* at concentrations of 50 (medians=2.64 vs 0.99-fold change; $p<0.05$) and 100 µg/ml (medians=3.25 vs 0.99-fold change; $p<0.01$) at T6hrs. Similarly, 10 (medians=4.10 vs 0.91-fold change; $p<0.05$) and 50 µg/ml (medians=5.56 vs 0.91-fold change; $p<0.001$) DEP induced expression of *CYP1B1* at T6hrs. Expression of both genes was also induced by DEP (10-100µg/ml) at T24 and T48hrs. TiO_2 led to a significant expression of *GCLC* ($p<0.01$) and *CYP1B1* ($p<0.05$) at T6 and T24hrs, respectively. MWCNT (50µg/ml) also induced expression of *GCLC* at T6hrs.

Conclusions: Our findings suggest that DEP and NP may play a role in the pathogenesis of allergic airway diseases by inducing the expression of oxidative stress related genes.

*This study was supported by KUTTAM, Istanbul, Turkey.

Keywords: Bronchial epithelial cells, BEAS-2B, Oxidative stress, Diesel exhaust particles, Engineered nanoparticles



OP-27

THE IMPACT OF AMBIENT AIR POLLUTION ON LUNG FUNCTION AND RESPIRATORY SYMPTOMS IN ELITE ATHLETES

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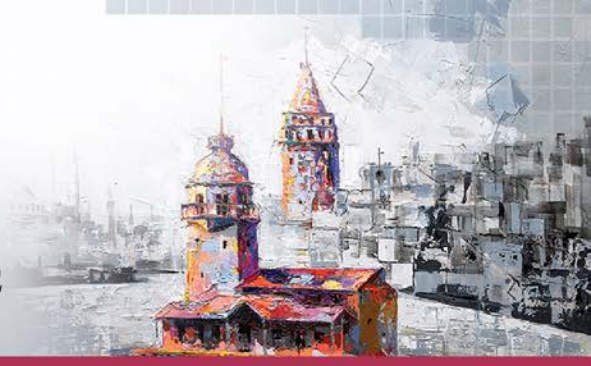
Backgroud: Air pollution has become a significant public health concern. During exercise, many physiological factors are thought to increase the effects of air pollution. Air pollution most affects lung function and respiratory symptoms. We investigated the association between lung function, respiratory symptoms, and air pollutant concentration with meteorological factors in elite sports athletes.

Methods: A total of 59 elite sports athletes participated from September 2019 to June 2020. At ten visits, lung function and respiratory symptoms were obtained after a training session. Air pollutants and meteorological factors were measured by a national air pollution information system.

Results: In a single-pollutant model, PM2.5, PM10, NO2, and CO were inversely associated with both FEV1 and FEV6, 10 ug/m3 in PM2.5 was associated with a 32.31 ml decrease in FEV1 and a 36.93 ml decrease in FEV6. Meanwhile, O3 and temperature had positive associations with both FEV1 and FEV6, and humidity with FEV6. In the multi-pollutant model at lag 0, FEV1 was associated negatively with O3 and NO2 and positively with SO2 and temperature. In the multi-pollutant model at lag 6, temperature was associated with FEV1 and FEV6. PM2.5, PM10, NO2, CO, and temperature were significantly associated with FEV1 and FEV6 through lag 0-6. Increases in SO2, CO, and NO2 concentrations were associated with increased respiratory symptoms.

Conclusions: Air pollutants and meteorological factors are associated with lung function and respiratory symptoms and have cumulative effects among elite athletes. In the multi-pollutant model, temperature has the most significant effect on lung function.

Keywords: Air pollution, Lung function, Respiratory symptoms, Elite athletes



OP-28

PERSONAL EXPOSURE TO PM2.5 IMPACT CHILDHOOD LUNG FUNCTION AND AIRWAY INFLAMMATION

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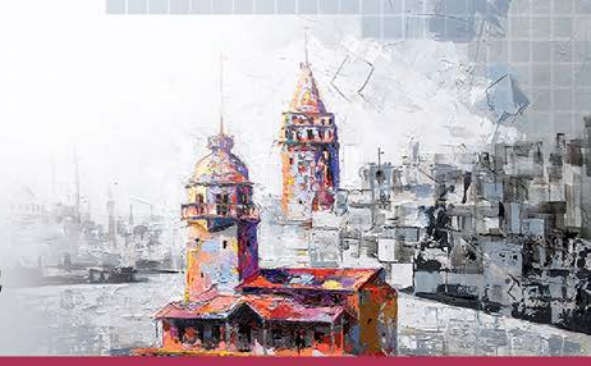
Background: PM2.5 exposure is associated with asthma and lung function in children. There have been limited studies that monitored indoor and individual level of PM2.5. We estimated the personal exposure to PM2.5 and evaluated its effect on childhood lung function and airway inflammation.

Methods: This study is based on a prospective panel study design drawn from the COCOA birth cohort. Lung function and fractional exhaled nitric oxide (FeNO) were measured twice over a year in 182 school children. IoT-based PM2.5 measuring devices were installed in the participants' homes throughout the study period. The participants carried portable PM2.5 measuring device with GPS for 24 hours and recorded all their activities in a time-activity diary every three months. The association with PM2.5 exposure and change of lung function and FeNO over a year was evaluated using logistic regression analysis.

Results: Higher indoor PM2.5 decreased FEV1 (aOR 2.63, 95% CI 1.12-6.15), FEV1/FVC (aOR 2.32, 95% CI 1.02-5.31) and FEF 25%-75% (aOR 2.37, 95% CI 1.01-5.53) and increased FeNO (aOR 2.46, 95% CI 1.01-5.99). Higher PM2.5 exposure along with individual time-activity data decreased FEV1 (aOR 2.64, 95% CI 1.14-6.11), FEV1/FVC (aOR 2.40, 95% CI 1.06-5.44) and FEF 25%-75% (aOR 2.41, 95% CI 1.04-5.58) and increased FeNO (aOR 2.42, 95% CI 1.00-5.85). Significant decrease in FEV1 was found in children with sensitization and with lower FEV1 at first spirometry.

Conclusion: Our findings suggest the importance of reducing personal exposure to PM2.5 for children's respiratory health, especially in children with sensitization and with lower lung function.

Keywords: PM2.5, lung function, airway inflammation, children



OP-29

INNATE IMMUNITY IS THE BASIS OF SENSITIVITY AND RESISTANCE TO COVID-19 INFECTION

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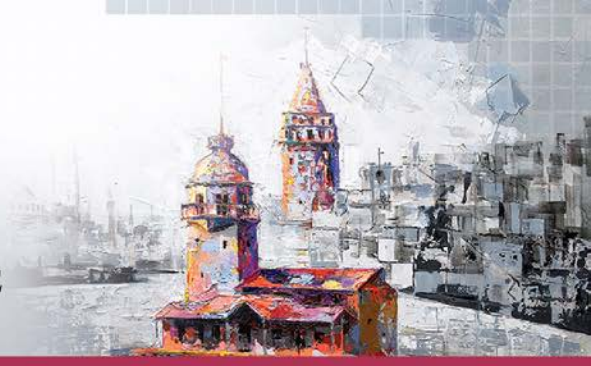
The mucosal immune system is a component of the immune system(SI) that has evolved to protect the main sites of infection.SARS-CoV-2 detects the appearance of cases of URTdevelopment, which should be considered when mucosal inflammation of the lungs occurs, both during the inductive and during the effector phases.

Aim: to study of the main cytokines IL-1, IL-4, IFNα, IFNγ, sIgA in the oral fluid (OF) in patients in different clinical groups Covid-19.

During 3 waves of COVID-19, the main clinical phenotypes have been identified.86 patients with symptoms were examined to determine the main biomarkers in the OF.In the first group (n = 34), the patients - contacts and/or asymptomatic forms.The 2group (n =22)with mild disease, third group (n=30) with a pneumonia. The dynamics of coronavirus manifestations, levels of IFNα, IFNγ, sIgA,IL-1,IL-4 in OF were evaluated. In the group of contacts/asymptomatic phenotype, the levels of IFNα,IL-1 in OF,which provide antiviral protection, are higher ($p<0.001$).High levels of IgA, IL-4 determine the high risk of developing pneumonia (more older patients, smoke).The levels of IFNγ did not differ in groups ($p>0.05$). The data obtained indicate that in the group of patients who underwent Covid-19 infection with a clinic of pneumonia, there are signs of a lack of first-line protection factors in the form of instability to viral (low production of interferons,IL-1) invasion at the local level. It was found that the development of a severe of coronavirus against the background of interferon deficiency increases the risk of developing a severe of the disease by 2.3 times ($\chi2=4.44$, $p=0.0353$,OR=2.3)

Keywords: COVID-19,mucosal immune,biomarkers



OP-30

EARLY PREDICTION OF COVID-19 SEVERITY AND ITS IMMUNE AND VIRAL CORRELATES IN NON-VACCINATED VERSUS VACCINE-BREAKTHROUGH PATIENTS

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Background and Objectives: Vaccination against SARS-CoV-2 does not ensure protection from infection, but usually prevents severe COVID-19 disease. We compared previously non-vaccinated versus non-omicron vaccine-breakthrough patients to identify early predictors of severity and correlates of vaccine protection from severe disease.

Methods: Patients (N=180) were recruited early (within 7 days post symptoms onset) after SARS-CoV-2 infection. Cytokines levels, antibody titers and SARS-CoV-2 viral load were longitudinally measured. PBMC were analyzed by Elispot, intra-cellular-staining cytometry, and single-cell Cytof, after stimulation with Spike or NucleoCapsid peptides.

Results: In non-vaccinated, two cytokine combinations accurately (>95%) predicted either symptoms severity, mainly by type-I-interferon and IL-17, or risk of hospitalization, by ratio of type-I-interferon to inflammatory cytokine levels.

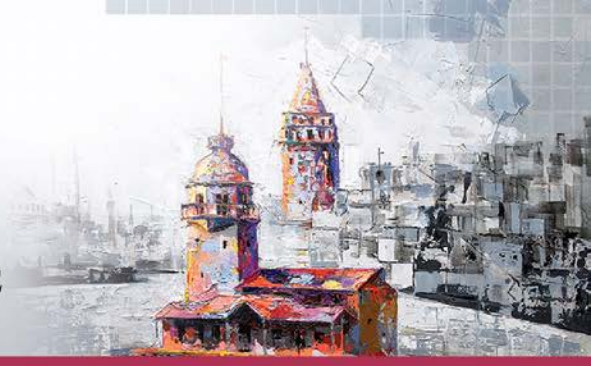
In vaccine-breakthroughs, antibody and T-cell response against Spike were higher and earlier, while responses to NucleoCapsid antigen were lower and later, than in non-vaccinated. Stronger anti-Spike T-cell response was correlated with lower viral loads and less severe symptoms.

Interestingly, the cytokine profile in vaccine-breakthroughs was significantly skewed towards that of asymptomatic non-vaccinated and associated with symptoms severity.

Single cell Cytof and intra-cellular-staining cytometry shows that the predicative cytokine profiles are correlated with SARS-CoV-2-specific anti-Spike CD4 and CD8 counts.

Conclusions: COVID-19 severity can be accurately predicted, both in non-vaccinated and in vaccine-breakthroughs, as early as 7 days post symptoms, which is important for guiding personalized treatment. Lower disease severity in vaccine-breakthroughs is associated with a different cytokine profile than in non-vaccinated patients, in correlation with SARS-CoV-2-specific T-cell response, which is important for guiding future vaccine development.

Keywords: COVID-19, SARS-CoV-2, Prediction, Inflammatory Cytokines, Type-I Interferon, Single Cell Analysis.



OP-31

AMBULANT CARE OF LONG-COVID PATIENTS

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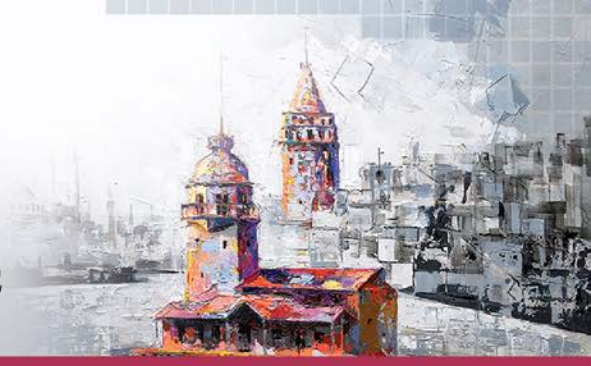
Background and Objectives: Long-COVID syndrome (LCS) presenting with various symptoms in 14% of children after the acute condition associated with the SARS-CoV-2 virus causes a significant challenge to the health care system. In 50% of patients, only one symptom persists, but the multisymptomatic disease is also frequent. Due to the diversified, often independent complaints, we aimed to build a multidisciplinary approach in the outpatient care of LCS.

Materials-Methods: In the two pediatric departments of Semmelweis University, we use the same internal guideline for LCS patient care, although, there is no available international treatment recommendation. From June 2021, 206 children presented at our long-COVID outpatient unit.

Results: The sex ratio was equal, and the presentation of children above the age of 10 was predominant. The most frequent symptoms were fatigue, loss of taste or smell, abdominal issues, cough and drowning. A screening spirometry was carried out at all patients above the age of 5, and abnormal values were seen in 10%. Headaches and dizziness led to thorough neurological examination in one third of the patients. In certain cases, this resulted in the diagnosis of migraine, polyradiculopathy, vestibular neuritis or multiple sclerosis. Gastroenterological examination was necessary in less than 10% of patients. Rarely, an endocrinological examination was also needed, this way, diabetes mellitus was diagnosed in one case.

Conclusions: Based on our 1-year experience, the extensive examination and specific treatment of children with LCS is of raised importance, which is not feasible without the cooperation of distinct specialists.

Keywords: long-COVID, outpatient care, multidisciplinary



OP-32

NOVEL BIOMARKERS OF DISRUPTED GUT PERMEABILITY IN SEVERE COVID-19 PATIENTS

Ismail Ogulur[1], Duygu Yazici[1], Eren Cagan[2], Tamer Aydin[1], Ozan C. Kucukkase[1], Manru Li[1], Evan Do[1], Abdurrahman Simsek[2], Muhammed Ali Kizmaz[2], Tugce Bozkurt[2], Mubeccel Akdis[1], Kari Nadeau[3], Ferah Budak[2], Cezmi A. Akdis[1]
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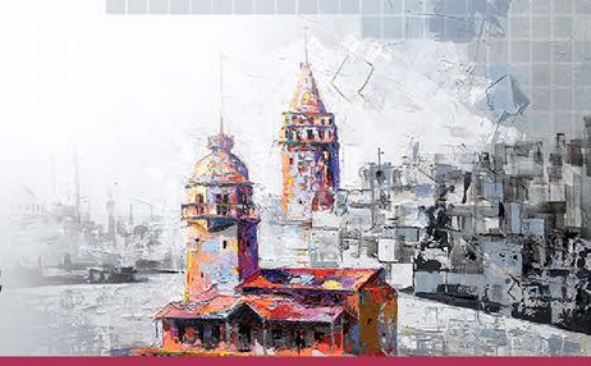
Background And Objective: Although coronavirus disease 2019 (COVID-19) is primarily a respiratory infection, mounting evidence suggests that the gastrointestinal tract is involved in the disease, with gut barrier dysfunction and gut microbiota alterations. We designed this study to examine whether severe COVID-19 is associated with novel biomarkers of gut barrier dysfunction.

Methods: Serum samples were collected from 327 COVID-19 patients (43 mild, 187 moderate and 98 severe) and 49 healthy-controls at the time of admission. Levels of zonulin-family-peptides (ZFP) and bacterial DNA were determined. Additionally, 180 circulating biomarkers were assessed by using proximity extension assay (OLINK) targeted proteomics.

Results: Compared with healthy-controls, all COVID-19 patient groups including mild ($P < 0.001$), moderate ($P < 0.001$) and severe ($P < 0.001$) had significantly increased levels of circulating ZFP. We also detected that levels of circulating bacterial DNA were significantly elevated in severe COVID-19 patients compared with healthy-controls ($P < 0.001$), with mild COVID-19 patients ($P < 0.001$) and with moderate COVID-19 patients ($P < 0.001$). Interestingly, there was no correlation between the levels of circulating bacterial DNA and ZFP in COVID-19 patients. We defined 37 proteins as potential biomarkers in COVID-19 severity. When we analyzed patients with lymphopenia, it was found that severe COVID-19 is associated with higher levels of bacterial DNA and markers of AREG and CLEC4C.

Conclusion: Our results demonstrate that changes in blood proteins associated with disease severity and levels of ZFP and bacterial DNA can potentially be used as early biomarkers to predict severe COVID-19 patients.

Keywords: COVID-19, gut barrier disfunction, ZFP, bacterial DNA, proteomics



OP-33

EXPOSURE TO AVIAN CORONAVIRUS VACCINES IS ASSOCIATED WITH INCREASED LEVELS OF SARS-COV-2-CROSS-REACTIVE ANTIBODIES

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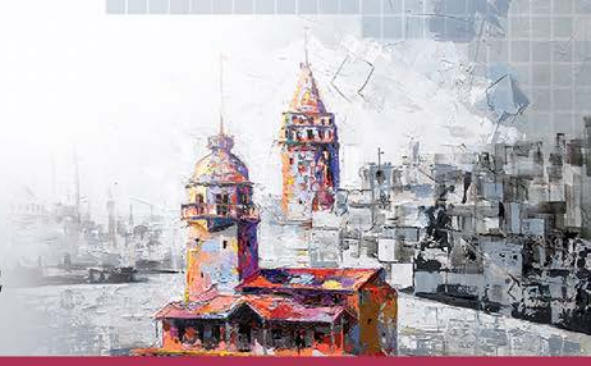
Background and Objectives: Avian coronavirus infectious bronchitis virus (IBV) and SARS-CoV-2, which are different genera of the Coronaviridae family, share homologous epitopes. We hypothesized that exposure to IBV in vaccine implementers and poultry workers who are occupationally exposed to aerosolized IBV live attenuated vaccines may result in the development of cross-reactive antibodies to SARS-CoV-2.

Materials-Methods: Sera from poultry farm personnel, COVID-19 patients, and pre-pandemic controls were tested by in-house ELISAs for IgG levels against the SARS-CoV-2 antigens S1, RBD, S2, and N and peptides corresponding to the SARS-CoV-2 ORF3a, N, and S proteins as well as whole virus antigens of the four major S1-genotypes 4/91, IS/1494/06, M41, and D274 of IBV. Moreover, the live-virus neutralization test was performed.

Results: We observed elevated levels of IgG against all tested SARS-CoV-2 antigens and IBV strains in a subgroup of poultry farm personnel compared to pre-pandemic controls. We found IBV-specific IgG in poultry farm personnel, COVID-19 patients, and pre-pandemic controls. There was a strong correlation between IBV-specific IgG and SARS-CoV-2 S1-, RBD-, S2-, and N-specific IgG in poultry farm personnel compared to pre-pandemic controls and COVID-19 patients. Regarding the work experience of vaccine implementers, antibody titers were higher in long-term employees. There was no neutralization for cross-reactive antibodies from the subgroup of poultry farm personnel.

Conclusions: Here we report for the first time the quantitative detection of cross-reactive IgG antibodies against SARS-CoV-2 antigens in humans exposed to aerosolized IBV vaccines. The present results extend the current understanding of the cross-reactivity of SARS-CoV-2 with other coronaviruses.

Keywords: COVID-19, cross-reactivity, IBV, neutralization, SARS-CoV-2



OP-34

EXPRESSION PROFILES OF INNATE LYMPHOID CELL SUBSETS FROM COVID RECOVERED PARTICIPANTS

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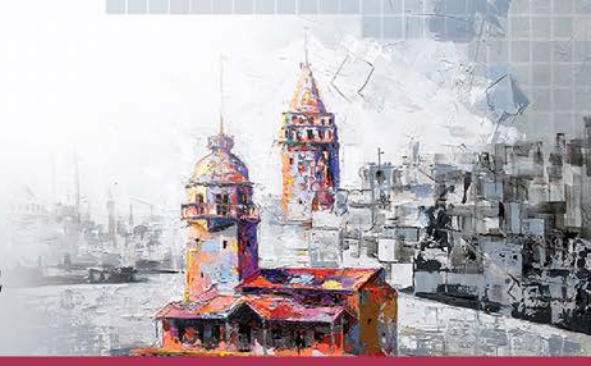
Introduction: Patients hospitalized with severe COVID-19 have a lower amount of Innate Lymphoid Cells (ILCs) than healthy individuals. However, more specifically, a higher ILC count occurred in acute COVID-19 patients with mild/moderate symptoms vs. those with severe symptoms. Therefore, we hypothesized that the frequency of ILCs would continue to be significantly lower in COVID-19 patients vs health controls even up to 72 days post diagnosis (by RT-PCR). Furthermore, we hypothesized that the extent of immune function impairment in all subsets of ILC (1/2/3) would differ between COVID-19 patients vs health controls.

Method: Blood samples of COVID-19 participants were collected up to 72 days post RT-PCR test (n=22). Age matched healthy samples were collected before 2020 (n=26). Abseq/scRNA with BD Rhapsody/NovaSeq, in addition to flow cytometry, were performed on enriched ILC populations +/- PMA-Iono stimulation. Differential Expression analysis of transcripts was performed for COVID-19 vs health ILCs (q <0.1).

Results: We detected all ILC subsets in samples collected 9-72 days post RT-PCR diagnosis for COVID-19 patients. All ILC subsets in COVID-19 were affected. Across all ILC subsets, there was lower expression of SELL and FAM65B. Both are associated with cell migration and adhesion. There was higher expression of IL4R in all ILC subsets of COVID-19 patients vs. healthy controls.

Conclusion: These data demonstrate the differential gene expression profiles of ILCs and that the frequency of ILCs continues to be significantly lower up to 72 days post diagnosis in COVID-19 vs healthy individuals.

Keywords: ILC, Covid-19, innate lymphoid cell



OP-35

NON-IMMEDIATE ADVERSE REACTIONS DURING THE FIRST THREE YEARS OF ORAL IMMUNOTHERAPY FOR FOOD ALLERGY

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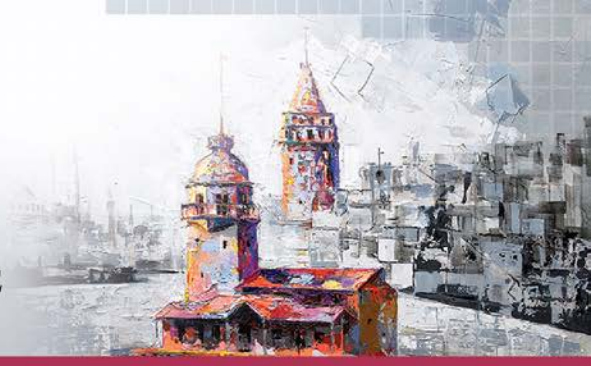
Background and Objectives: Although oral immunotherapy (OIT) is a promising treatment, OIT induces various adverse reactions (ARs). Some have reported eosinophilic gastrointestinal disorders during OIT; however, no studies have focused on non-immediate ARs, including other diseases. We aimed to evaluate the non-immediate ARs during OIT.

Materials-Methods: Medical records from patients who initiated OIT from January 2009 to December 2018 and followed up for 3 years in our hospital were retrospectively reviewed. Non-immediate ARs were defined as persistent or recurrent symptoms that appeared unrelated temporally to dosage administration and required OIT intake reduction or discontinuation.

Results: Of the 644 patients included, 436 (68%) were males and 306 (48%) had atopic dermatitis (AD). The median age was 7.8 years. In the 3 years, 15 patients (2.3%) had non-immediate ARs; three patients (0.5%) had exacerbation of AD and 12 patients (1.9%) had gastrointestinal symptoms (diarrhea and/or abdominal pain). Five patients underwent endoscopy and three (0.5%) patients were diagnosed with eosinophilic colitis. The median onset of AD exacerbations was 2 weeks (range; 1 day to 12 weeks) after OIT induction, and the median onset of gastrointestinal symptoms was 11 weeks (range; 1 day to 132 weeks). In nine of the 12 patients with gastrointestinal symptoms, these symptoms developed within 6 months.

Conclusions: During OIT, cutaneous and gastrointestinal symptoms were observed as non-immediate ARs. Cutaneous symptoms should be noted within 12 weeks after induction. Contrastingly, the onset of gastrointestinal symptoms was concentrated within 6 months; however, they could develop after one year.

Keywords: oral immunotherapy, food allergy, non-immediate adverse reaction, atopic dermatitis, eosinophilic gastrointestinal disorders, eosinophilic colitis



OP-36

THE EFFECTIVENESS OF ORAL IMMUNOTHERAPY IN PATIENTS WITH SESAME ANAPHYLAXIS USING OMALIZUMAB

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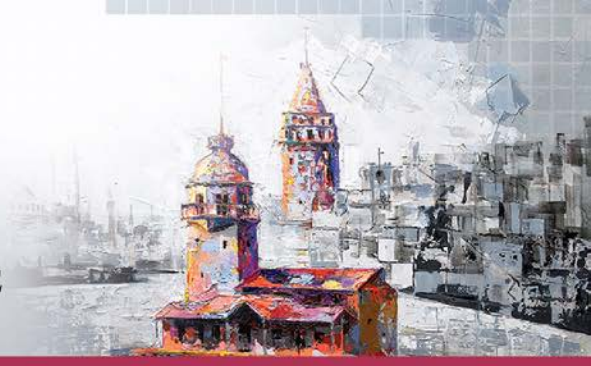
Objective: Sesame allergy is the most prevalent allergy to seeds. Oral immunotherapy (OIT) is defined as continuous consumption of an allergen at special doses and time. Omalizumab (Anti-IgE) increases tolerance to allergens used in OIT. This study evaluated the effectiveness of a new sesame OIT protocol in patients with sesame anaphylaxis in combination with omalizumab.

Methods: In this prospective open-label interventional trial study, 11 patients with a history of sesame anaphylaxis were enrolled after approval by Oral Food Challenge (OFC) test. At baseline, skin prick test (SPT) and skin prick to prick (SPP) test were performed. Serum sesame-specific IgE (sIgE) levels were measured. The maintenance phase was continued at home with daily sesame intake for 4 months. At the end of month 4, the OFC and above-mentioned tests were repeated to evaluate the treatment effectiveness.

Results: All 11 patients who underwent sesame OIT after 4 months could tolerate a dietary challenge of 22 ml tahini (natural sesame seed, equal to 5,000 mg of sesame protein and higher) and the average of wheal diameter in the SPT and SPP tests significantly decreased after desensitization.

Conclusion: This OIT protocol may be a promising desensitization strategy for patients with sesame anaphylaxis. Also, omalizumab obviously reduced the severity of reactions

Keywords: Oral Immunotherapy, Desensitization, Sesame anaphylaxis, Oral food challenge, Omalizumab



OP-37

IgE IMMUNOAPHERESIS FOR THE TREATMENT OF MULTIPLE FOOD – INDUCED SEVERE ANAPHYLAXIS: OUR CASE SERIES

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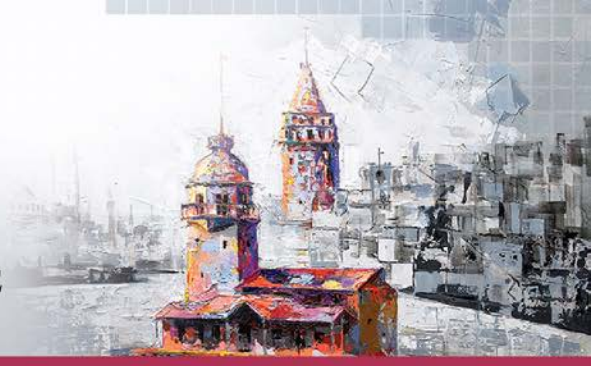
Background and Objectives: Children with severe food allergy may present high risk of fatal anaphylaxis and a highly impaired quality of life. Omalizumab has been shown to be a promising approach as monotherapy for severe allergy to multiple foods. However, very high serum total IgE levels may limit its use. This study aims to assess the efficacy of selective IgE-immunoadsorption (IgE-IA) on total IgE levels and threshold of reactivity to the culprit foods in children with history of severe anaphylaxis due to multiple foods and allergic comorbidities.

Methods: In this single-center, prospective, open-label efficacy study we evaluated children with severe asthma, allergy to 2+foods and total IgE levels >2,300 kUI/L. To establish the food reactivity threshold, each patient underwent oral food challenges (OFCs) before and after IgE-IA.

Results: Five patients (4 males; age, 10.9±5 years, mean±SD), underwent an average of three (range 2–5) sessions of IgE-IA. Each session reduced IgE levels by a mean of 1,958.87 kUI/L. After the IgE-IA cycle, serum total IgE dropped from 3,948±1,652.7 (mean±SD) to 360.8±71.89 kUI/L (-10.94 folds; p=0.01). The threshold of reactivity (No Observed Adverse Effect Level, NOAEL) tested at OFCs for the culprit foods (4baked-milk+2baked-egg+1lentil+2hazelnut+1wheat) increased overall from 21.51 (median, IQR 1.49-82.62) protein milligrams to 1,114.99 (837.2-4,222.8) milligrams (p<.001), ie. up to 51.8 times higher than baseline. 8/10 OFCs were negative after IgE-IA.

Conclusions: IgE-IA increased food threshold quickly. It can be considered in well-selected patients with severe food allergies and high IgE-levels especially if otherwise eligible to anti–IgE treatments.

Keywords: Children, total IgE, IgE-immunoadsorption, omalizumab, severe food allergy, anti-IgE treatment



OP-38

THE UTILITY OF MULTIPLEX COMPONENT TESTING FOR PEANUT REACTIVITY IN TURKISH CHILDREN

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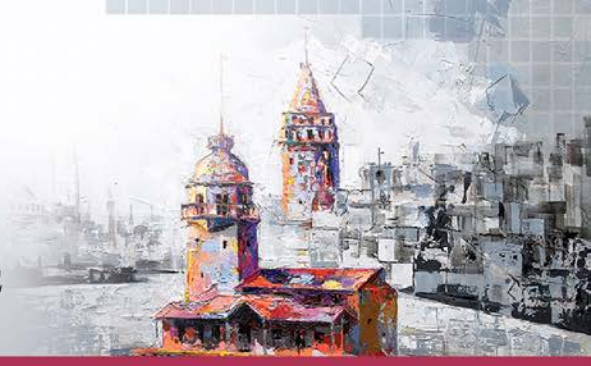
Background and Objectives: In peanut allergy, singleplex tests showed the diagnostic utility of component specific IgEs (sIgE) to Ara h 1, Ara h 2, Ara h 3 and Ara h 6. However, the diagnostic value of semi-quantitative multiplex testing is still a matter of debate.

Materials-Methods: Peanut sensitized children, evaluated by multiplex testing (i.e. Alex^2 test), were investigated to predict clinical reactivity (either oral food challenge proven or unambiguous history during past year).

Results: A total of 123 patients (OFC-positive (n=8), unambiguous history (n=23), and tolerant (n=92) were evaluated by ROC curve analysis to predict clinical reactivity. Skin prick test (SPT) (AUC=0.927, p<0.001), sIgE (AUC=0.854, p<0.001), Ara h 1 (AUC=0.0.829, p<0.001), Ara h 2 (AUC=0.882, p<0.001), Ara h 3 (AUC=0.857, p<0.001) and Ara h 6 (AUC=0.853, p<0.001) were significantly associated with clinical reactivity. The comparation of AUCs revealed no statistical difference between these variables. The optimal cut-off values of SPT, sIgE, Ara h 1, Ara h 2, and Ara h 6 according to the Youden index, were 6.5mm, 21.3Ku/L, 6.2, 0.8, and 0.16kUA/L, respectively. The highest accuracy of clinical reactivity (90.5%) to peanut was obtained with the combination of peanut SPT, sIgE, Ara h 2 and Ara h 6. The combination of higher concentrations of Ara h 2 (≥10.0 kUA/L) or Ara h 6 (≥10.0 kUA/L) with SPT had 97.8% specificity for each, while 85.9% and 86.7% positive predictive values, respectively.

Conclusions: Multiplex component testing confirms existing knowledge and can be used in the diagnosis of peanut allergy.

Keywords: peanut allergy, multiplex component testing, Ara h 2, Ara h 6, Ara h 1, Ara h 3



OP-39

THE NEXT GREAT MASQUERADER: FOUR PATIENTS WITH ACTIVATING PIK3CD MUTATIONS AND DIVERSE PHENOTYPES

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Background: PIK3CD-GOF is an inborn error of immunity (IEI) with variable phenotypic characteristics even with the same variant. Lymphoproliferation, autoimmunity, and dysgammaglobulinemia may lead to suspicion of the diagnosis.

Objective: Here we present four unrelated Mexican patients from nonconsanguineous families with a diagnosis of PIK3CD-GOF:

Case reports:

-A 2-year-old female with a history of very early-onset inflammatory bowel disease (VEO-IBD) at 8 months, late omphalorrhexis, hyper-IgA, hyperleukocytosis, and low B and NK cells.

-A 12-year-old male with a family history of lymphoma. Sepsis due to Listeria, periodontal abscess, systemic lupus erythematosus, Sjögren's syndrome, bronchiectasis, hepatosplenomegaly, lymphadenopathy, autoimmune hemolytic anemia, chronic EBV/CMV infection; leukocytosis and hyper-IgM.

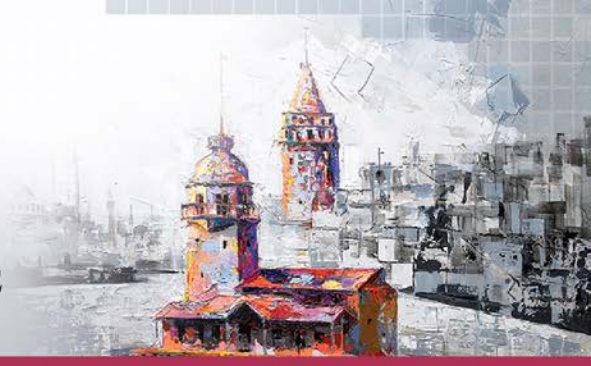
-A 2-year-old male with chronic rhinosinusitis, chronic suppurative otitis media, diarrhea; enlarged lymph nodes, splenomegaly, thrombocytopenia, low IgG and IgA and normal IgM with poor antibody response to pneumococcal vaccine. Hyper-IgM syndrome was suspected so he underwent successful stem cell transplantation.

-An 11-year-old male child whose both parents were HIV+. Presented at 4-months with episodic fever and recurrent respiratory infections, bronchiectasis, mild mental retardation elevated IgM, low IgG, lymphopenia, and decreased lymphocyte proliferation. HIV were suspected in this patient.

Results: We identified heterozygous pathogenic variants related to PIK3CD: 3 of them in exon 24 (p.Glu1021Lys); and a novel variant in exon 7 (p.Ile262Val).

Conclusion: PIK3CD-GOF is a combined immunodeficiency disorder (CID) with variable phenotype characteristics even with the same variant. Lymphoproliferation, autoimmunity, and dysgammaglobulinemia may raise suspicion. By behaving like a great simulator, genetic diagnosis is necessary to identify the specific pathogenic variant.

Keywords: PIK3CD, immunodeficiency, Mutations, gain-of-function



OP-40

THE SPECTRUM OF INBORN ERRORS OF IMMUNITY IN PATIENTS WITH EBV FROM TURKEY

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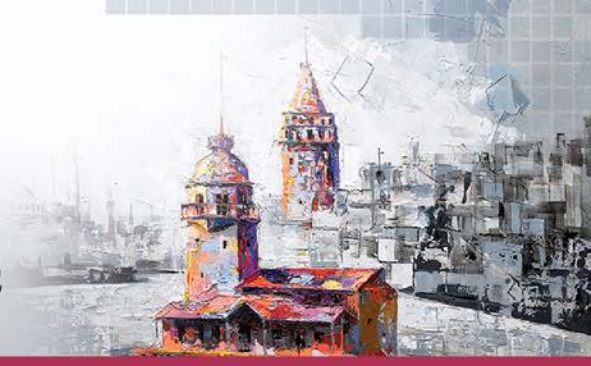
EBV causes considerable morbidity and mortality because of the lymphoproliferative disorders, hemophagocytic lymphohistiocytosis(HLH), malignancy,and chronic active EBV infection in patients with immunodeficiencies.This report presents the clinical course and outcome of a cohort of 50 patients with EBV-related disease with the aim of detecting the presence of any remarkable clinical findings to guide the genetic diagnosis of an underlying inborn errors of immunity(IEI). This research was conducted in a tertiary reference center for IEI in Turkey and we retrospectively evaluated 50 patients who suffered from various clinical manifestations of EBV and were evaluated with NGS-PID panel analysis or WES.

Results: Patients had a median age of 14.6(IQR: 8.9-20.7,min:1-max:57) years.The male/female ratio was 46/54,there was consanguinity marriage in 52.2% of the patients.The most common EBV-related clinical manifestations were malignancy(48%) and lymphoproliferation(42%), HLH(16%),infectious mononucleosis(12%).Genetic diagnosis was done in 27(54%) patients.The most prevalent genetic defects were STK-4 deficiency(4),CD27 deficiency(3),PIK3CD gain of funtion mutation(3),RASGRP1 deficiency(2), UNC13D(2) deficiency, ATM mutation(2) in the patients. 6 patients had HSCT, 13(26%)patients were died during follow-up.There was no significant difference regarding age, sex, age at detection of EBV positivity, clinical presentation of EBV, treatments used for EBV,and EBV DNA copy numbers between patients with and without genetic diagnosis.

Conclusion: Clinicians should investigate monogenic IEI in patients with various clinical presentations of EBV.Malignancy,lymphoproliferation and HLH might be clinical indicator for definitive diagnosis of IEI with susceptibility to EBV.However, early genetic diagnosis seems to have utmost importance since there are options of targeted therapy and HSCT related with the specific genetic defect.

Keywords: EBV, NGS, WES



OP-41

INVESTIGATION OF COMBINED IMMUNODEFICIENCIES, IMMUNODEFICIENCIES WITH IMMUNEDYSREGULATION AND INNATE IMMUNE SYSTEM DEFECTS WITH ADVANCED IMMUNOLOGICAL AND GENETIC METHODS

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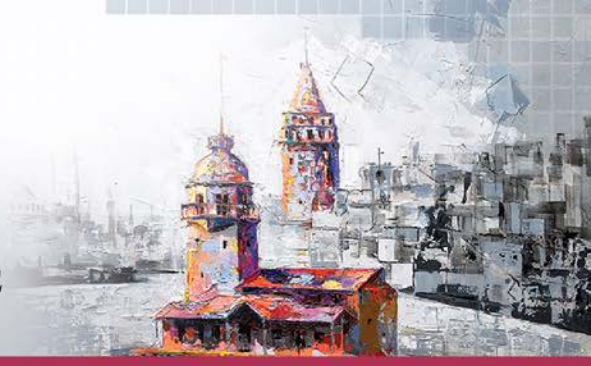
Introduction: Patients with primary immunodeficiency (PID) may present with a variety of clinical presentations including autoimmune diseases, benign and malignant lymphoproliferation, and cancer in addition to infections to several fields of medicine and encounter delays and difficulty in diagnosis and treatment.

Method: Among the ten PID subgroups identified in 2020, three PID subgroups(innate immune system defects, combined immunodeficiencies (CID), and PIDs with immune dysregulation(ID)) are included in this study. Three centers in Turkey participated in the study and a total of 150patients were phenotyped clinically, immunologically and genetically.

Results: The median age was 6.75years (IQR 1-14 years),(min:1month, max:58 years). 85.3% presented with infections, 33.3% with lymphoproliferation, 31.3% with autoimmune diseases, 18% with allergic diseases and 14.7% with malignancies. The consanguinity rate was 71.3%. Diagnostic delay was 0.96 years in pediatric patients and 15 years in adult patients. Adult patients had bronchiectasis more commonly with a statistically significant difference. Lymphopenia was observed in 49 (47.6%) in CIDs and 14 (35%) in ID. The patients (105/150) were reclassified into IUIS groups after the determination of genetic diagnosis. 91.4% (96/105) of patients had mutations in 56 different, previously reported PID genes while 8.6% (9/105) had mutations in 6 new genes.

Discussion: Besides infections, findings of immunedysregulation are present in one third of the patients. Consanguinity stands out as an important risk factor. There is a diagnostic delay in especially adult patients so the awareness of medical disciplines dealing with adults should be improved. The normality of basic immunological tests doesnot rule out PID.

Keywords: primary immunodeficiency, combined immunodeficiencies, immunedysregulation, innate immune system defects



OP-42

ANTIBODY PRODUCTION AFTER COVID-19 VACCINATION IN PRIMARY IMMUNODEFICIENCY PATIENTS

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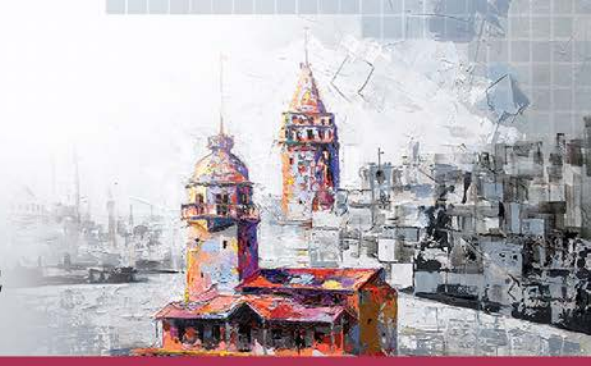
Background and Objectives: Vaccinating patients with primary immunodeficiency (PID) against COVID-19 is a rational approach to counteract the disease in these patients. Few studies have evaluated COVID-19 vaccine efficacy in PID patients. This study compared antibody production after COVID-19 vaccination in 43 PID patients and 32 controls.

Materials-Methods: Three methods were used to measure antibody production, including SARS-CoV-2 neutralization test, anti-SARS-CoV-2 immunoglobulin titer, and anti-SARS-CoV-2 neutralizing antibody test (ChemoBind).

Results: The patients' ages ranged from 19 to 78, with a median of 33; the median age for the controls was 41 years. PID cases included hereditary angioedema (n=19), common variable immunodeficiency (n=8), CGD (n=7), neutropenia (n=3), hyper-IgE syndrome (n=2), X-linked agammaglobulinemia (n=2), and psoriasis (n=1). Of the 43 patients, 40 (93%) had received Sinopharm, 4.7% had received AstraZeneca, and 1 (2.3%) had received Sputnik. The findings of this study suggest that PID patients in most subgroups have antibody production similar to that of controls. Lower hospitalization rates were also observed in these patients.

Conclusion: These effects could be explained by the restrictive measures taken by PID patients, the nonsignificant role of B cells and antibody protection against COVID-19, or the lower likelihood of immune system overactivation. More evidence is needed to establish effective guidelines on the type and schedule of vaccines in different PID subgroups.

Keywords: primary immunodeficiency, COVID-19, vaccine, antibody, Iran



OP-43

A NURSE-LED, PROTOCOL-DRIVEN PENICILLIN ALLERGY EVALUATION FROM THE HONG KONG DRUG ALLERGY DELABELLING INITIATIVE (HK-DADI): EFFECTIVENESS, SAFETY AND REAL-WORLD OUTCOMES

Andy Ka Chun Kan[1], Harris Kong Siu Hui[1], Tin Sum Li[1], Valerie Chiang[2], Jane Chi Yan Wong[1], Tik Suet Chan[1], Ian Yue Kit Kwan[1], Wing Zi Shum[1], Matthew Shi Chun Yeung[1], Elaine Yuen Ling Au[2], Carmen Tze Kwan Ho[1], Chak Sing Lau[1], Philip Hei Li[1]
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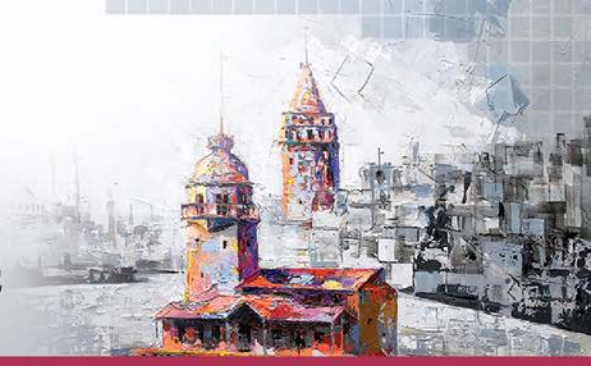
Background and Objective: There is a high prevalence of misdiagnosed penicillin 'allergy', associated with a multitude of adverse clinical outcomes. With the overwhelming burden of incorrect labels and lack of allergy specialist services, new delabelling strategies are urgently needed. We compared the effectiveness, safety and real-world outcomes of a nurse-led, protocol-driven evaluation of penicillin allergy – Hong Kong Drug Allergy Delabelling Initiative (HK-DADI).

Materials and methods: Patients with suspected penicillin allergy were recruited into HK-DADI. Allergy and post-delabelling outcomes were compared between patients evaluated via HK-DADI or traditional allergist evaluation.

Results: Three-hundred-and-twelve patients completed penicillin allergy evaluation: 84 (27%) and 228 (73%) via HK-DADI and traditional pathways, respectively. Overall, 280 (90%) penicillin 'allergies' were delabelled. Delabelling rate between HK-DADI and traditional pathways was similar (90% vs. 89%, p=0.796). Among patients of the HK-DADI pathway, the delabelling rate was significantly higher among low-risk (LR) than non-LR patients (97% vs 77%, p=0.010). Skin tests did not add diagnostic value among LR patients. No patients developed severe or systemic reactions during evaluation. Upon 6–12-month follow-up (median 10 months), 123 (44%) patients experienced infective episodes which required antibiotics and 63 (23%) used penicillins again after delabelling. This proportion was significantly higher in patients who were delabelled via HK-DADI than the traditional pathway (32% vs 19%, p=0.026).

Conclusion: HK-DADI, a nurse-led, protocol-driven evaluation was safe and effective in penicillin allergy delabelling. HK-DADI led to an even higher rate of future penicillin use following delabelling and mitigated the need for unnecessary skin testing among LR patients.

Keywords: Allergy, Delabelling, HK-DADI, Nurse, Penicillin, Triage



OP-44

SYSTEMIC MASTOCYTOSIS IS UNDERDIAGNOSED AND THE DIAGNOSTIC WORKUP IS INCONSISTENT: RESULTS OF A WORLDWIDE SURVEY MAMAS

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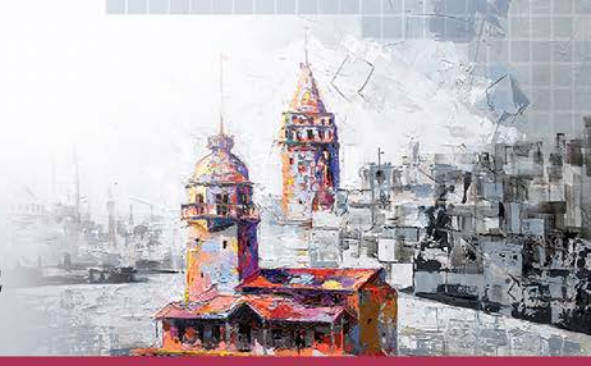
Objective: Approaches to the diagnosis of systemic mastocytosis (SM) can differ worldwide. To assess mastocytosis management, this World Allergy Organization (WAO) project was initiated.

Methods: An online survey was distributed among the members of WAO and associated societies, and 631 questionnaires completed mainly by allergologists/immunologists from 80 countries were collected.

Results: The responses of physicians who manage mastocytosis in adult patients were analyzed (n=483). SM diagnosis was reported to be confirmed on average in just about half of patients with mastocytosis. WHO diagnostic criteria and classification, regardless of the region, were used by only ~50% of physicians. B- and C-findings, which are of importance to identify patients who are at risk of progression, were reported to be applied by only 12.7% of physicians. Serum tryptase, bone marrow biopsy, and KIT D816V mutation analysis were included in the diagnostic work-up by 90.9%, 61.5% and 58.4% of physicians, with high variability between regions. Mastocytosis in the skin and anaphylaxis were seen as signs leading to the suspicion of mastocytosis, what was not the case for osteoporosis and gastrointestinal symptoms (82.1% and 82.9% vs. 21.4% and 49.9%, respectively). The greatest challenges in mastocytosis management, reported by 51.1%, 47.1% and 39.0% of physicians, were the lack of effective treatment options, missing multidisciplinary networks, and little experience of specialists from other disciplines.

Conclusions: SM is an underdiagnosed condition that might be a result of missing / not active multidisciplinary networks, limited access to diagnostic procedures and inconsistent application of WHO-criteria.

Keywords: mastocytosis, management, challenges, worldwide, survey, WAO



OP-45

EVALUATION OF THE FREQUENCY AND CHARACTERISTICS OF DRUG HYPERSENSITIVITY REACTIONS IN HOSPITALIZED CHILDREN: PROSPECTIVE REAL LIFE OBSERVATIONAL COHORT STUDY

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Background: There is limited data regarding to the characteristics and management of drug hypersentivity reactions (DHR) of hospitalized children.

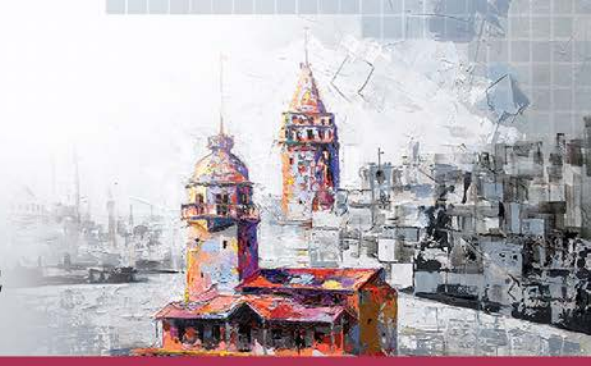
Objectives: To determine the prevelance, clinical features and management of DHR of hospitalized children

Methods: Children, who were consulted to the Pediatric Allergy clinic with suspicion of DHR while being hospitalized in Ankara City Hospital Children's Hospital between 1 August 2020 and 30 July 2021, were included prospectively. Demographic characteristics of the patients, characteristics of the reactions, responsible drugs, management of reactions were recorded. Diagnostic drug tests (skin tests and/or provocation test) are performed after discharge.

Results: Among 14090 hospitalized children, 165 (%72 male, median age:106 months (IQR: 29-170)) were consulted about 192 drug hypersensitivity reactions (DHR) with 246 drugs. Cutaneous eruptions were most common (%94.3; n:181/192). There was anaphylaxis in 36 and SCAR in 4 patients (3DRESS, 1 AGEP). Antimicrobials were leading cause (%78.4, n:193/246). In 48 reactions, 60 culprit drugs could be given with close follow-upor desensitization(n:12). 186 suspected drugs were discontinued and 115 were replaced with alternative drugs. After discharge, 20 provocation test (one pozitif), and 36 skin tests(one pozitif prick test, 1 positive intradermal test, 1 positive patch test) were performed.

Conclusion: The incidence of suspected DHR was aproximately %1.1 in hospitalized children. Twenty four percent of suspected drugs could be continued during hospitalization. Patients with DHR during hospitalization, should be evaluated with allergological work-up unless there are any contraindications for testing.

Keywords: anaphylaxis,drug hypersensitivity reactions, inpatient children, SCAR



OP-46

LONG-TERM EXPERIENCE WITH ANAPHYLAXIS AND DESENSITIZATION TO ALGLUCOSIDASE ALFA IN POMPE DISEASE

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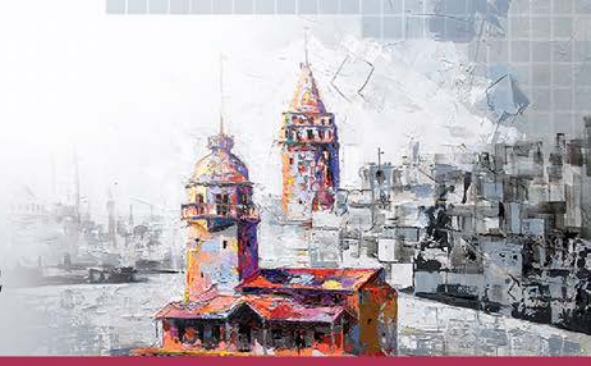
Background And Objective: Pompe disease (PD) is an inherited lysosomal storage disease that progresses with glycogen accumulation in many tissues, due to the deficiency of the acid-alpha glucosidase enzyme. Recombinant alglucosidase alfa (rhGAA), is the only disease-specific treatment option, in the form of enzyme replacement therapy (ERT). Anaphylaxis can develop with rhGAA. There is no study evaluating anaphylaxis and its management in PD in the long term. We aimed to evaluate the development of anaphylaxis and rapid drug desensitisation (RDD) with rhGAA in children with PD.

Materials-Methods: All children diagnosed and followed up in our instution with PD over 12 years between January 2009-September 2021 were evaluated for development of anaphylaxis and RDD with rhGAA from medical records.

Results: Fourteen patients, 64% of whom were female and diagnosed with PD (1 juvenile, 13 infantile type) during the study period included in the study. The median age at diagnosis was 3.2 months (1-40 months). The median follow-up period was 20 months (1-129 months). Thirteen patients were given rhGAA, one died before ERT. Four (30.8%) patients developed moderate to severe anaphylaxis and RDD was applied with rhGAA. A total of 390 RDDs have been performed so far without any serious breakthrough reactions during all RDDs.

Conclusions: Anaphylaxis with rhGAA is not rare and RDD with rhGAA is safe and effective in the long term.

Keywords: Anaphylaxis, desensitization, pompe disease, recombinant alglucosidase alfa



OP-47

FROM EPIDEMIOLOGY TO CLINICAL PATTERNS OF HYMENOPTERA VENOM ANAPHYLAXIS: A SYSTEMATIC REVIEW

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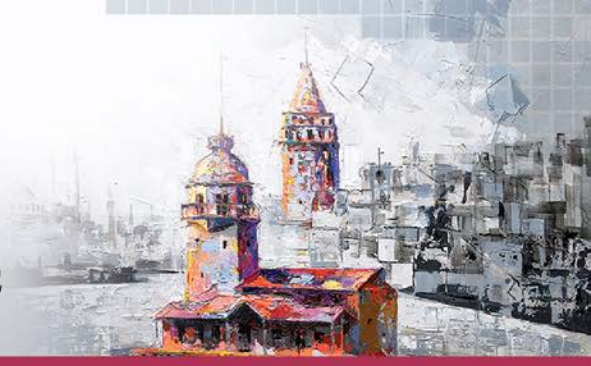
Hymenoptera venom anaphylaxis (HVA) is one of the leading causes of anaphylaxis in western countries. Clinical patterns may vary from local reactions to systemic reactions (SRs), often with sudden symptoms and life-threatening prognosis. Meanwhile, means to characterise and manage HVA are still heterogeneous. Under the context of personalised medicine, we sought to identify patients at risk to improve the diagnosis and prognosis of HVA.

We performed a systematic review of articles whose main topic was Hymenoptera venom anaphylaxis. Data were extracted from six different databases from June 2021 to August 2021. There was no restriction on date or language. A qualitative study was done, clustered into three categories: epidemiological, therapeutical features and clinical manifestations.

57 articles were collected. Sex ratio was more predominant with men, at 3:1. Mean age was around 41.6 years old. Mortality rate was estimated at 0.51 per million per year. In two-thirds of studies, main deadly culprit was honeybees. Clinical presentations were either local (16.67%), large local localised reactions (LLRs) (27.78%) or anaphylaxis (100%). Venom immunotherapy (VIT) was mostly monotherapy (64%), particularly for Vespids (72.72%), with a success rate of 94% and few adverse events.

HVA implies specific endotypes, including risk factors and environmental features. These parameters should be considered when diagnosing and treating patients with VIT. As an effective and curative treatment for HVA, VIT will prevent avoidable deaths induced by HVA and improve quality of life. Our review will participate as a tool for a more standardised management of patients with HVA.

Keywords: Hymenoptera venom anaphylaxis, morbidity, mortality, insect stings, endotype, phenotype



OP-48

PATIENT-REPORTED OUTCOMES AFTER 52 WEEKS OF TREATMENT WITH THE P2X3-RECEPTOR ANTAGONIST GEFAPIXANT IN TWO PHASE 3 CLINICAL TRIALS FOR CHRONIC COUGH

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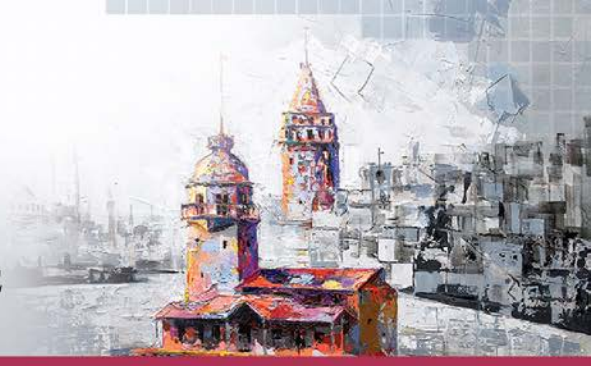
Background and Objectives: In two randomized, double-blind, phase 3 trials (COUGH-1 and COUGH-2) enrolling individuals with refractory or unexplained chronic cough (RCC or UCC, respectively), gefapixant 45 mg twice daily (BID) significantly reduced 24-hour cough frequency over 12 and 24 weeks. This pooled analysis of COUGH-1 and COUGH-2 evaluated patient-reported outcomes (PROs) over 52 weeks of treatment.

Materials-Methods: Both trials enrolled adults with a diagnosis of RCC or UCC, cough duration ≥1 year, and baseline cough severity visual analog scale (VAS) ≥40 mm (VAS range: 0-100 mm). Participants were randomized 1:1:1 to placebo, gefapixant 15 mg BID, or gefapixant 45 mg BID. Responder definitions of PROs used to evaluate efficacy included Leicester Cough Questionnaire (LCQ; ≥1.3-point increase), cough severity VAS (≥30-mm reduction in mean weekly score), and Cough Severity Diary (CSD; ≥1.3- and ≥2.7-point reductions in mean weekly total score). Odds of being a responder at Week 52 for gefapixant 45 mg BID vs placebo were assessed using logistic-regression models.

Results: In the pooled population (N=2044), odds ratios at Week 52 favored gefapixant 45 mg BID vs placebo for each responder endpoint. Odds ratios (95% confidence intervals) for gefapixant 45 mg BID were 1.72 (1.31-2.27) for LCQ; 1.47 (1.15-1.89) for cough severity VAS; 1.62 (1.23-2.15) for CSD (≥1.3); and 1.57 (1.21-2.03) for CSD (≥2.7). The most common AEs were taste related.

Conclusions: These pooled phase 3 data provide patient-relevant evidence supporting the long-term efficacy and safety of gefapixant 45 mg BID for treatment of RCC or UCC.

Keywords: cough treatment, patient-reported outcomes, persistent cough, P2X3-receptor antagonists, refractory chronic cough, unexplained chronic cough



OP-49

PSYCHIATRIC COMORBIDITIES IN PEDIATRIC PRIMARY IMMUNODEFICIENCY PATIENTS

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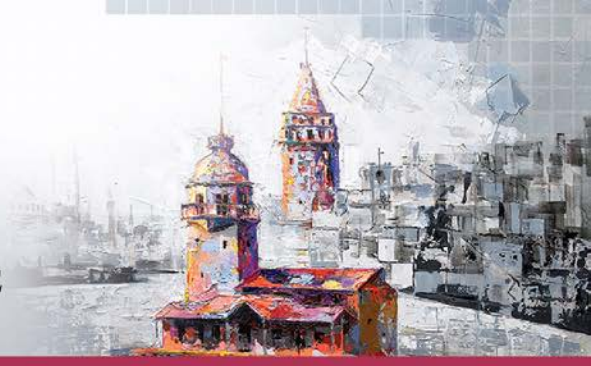
Primary immunodeficiency diseases (PIDs) are a rare heterogeneous group of disorders of the immune system, including recurrent infections, autoimmunity, and malignancies. Therefore, such chronic disorders have a negative effect on psychological wellbeing, these negative outcomes may differ according to developmental period. We aimed to assess and compare emotional and behavioral problems among children and adolescents with PID. Ninety-eight PID patients between the ages of 5-and 18 years enrolled in the study. The most common psychiatric problems were reported to be peer relation problems (n=38, 38,8%) and emotional problems (n=24,24,5%) among the children with PID. The parents stated statistically higher emotional, behavioral(p=0.008) peer problems, (p=0.015), panic disorder (p=0.015), generalized anxiety disorder(p=0.031) in adolescents than in children, and the hyperactivity scores stated higher (p.0,003) in children than adolescents. According to self-report forms only peer relation problems (p=0.028) were stated higher in adolescents than children and there was not any significant difference between children and adolescents in terms of other emotional or behavioral problems. PIDs affect both the physical and emotional functions of children and parents, which usually are a non-limited nature disease and had a role in the child's overall life. The multidisciplinary care approach to PIDs may be helpful decrease the psychiatric stressors of children and their parents. Therefore, physicians may be helped by awareness of the major causes of emotional stress in PIDs.

Keywords: pid,emotional, Psychiatric Comorbidities



OP-50

DEVELOPMENT OF A NEW SPT EVALUATION METRIC TO INVESTIGATE INTERMITTENT AND PERSISTENT VARIATION IN MIXED ALLERGIC RHINITIS

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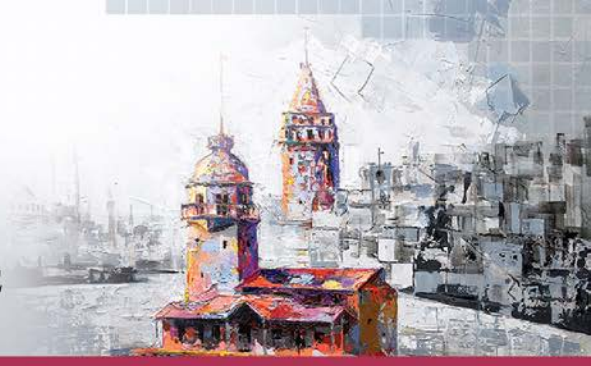
Background and Objectives: Allergic sensitization is commonly subdivided into seasonal (SAR) and perennial (PAR) although we observe both (MAR, including persistent and intermittent allergens) in the clinics. Nevertheless, the classification is not completely satisfactory with the use of skin prick test (SPT). To objective of this study is to provide a new SPT evaluation formulation to reveal the differentiation of seasonal and persistent variation in mixed allergic rhinitis, obtained from a low-cost, portable smartphone thermography.

Materials-Methods: We subdivided into the patients into three groups on the basis of the sensitizing allergens as "*SAR*", "*PAR*" and "*MAR*". Here, our proposed metric indicates below than zero for the SAR and PAR, whereas it is greater than zero for the case of MAR. Kappa statistics have been used to look at agreement between clinical history & subjective symptoms and thermographic imaging results.

Results: The patients, who have been admitted to Hacettepe University, Allergy clinic with the symptoms of allergic rhinitis, have been evaluated to confirm their situation by medical consultation. There was higher agreement for the case of SAR compared to the PAR ($k = 0.879$ and $k = 0.759$, respectively). Overall, we have found relatively good agreement for the MAR ($k = 0.867$).

Conclusions: Our findings reveal that a seasonal variability of the symptom score in our proposed formula has been detectable for MAR patients. A new evaluation metric obtained from the low-cost, portable smartphone thermography would enable us to shape the future of healthcare in front of our eyes.

Keywords: Mixed allergic rhinitis, Pollen, Perennial, Intermittent, Thermographic imaging.



OP-51

A 5 YEAR PROSPECTIVE, OBSERVATIONAL STUDY OF SUCCESSFUL RED MEAT DESENSITIZATION IN EARLY AND DELAYED-TYPE HYPERSENSITIVITY REACTIONS DUE TO ALPHA-GAL ALLERGY

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Background: Alpha-gal allergy is typically characterized by symptoms of delayed-onset of urticaria or anaphylaxis occured 2 to 6 hours after consumption of red meat (RM). On the contrary, rapid onset of symptoms has also recently been reported. Our group previously published the first desensitization protocol in delayed type hypersensitivity reactions(HRs) due to alpha-gal-allergy. However, there is no desensitization protocol in immediate HRs due to alpha-gal-allergy.

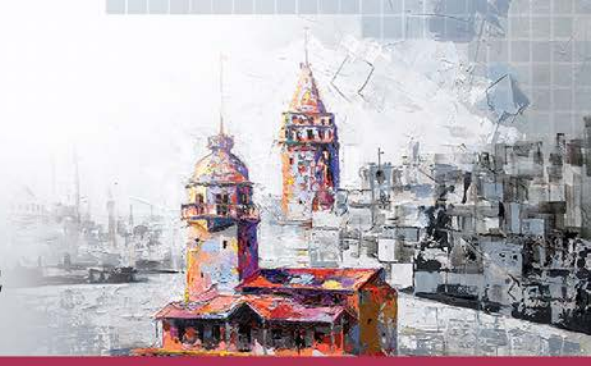
Objective: To evaluate the effectiveness of A-15-step RM desensitization protocol for early type HRs and A-27-step RM desensitization protocol for the delayed-type HRs. Additonally to determine the long-term efficacy and safety of performing desensitization to RM.

Materials-Method: Clinical suspicion of alpha-gal-allergy is confirmed by demonstrating the presence of allergen-specific immunoglobulinE antibodies. A-15-step RM desensitization protocol for early type HRs and A-27-step RM desensitization protocol for the delayed-type HRs were performed. Patients became tolerant to a serving size of 100g of RM. After providing desensitization patients were followed for five years to assess long-term efficacy and safety.

Results: Twelve patients who underwent RM desensitization were included in the study. Patients uneventfully completed the desensitization protocol and subsequently became tolerant to a serving size of 100g of RM. Then they continued eating it at least 100g of RM every day in a period of 6 months without any adverse reaction. Finally, regular allergen intake (100g meat 3 times/week) was continued for 5 years.

Conclusion: In the current long-term, observational study, twelve RM allergic patients who can consume RM uneventfully after a successful desensitization were presented.

Keywords: alpha-gal allergy, early-type hypersensitivity reaction, delayed-type hypersensitivity reaction, desensitization



OP-52

CIRCULATING FOOD-ALLERGEN-SPECIFIC OF ALL IGG ISOTYPES ARE ELEVATED IN EOSINOPHILIC ESOPHAGITIS PATIENTS

Manal Bel Imam[1], Alex Straumann[2], Luc Biedermann[2], Philipp Schreiner[2], Sayuri Iwasaki[1], Pattraporn Satitsuksanoa[1], Stephan Schneider[1], Mübeccel Akdis[1], Willem Van De Veen[1]
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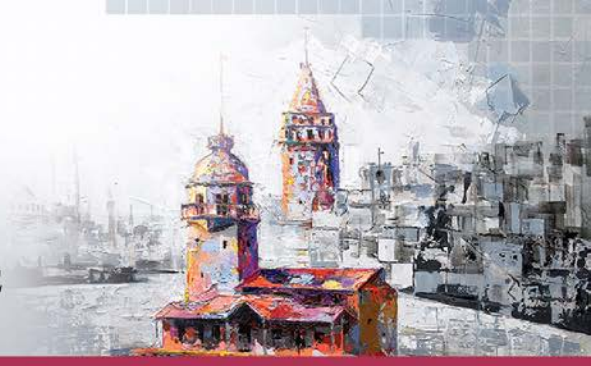
Background: Eosinophilic esophagitis (EoE) is a chronic immune-mediated inflammatory condition that showed increased prevalence during the past decades. Several studies suggested the involvement of Th2 cytokines and antibody production, however it appears not to be an IgE-mediated food allergy. Rather, recent observations showed that EoE patients have high levels of IgG4 in biopsies and in circulation. This preliminary analysis aimed to differentiate EoE patients according to the levels of food antigen-specific antibodies.

Methods: Blood samples from 142 EoE patients were collected at the University Hospital Zurich. The patients were categorized in active (>15 eos/hpf) and inactive (<15 eos/hpf) disease. IgG and IgG4 against casein, whey, wheat and egg extracts, and the cow's milk individual allergens alpha s1-casein, A1 beta-casein, A2 beta-casein and I beta-casein, were measured in plasma by enzyme-linked immunosorbent assay (ELISA). Further measurements assessed the levels of IgG1, IgG2, IgG3 and IgA1 against alpha s1-casein and A1 beta-casein, and of IgA2 against alpha s1-casein.

Results: We could identify patients with highly positive, intermediate and low levels of several allergen-specific antibody isotypes. Moreover, healthy controls allergen-specific antibody levels were significantly lower than those of the active EoE subgroup in most of the measurements.

Summary and outlook: This analysis will allow us to identify patients with high levels of food antigen-specific antibodies. From these selected patients, we will isolate and characterize antigen-specific B cells using single-cell transcriptomics. Furthermore, this data will be correlated with disease severity, serum biomarkers and tissue infiltrating immune cells in esophageal biopsies.

Keywords: eosinophilic esophagitis, food allergy, b cells



OP-53

COMPARISON OF EFFICACY, SIDE EFFECTS, AND SYMPTOM RELAPSE OF ORAL RESPULE AND SWALLOWED SPRAY FORMS OF BUDESONIDE IN THE TREATMENT OF EOSINOPHILIC ESOPHAGITIS: A DOSE-RANGING, RANDOMIZED CLINICAL TRIAL STUDY

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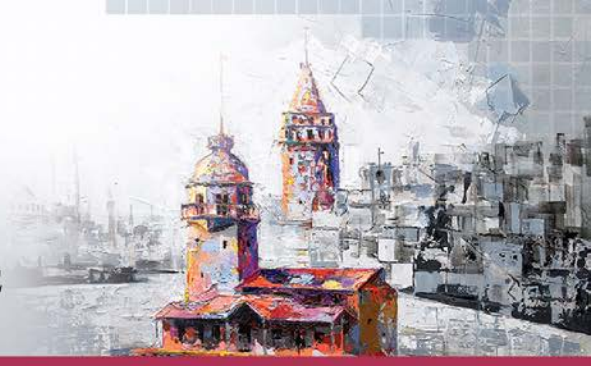
Background: Eosinophilic esophagitis (EoE) is a chronic allergen/immune-mediated disease known by eosinophil infiltration into the esophagus. Topical steroids are used for its treatment. We investigated the efficacy, side effects, and symptom relapse after discontinuation of two budesonide forms in EoE patients.

Methods: In this prospective, dose-ranging, randomized trial, 35 EoE patients under 18 years who received two budesonide forms were assigned to low-dose oral respule (17 patients) and swallowed spray (18 patients) groups. Both groups received low-dose budesonide for eight weeks. Doses were doubled after the first eight weeks if symptom remission was not achieved, but the previous dose was continued for the next eight weeks in the subjects with symptom relief. At the end of week 16, budesonide was discontinued in all patients. The following parameters were recorded: Symptom relief, based on Pediatric EoE Symptom Scores (PEESS®v2.0), multiple safety parameters, oral thrush, adrenal suppression, and histological changes, based on repeated endoscopy at weeks 0, 8, 16 and 32.

Results: Non-respondents to treatment in the first eight weeks were 13.3% and 50.0% in the oral respule and swallowed spray groups, respectively, indicating a significant difference (p = 0.033). In the 16th week, the treatment failure rate was 13.3% and 26.6% in the oral respule and swallowed spray groups, respectively (p=0.048). The therapeutic response during the 8th week was significantly higher in oral respule group than swallowed spray group (OR=8.418, p=0.046).
Conclusion: Considering the efficacy of oral respule formulation of budesonide, it may be suggested as a suitable therapeutic approach.

Keywords: Eosinophilic esophagitis, budesonide oral respule, swallowed topical corticosteroids



OP-54

GUT EPITHELIAL BARRIER DAMAGE CAUSED BY COMMONLY USED EMULSIFIERS POLYSORBATE-20 AND POLYSORBATE-80

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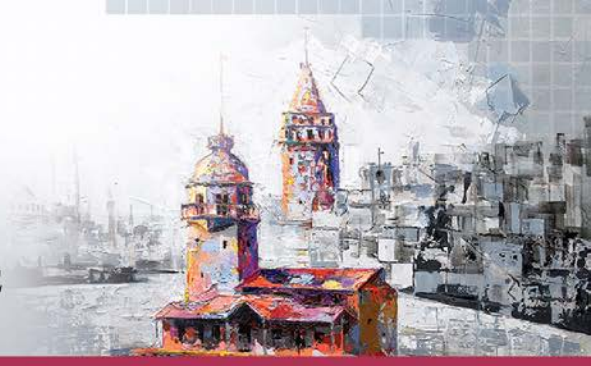
Background and Objectives: We investigated the effects of polysorbate-20(P20) and polysorbate-80(P80) on cytotoxicity, barrier-function, transcriptome and protein expression in gastrointestinal epithelial cells.

Materials-Methods: Emulsifiers were added to the apical compartment of differentiated cells, and then cytotoxicity, transepithelial-electirical-resistance(TEER), paracellular-flux and immunofluorescence-staining of tight junctions(TJ) were measured, and RNA-seq transcriptome and targeted proteomics were analyzed.

Results: Starting from the commonly used 0.1% concentration, cells showed lysis in response to P20 and P80 exposure. Epithelial barrier disruption was observed with decreased TEER, increased paracellular-flux and irregular TJ immunostaining. The experiments were repeated with a gut-on-a-chip model that is a 3D approach and observed nearly same results with 2D model. The RNA-seq analysis showed that P20 and P80 upregulated biological processes including developmental process, cell differentiation, cell communication, cell proliferation, cell death, cell adhesion, cell migration and response to stress at 0.05% concentration that are lower than direct cytotoxic effects. The targeted proteomics analysis demonstrated upregulation in epithelial cell apoptotic process, cytokine-mediated signaling pathway, cell proliferation, inflammatory response, tissue development and response to organic substance processes in response to P20, and cytokine-mediated signaling pathway, tissue development and response to organic substance processes in response to P80 with immune response and inflammation panels.

Conclusions: This study provided that P20 and P80 directly impair barrier integrity of gastrointestinal epithelial cells at doses of daily usage. Even though the allowed concentration in food industry is 1%, the concentrations of 0.05% showed a major disruption on the cells by affecting many genes and proteins.

Keywords: Caco-2, epithelial barrier, polysorbate-20, polysorbate-80, RNA-seq, targeted proteomics



OP-55

ROLE OF HOUSE DUST MITE SUBCUTANEOUS IMMUNOTHERAPY ON IMMUNE CHECKPOINT MOLECULES IN CHILDREN WITH RESPIRATORY ALLERGIES

Zeynep Hızlı Demirkale[1], Mehmet Fatih Alpkıray[2], Ayşe Engin[3], Aybars Deniz Sönmez[3], Esra Yücel[4], Zeynep Tamay[4], Cevdet Özdemir[5], Günnur Deniz[3], Esin Aktaş Çetin[3]
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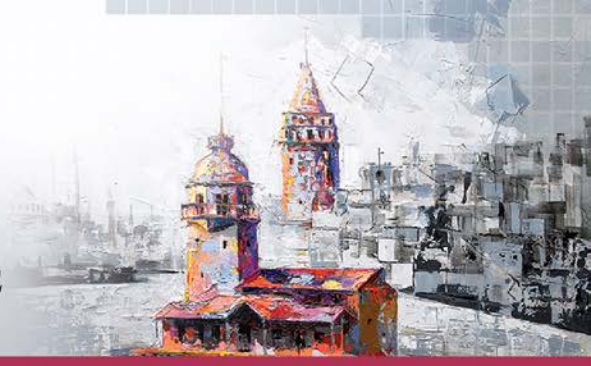
Allergen immunotherapy (AIT) is currently the only disease-modifying treatment for respiratory allergies. Immune tolerance conferred by AIT is the result of complex interactions between innate and adaptive immune responses. Few studies have emphasized that chronic and high-dose allergen stimulation during AIT causes exhaustion in T cells. Prolonged and/or high expression of multiple inhibitory receptors including programmed cell death protein-1(PD-1), cytotoxic T-lymphocyte-associated antigen-4(CTLA-4), T-cell immunoglobulin-mucin-domain-containing molecule-3(TIM-3), and lymphocyte activation gene-3(LAG-3) are key features of the exhaustion of CD8+ and CD4+ T cells. In this study, we investigated the role of house dust mite (HDM) subcutaneous immunotherapy (SCIT) on the surface expression and the soluble levels of immune checkpoint receptors (PD-1, CTLA-4, TIM-3 and LAG-3) in HDM allergic children. Peripheral blood mononuclear cells and plasma samples were collected from 24 patients with allergic rhinitis and/or asthma who have received HDM-AIT and compared with control subjects. Surface expression of immune checkpoint receptors on CD4+ T, CD8+ T and Treg cell subsets were analyzed by flow cytometry. Soluble PD-1, CTLA-4, TIM-3 and LAG-3 levels were determined by ELISA. Increased expression of PD-1 on T helper and Treg cells, CTLA-4 on cytotoxic T cells were found in the study group. Soluble CLTA-4 and LAG-3 plasma levels were significantly higher in the HDM-AIT group compared to healthy subjects. The mechanisms of T cell exhaustion are not fully understood and further studies are needed for demonstrating this mechanism. According to our results, exhausted T cell phenotype may have a potential role in tolerance induction.

Keywords: allergic rhinitis, allergen immunotherapy, asthma, children, house dust mite, immune checkpoint molecules



OP-56

INVESTIGATION OF ALLERGEN SPECIFIC B-CELLS IN ALLERGY CONCORDANT AND DISCORDANT TWINS

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[2]Sean N. Parker Center for Allergy and Asthma Research, Department of Medicine, Stanford University, Palo Alto, CA, USA.

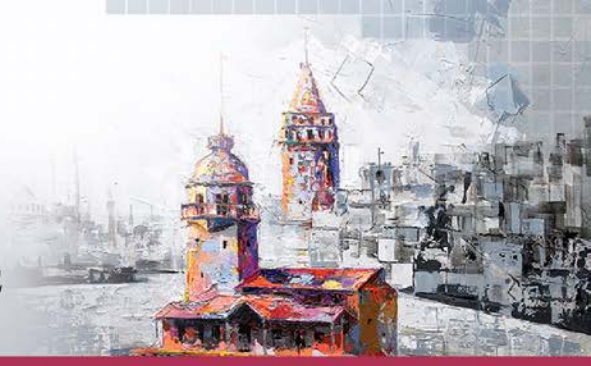
Background: The balance between effector and regulatory B cells determines if an individual has an allergic or tolerant response to ingested food. This means there should be significant differences in B cell subsets between healthy and allergic individuals. This project aims to characterize allergen-specific B cells on a transcriptomic level and compare the differences between the B cell subsets in allergic and healthy twins.

Methods: Food allergens were biotinylated and coupled with a streptavidin linked to a fluorophore plus an oligonucleotide barcode. Peripheral blood mononuclear cells (PBMC) from allergic twins were then labelled with these allergens. The PBMCs were sorted by FACS for cell type and allergen specificity. Using the 10x genomics Chromium Next GEM single-cell sequencing technology, we generated gene expression and V(D)J libraries for sequencing.

Results: The sequencing data allowed us to identify the cell types by gene expression. The V(D)J sequences show the isotype abundance in the sorted cell populations. Combined with the barcoding for the different twins, it shows us the differences in isotype ratios between twins. Additionally, we saw what V(D)J combinations are enriched in allergic individuals and could analyze the gene expression of allergen-specific B cells

Conclusions: The pilot study served as a proof of concept that the methodology of labelling allergens to identify specific B cells works. In combination with additional single-cell sequencing technologies, it provides a valuable tool to study B cells in the context of allergies. The primary study on allergy discordant twins is already instructed to follow.

Keywords: Single-cell analysis, B cells, Twins, Allergies



OP-57

IMMUNE REGULATORY BEHAVIOR OF B CELLS DURING ASCARIS INFECTION

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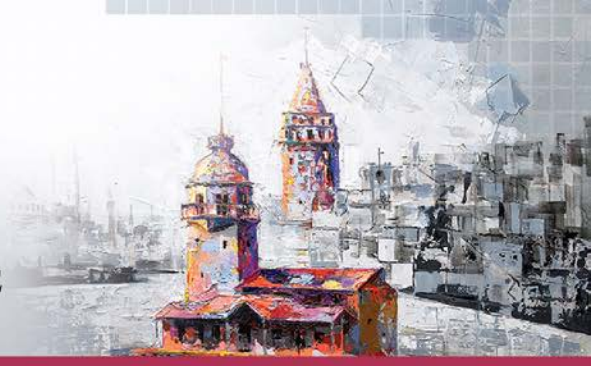
Background and Objectives: Immunostimulatory and immunosuppressive effects of *Ascaris lumbricoides* infection have been described. We aimed to compare the antibody responses and regulatory B cells (Bregs) among Ascaris severely or mildly infected and uninfected subjects living in a rural area where the infection is endemic.

Materials-Methods: Subjects living in Santa Catalina-Bolívar (Colombia) were recruited, and a stool exam was performed. B cell response was compared among three groups defined according to the infection status: non-infected (NI; n=12), mildly (MI; n=10), and strongly (SI; n=10) infected. Plasma IgG isotypes and IgE to ABA-1 (an antigen from Ascaris) were measured by ELISA. PBMCs were stimulated with CpG to identify different Bregs markers by flow cytometry. Cytokines in culture supernatants were measured by Bioplex.

Results: Specific-IgG, -IgG1 and -IgE to ABA-1 were significantly higher in NI than in the infected group. Compared to NI group, MI individuals have lower levels of specific-IgG and -IgG1(p=0.04). In the same way, SI individuals had lower ABA-1-specific-IgG4(p=0.02) and -IgE (p=0.007) in comparison to NI. A greater number of IL-10+ B cells (7% vs 14%; p=0.01), IL-10+CD24+CD38+ (8% vs 18%; p=0.02), IL-10+CD25+CD71+CD73- (12% vs 24%, p=0.02) and CD5+CD1dhi (1% vs 9%; p=0.02) were detected in the SI group. In supernatants, strong infection was associated with increased IL-10 levels but lower IFN-γ (p=0.02).

Conclusions: Strong ascariasis may increase IL10- producing B cells (Bregs) and dampen Th1 response after CpG stimulation. ABA-1-specific antibodies (IgG, IgG1, and IgE) are associated with non-infection status.

Keywords: antigen-specific antibodies, ascariasis, helminths, interleukin-10, regulatory b cells.



OP-58

INVESTIGATION OF EPITHELIAL BARRIER AFFECTING COMPOUNDS WITH GUT-ON-A-CHIP SYSTEM

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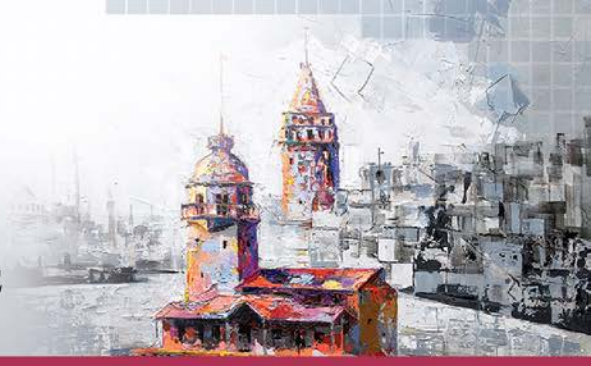
Barrier function of epithelia is crucial for maintaining homeostasis in the human body. To investigate healthy and diseased biological models, it is necessary to assess epithelial barrier function. Transepithelial electrical resistance (TEER) measurement is the gold standard and correlates electrical impedance of an epithelial layer with biological aspects.The transition from 2D to 3D culture techniques is an important step in a trend towards more physiologically relevant tissue models. Current study, a microfluidic titer plate called OrganoPlate is used for the formation of tubular barrier of the Caco-2 cells to examine the barrier integrity. An OrganoPlate contains 40 chips and each chip has one in-gel culture channel and two perfusion channels. One of the perfusion channel is seeded with cells while the other channel is used for feeding. After formation of tubules and TEER reach at least 500 Ω/cm^2, the tubules are treated with barrier disrupting and healing agents or both together. TEER are measured for each day and on day 3 FITC-dextran permeability and confocal imaging is performed. RNA is harvested for gene expression analysis and supernatants are collected for further proteomics. Barrier disrupting agents have decreased TEER and increased paracellular flux as concentration increased. Staining of the tubules with Zonula occludens 1 (ZO-1) and occluding-specific mAbs, demonstrated a perfect tubular formation and epithelial barrier development. The intestinal epithelial-on-a-chip demonstrated to be extremely useful for high throughput analyse, convenience of use, and full ability to examine epithelial barriers without the interference of porous membranes compared to 2D culture system.

Keywords: barrier, epithelial barrier hypothesis, gut-on-a-chip,



OP-59

THE MATRIX METALLOPROTEASES AND TISSUE INHIBITORS OF METALLOPROTEASES RESPONSE AGAINST HOUSE DUST MITE-DERIVED PROTEASE ALLERGENS IN HEALTHY AND ASTHMATIC PRIMARY EPITHELIAL CELLS

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Background and Objectives: In the lung, matrix metalloproteases(MMP) and tissue inhibitors of metalloproteases(TIMP) are in balance.The shift of this balance towards MMPs causes airway remodeling in asthmatics.However, the effects of House Dust Mite(HDM), one of the most effective allergens and inducers of airway remodeling in asthma, and HDM-derived allergens on MMPs and TIMPs remain unclear.This study aimed to examine the MMP and TIMP levels in the bronchial epithelial cells of healthy and asthmatics after exposure to HDM-extract and Derp1, Derp2, and Derp6 allergens with distinct protease activities.

Materials-Methods: Healthy(n=5) and asthmatic(n=4) primary bronchial epithelial cells were grown in a complete bronchial epithelial growth medium.Cells were differentiated with an Air-liquid interface(ALI).Allergen doses were determined after cell viability and cell staining studies.Cells were stimulated with Derp1(cysteine), Derp2(non-protease), Derp6(serine)(2-10µg/mL), and HDM-extract(10-100µg/mL) for 24 hours.MMP2,7,9 and TIMP1,2,3,4 expression levels were detected by qPCR and released proteins were quantified by ELISA.

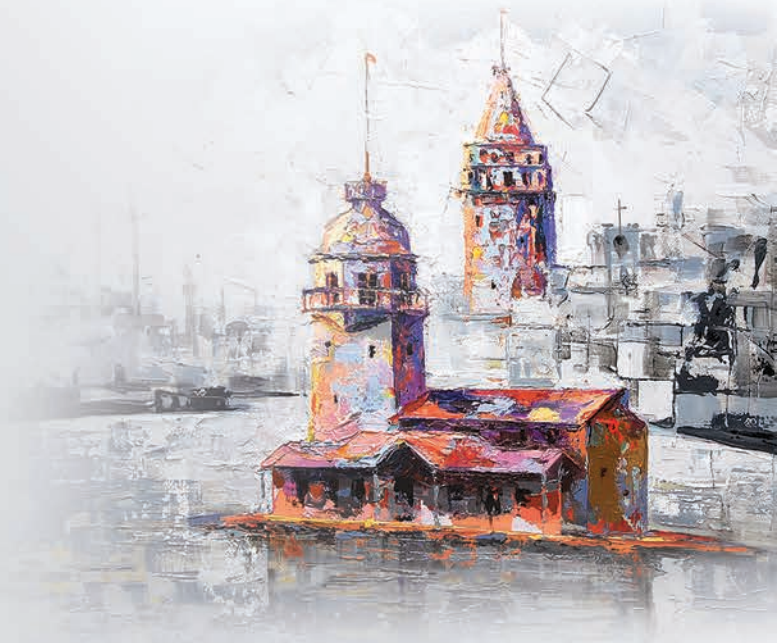
Results: Derp2 elevated the expressions of MMPs and TIMPs in asthmatics but had no impact on healthy cells.All allergens enhanced TIMP2 expression in asthmatics, whereas Derp6 increased TIMP2 expression in healthy individuals.HDM-extract reduced MMP9 expression in healthy cells, whereas asthmatics showed the reverse trend.Additionally, asthmatic cells have more significant amounts of MMP9 release than healthy cells.

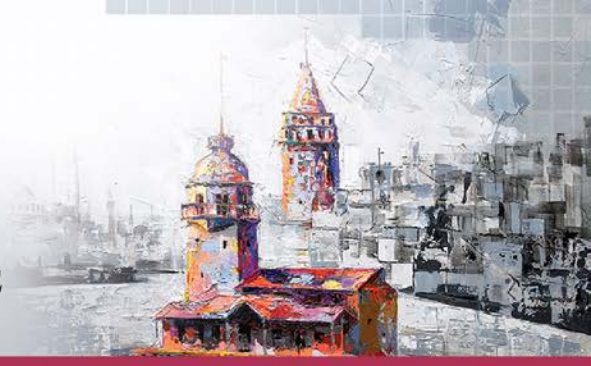
Conclusions: Asthmatic cells produced more MMPs and TIMPs after exposure to allergens, particularly Derp2, than did healthy cells.The effect of allergen stimulation on the expression and synthesis of MMPs and TIMPs may provide new evidence for their role in airway remodeling.

**This study is supported by TUBITAK(218S757)

Keywords: Asthma, Epithelial cell, HDM, Protease allergen, Proteases

Poster Abstracts





LB-PP-01

EFFICACY OF OMALIZUMAB IN PATIENTS WITH SYSTEMIC MASTOCYTOSIS WITH MAST CELL DEGRANULATION SYMPTOMS

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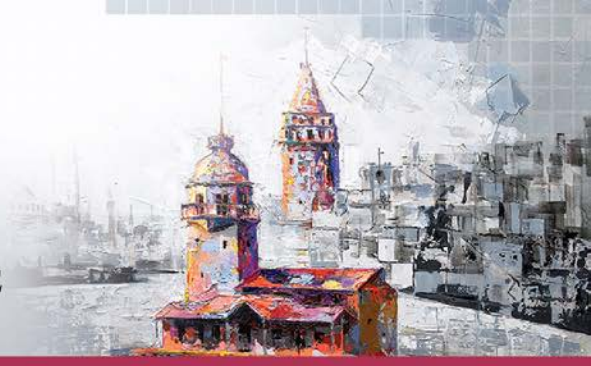
Introduction: Systemic Mastocytosis (SM) is a rare hematological neoplasm characterized by abnormal proliferation of clonal mast cells (MC), that can affect several body systems. SM includes clinical variants ranging from Indolent SM (ISM) to mast cell leukemia. ISM patients can develop MC degranulation symptoms such as palpitations, flushing, itching and diarrhea. Here, the effect of omalizumab on MC degranulation symptoms in 4-ISM patients is reported. Case1 A 40-year-old male patient with ISM had urticaria pigmentosa (UP) lesions on his skin and described frequent flushing and 3-spontaneous anaphylaxis attacks. With the initiation of Omalizumab treatment (150mg/2weeks SC), a decrease in flushing attacks and paleness in UP lesions were observed. However an increase in baseline tryptase (bT) was determined in the 7th year of treatment. Case2 A 39-year-old male patient with ISM experienced spontaneous anaphylaxis attacks every 3-4months. Omalizumab total 3-doses were applied to 300mg/4weeks SC, the frequency of anaphylaxis attacks didn't change in the treatment period. The patient who developed hypertensive anaphylaxis (SBP>180mmHg) attacks, after omalizumab treatment he started to develop hypotensive attacks (50/20mmHg). bT level increased from 65 to 88 kUA/l. Case3 A 32-year-old female patient with ISM, who had 8-10 attacks/month, started to have 2-3 attacks/months after initiation of omalizumab (300mg/4weeks SC). bT level decreased from 68.8 to 59 kUA/l after 3months of treatment. Case4 A 41-year-old female patient with ISM who had 20-22 attacks/months, started to have 4-5 attacks/months after omalizumab (300mg/4weeks SC). bT was partially decreased after 3months of treatment (from 108 to 104 kUA/l)

Discussion: In patients with ISM, omalizumab was found to be effective in 3 of 4 cases in the treatment of symptoms due to MC mediator release and anaphylaxis resistant to symptomatic therapy. Patients with clinical improvement in MC mediator symptoms had also pallor in their UP lesions in parallel with this improvement.

Keywords: Indolent systemic mastocytosis, Omalizumab, idiopathic anaphylaxis, mast cell mediators



LB-PP-02

DIFFICULTIES IN THE CLASSIFICATION OF CHILDREN WITH NONSTEROIDAL ANTI-INFLAMMATORY DRUG HYPERSENSITIVITY

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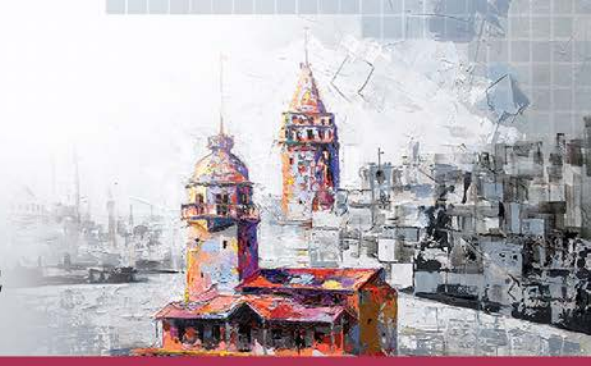
Background: Nonsteroidal anti-inflammatory drugs (NSAIDs) are among the most common causes of drug hypersensitivity reactions. The aim of this study was to determine the risk factors of NSAID hypersensitivity in children and to compare the phenotypes according to two recent EAACI/ENDA classifications.

Methods: All patients with a suspicion of NSAID-induced hypersensitivity were evaluated with ENDA recommendations. They were classified as selective responders (SRs) or cross-intolerant (CI) depending on the drug provocation test (DPT) results and further categorized according to either EAACI/ENDA classification in 2013 or 2018.

Results: Among 230 children (52.6% male, mean age: 7.6±4.8 years) with a suspicion of NSAID hypersensitivity, fifty patients (21.7%) were confirmed with diagnosic tests; 4 were diagnosed by skin tests and 44 with DPTs and two patients with a history of anaphylaxis by medical records. Fifteen patients (30%) were classified as SRs, whereas thirty-five (70%) children as CIs. Ten (20%) patients could not be categorized according to EAACI/ENDA classification in 2013 and three (6%) children could not be categorized according to EAACI/ENDA classification in 2018 based on pathomechanisms, the underlying disease or clinical manifestations. A reaction within an hour of drug intake (aOR:2.6, 95% CI: 1.3-5.6, p=0.011), a history of anaphylaxis (aOR:14.3, 95% CI: 4.1-50.5, p<0.001), and a history with multiple NSAIDs hypersensitivity (aOR:2.4, 95% CI: 1.1-5.1, p=0.024) were found as the independent risk factors related to confirmed NSAID hypersensitivity.

Conclusion: This study suggests the presence of different phenotypes which do not fit into the current classifications in children with NSAID hypersensitivity.

Keywords: children, nonsteroidal anti-inflammatory drug, hypersensitivity, classification, phenotypes



LB-PP-03

A CASE OF TRIMETHOPRIM/SULFAMETHOXAZOLE INDUCED BULLOUS PEMPHIGOID IN OLD AGED EGYPTIAN FEMALE

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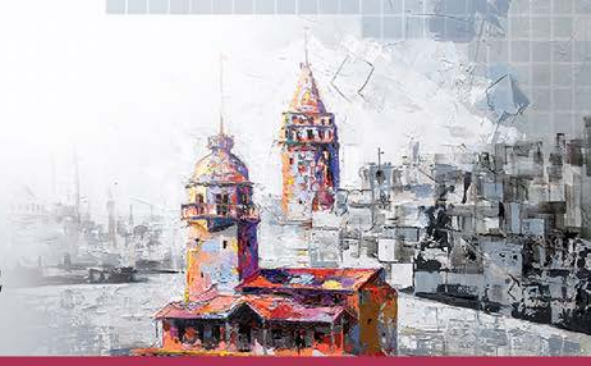
Introduction: Bullous pemphigoid (BP) is the most common autoimmune subepidermal blistering disorder, representing 80% of sub-epidermal cases. BP most commonly affects elderly patients between the ages of 60 to 80 years. The immunologic elements comprise autoantibodies against 2 parts of the basal keratinocyte hemidesmosomal proteins BP antigen 230 (BPAG1) and BP antigen 180 (BPAG2 or type XVII collagen), which leads to sub-epidermal splitting and blistering formation. Case Description: A 65-year-old female patient with past medical history of chronic urticaria was prescribed Trimethoprim/Sulfamethoxazole for upper-respiratory tract infection. Two hours later she experienced an itchy maculopapular skin rash on her thighs to which antihistamines were prescribed and drug was discontinued with no improvement. Two weeks later bullous lesions started to develop on her thighs and chest. On examination, there was erythematous rash on the face, chest and thighs with ulcerative lesions. Vital signs were normal. Routine laboratory investigations were significant for neutrophilia, monocytosis and high C-reactive protein. Serology for HIV was negative. A diagnosis of BP was made and skin biopsy was taken to confirm the diagnosis. The patient was admitted to the ward where she received intravenous dexamethasone at a dose of 12mg/day divided over 3 doses for 3 days with marvelous improvement. The patient was discharged on oral prednisolone at a dose of 60mg/day divided over two doses with gradual tapering regimen.

Conclusion: BP is idiosyncratic, dose-independent delayed-hypersensitivity reactions involving human leukocyte antigen alleles in specific populations. Systemic steroids were used two weeks after appearance of rash with considerable improvement.

Keywords: Trimethoprim/Sulfamethoxazole, Drug Hypersensitivity, Bullous Pemphigoid, Egyptian, Female, Dexamethasone



LB-PP-04

NONSTEROIDAL ANTI-INFLAMMATORY DRUG HYPERSENSITIVITY IN CHILDREN WITH DIAGNOSIS OF ASTHMA AND/OR ALLERGIC RHINITIS

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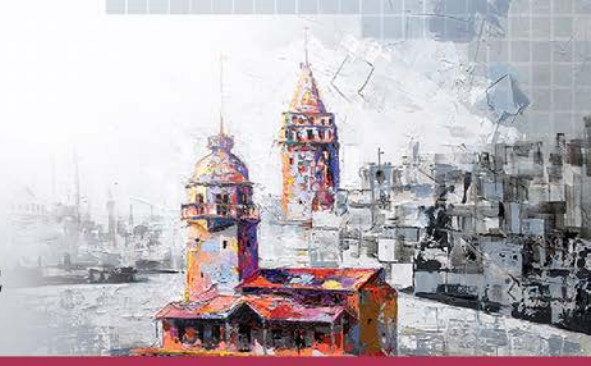
Background-Objective: Nonsteroidal anti-inflammatory drugs associated hypersensitivity reactions (NSAID-H) are one of the most common drug allergies. Although it is known that the coexistence of allergic diseases is common, it was aimed to investigate the frequency of accompanying NSAID-H in patients diagnosed with asthma and/or allergic rhinitis(AR).

Materials-Methods: The study included 467 patients diagnosed with asthma and/or AR who applied to the three Pediatric Allergy-Immunology outpatient clinics in Turkey between May-August 2019. Questionnaire about NSAID-H was administered patients. Drug-related diagnostic tests and/or provocation tests for diagnosis or selection of safety drug were applied the patients described a reaction.

Results-Conclusions: The mean age was 130.5±41.4%, 62.5% were male. Aeroallergen sensitization was 85.9%, 16.5% of the patients had diagnosed with AR, and 202 of 390 patients diagnosed with asthma had both AR. Six of the 467 patients had a history of NSAID-H (1.2%). A patient had acute urticaria (methimazole), four patients had urticaria+angioedema (ibuprofen/flurbiprofen), a patient had anaphylaxis (ibuprofen). The diagnosis was confirmed by provocation test with culprit drug in a patient and with ASA in two patients. Paracetamol was determined as the safe drug in all of the patients. A questionnaire-based frequency of NSAID-H reported a frequency of 0.3% in children in the literature. This rate is thought to be much lower with diagnostic tests proven. Its frequency was found to be 1.2% in children with asthma and/or AR who applied to an allergy clinic in this study so that atopy and asthma is thought to be a risk factor for NSAID-H.

Keywords: drug hypersensitivity, NSAI, atopy



LB-PP-05

TEMPERAMENT AND PERSONALITY TRAITS IN PATIENTS WITH CHRONIC SPONTANEOUS URTICARIA: A CROSS-SECTIONAL STUDY

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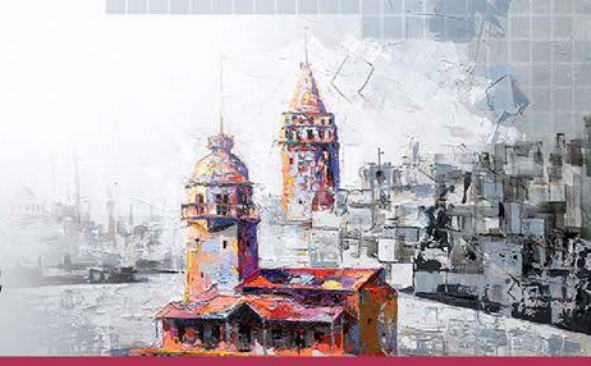
Background and Objectives: The present study aimed to assess the personality traits of patients with chronic spontaneous urticaria (CSU) compared to healthy individuals.

Materials-Methods: In this cross-sectional study during 2016 - 2018, all patients with CSU, considered as research community, 100 patients with CSU were selected using the convenience sampling method. Moreover, 100 healthy participants were selected as the control group. Research instruments were Temperament and Character Inventory (TCI) and a demographic checklist. Data were analyzed using descriptive statistics, t-test, and chi-square test using SPSS Software version 23.

Results: The patients had higher scores in novelty-seeking (P = 0.041) and harm avoidance (P = 0.015), while the healthy individuals had higher scores in self-directedness (P = 0.003) and cooperativeness (P = 0.001). Moreover, male patients had higher scores in novelty-seeking (P = 0.006) and reward dependence (P = 0.013); however, female patients had higher scores in self-transcendence (P = 0.001) and cooperativeness (P = 0.019). Furthermore, there was a correlation between the disease duration of with reward dependence, self-directedness, and self-transcendence. **Conclusions:** Personality traits seem to be associated with CSU. In this regard, patients with chronic spontaneous urticaria had higher scores in novelty-seeking and harm avoidance and lower scores in self-directedness and cooperativeness than healthy individuals.

Conclusions: Personality traits seem to be associated with CSU. In this regard, patients with chronic spontaneous urticaria had higher scores in novelty-seeking and harm avoidance and lower scores in self-directedness and cooperativeness than healthy individuals.

Keywords: Chronic Spontaneous Urticaria, Personality, Temperament, Trait



LB-PP-06

INFLIXIMAB DESENSITIZATION IN A CASE OF SARCOIDOSIS

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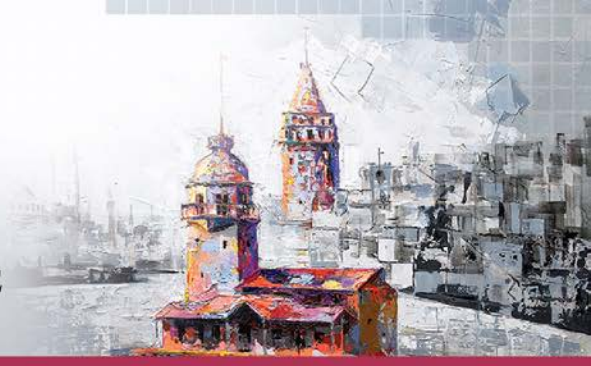
Introduction: Primary treatment is glucocorticoids in sarcoidosis. However, some patients resistant to corticosteroids or alternative therapeutic agents. Evidence has demonstrated the critical role of Infliximab (anti tumor necrosis factor (TNF)-α) which is a chimeric IgG1 monoclonal antibody in the pathogenesis of granulomatous inflammation. With infliximab, frequency of early-type hypersensitivity reactions is 2-3%. In such cases, drug desensitization is an effective and safe treatment option

Case: A 54-year-old male patient, who was diagnosed with sarcoidosis in 2014, primarily underwent methylprednisolone treatment. Due to recurrence and unresponsiveness to methotrexate and aztiroprine treatments infliximab treatment was initiated in 2016, than 17 doses of infliximab was applied, no allergic reaction was observed. After 3 years, since the disease has progressed infliximab treatment was initiated again. The initial dose 300 mg iv infliximab treatment was applied without reactions. But in second dose, 3-4 minutes after application, swollen lips, palpitation, asthenia and fainting spell were observed. After the patient was referred to our clinic for desensitization, we performed skin prick test (10 mg/ml), then intradermal test (0.1,1mg/ml), with infliximab which were both negative. 1 hour before desensitization, methylprednisolone and pheniramine were applied as premedications. Desensitization was applied with total dose of 300 mg, as 3 solutions in 15 steps utilizes 3 concentrations (0.01, 0.12, 1.18 mg/ml), starting at 0.003 mg dose and increasing every 15 min. Desensitization was completed in 4-6 hours and no allergic reaction was observed.

Conclusion: This 15 step modified protocol was successful and safe in patients with infliximab hypersensitivity reactions.

Keywords: Infliximab, hypersensitivity reaction, desensitization, sarcoidosis



LB-PP-07

CEFTRIAXONE-INDUCED ACUTE GENERALIZED EXANTHEMATOUS PUSTULOSIS CONFIRMED BY PATCH TESTING

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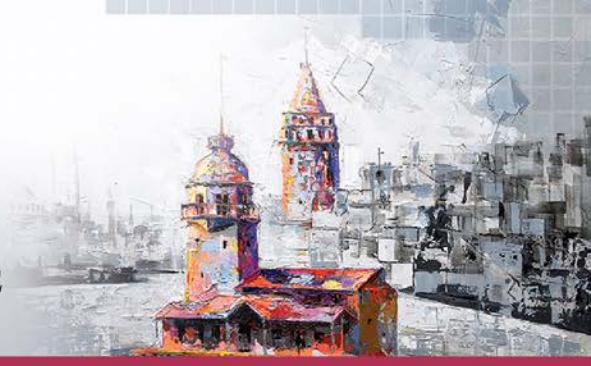
Background: Acute generalized exanthematous pustulosis (AGEP) is a rare cutaneous drug reaction that presents with rapid onset of non-follicular sterile disseminated pustules on oedematous erythema.

Case: A 12-year-old female patient with the diagnosis of acute gastroenteritis was consulted to our allergy department because of enlarging itchy erythema with numerous small non-follicular pustules most commonly located over the trunk and extremities, and high fever developed on the second day of ceftriaxone treatment. Laboratory test showed leukocytosis with high absolute neutrophil count, and lymphopenia. Other laboratory test results were normal. Viral serology, blood and throat swab cultures were negative. Ceftriaxone was immediately stopped. Fever subsided within 24 hours. Mild desquamation was observed after 3 days, and the skin was completely healed in 10 days. According to the AGEP scoring system of the EuroSCAR study group, diagnosis of AGEP was confirmed. Skin biopsy was consistent with AGEP. Six weeks after the reaction, patch test with ceftriaxone was performed. Ceftriaxone (200mg/ml), and normal saline (as negative control) were applied to skin on the child's upper back using IQ Chambers. The occlusion time was 48hr. Strong positive reaction to ceftriaxone was documented with infiltrated erythema and pustules 15 min after removing the cups. Patch tests with amoxicilin, amoxicilin-clavulanate, clarithromycin and trimethoprim/sulfomethoxazole were performed three months later, which all resulted negative.

Conclusion: AGEP is severe and rare cutaneous drug reaction. We wanted to emphasize that patch tests are usefull not only for identifying the culprit drug in AGEP, but also to find a safe alternative.

Keywords: Acute generalized exanthematous pustulosis, drug hypersensitivity, ceftriaxone, patch testing.



LB-PP-08

BRAZILIAN REGISTRY OF ANAPHYLAXIS OF BRAZILIAN ASSOCIATION OF ALLERGY AND IMMUNOLOGY (RBA-ASBAI): CLINICAL MANIFESTATIONS AND EVOLUTION OF ENROLLED PATIENTS

Dirceu Solé, Herberto J. Chong Neto, Alexandra Sayuri Watanabe, Maria Cecilia B. S. Figueira, Elaine Gagete, Alex E. Lacerda, Cynthia M. F. Lima, Albertina V. Capelo, Renata P. Bittar, Marisa R. Ribeiro, Priscila G. Wolff, Ingrid Souza Lima, Ana C. A. F. S. Santos, Lucila C. L. Oliveira Mario Geller, Mara M. R. Félix, Jane Silva, Priscila F. A. M. Santos, Juliano C. Philippi Philippi, Fátima R. Fernandes, Aleonara Santos, Norma P. M. Rubini, Emanuel S. C. Sarinho
Brazilian Association of Allergy and Immunology

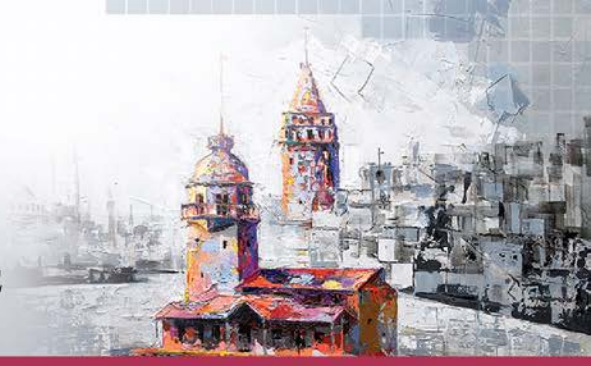
Objectives: To evaluate the clinical manifestations, treatment and immediate evolution of patients treated by immunoallergists due to an episode of anaphylaxis.

Method: Online survey from 136 patients (male, N=61), median age of 23 years (1 to 77 years; 14.7% under 4 years) by their attending physicians at the RBA-ASBAI.

Results: The anaphylactic reaction occurred in home (44.1%), hospital/health unit (14.7%), park/field (14%). It started within the first 30 minutes after contact with the triggering agent in 84.6% of patients and in 92.6% within the first hour. Skin manifestations predominated (91.9%; angioedema, urticaria, generalized erythema) followed by respiratory (69.1%; dyspnea, throat oppression, bronchospasm), cardiovascular/other (55.9%; hypotension, lipothymia, loss of consciousness) and gastrointestinal (35.3%; recurrent vomiting, diarrhea, oropharyngeal pruritus). For 18.4% of patients (mean age 21.4 years; 1 to 77 years) this was the first episode. The current episode was more severe than previous episodes for 52.9%. Patients were treated in ED (66.2%); at the reaction site (20.6%), intensive care unit (6.6%). 63.2% of patients received IM adrenaline, antihistamine 89.0%, systemic corticosteroid 86.8%, bronchodilator 27.9% and O2 supplementation 33.8%. Four patients were resuscitated and nine were admitted to the ICU. Two had a biphasic reaction (1.5%).

Conclusion:RBA-ASBAI shows that the episodes started very quickly (first 30 minutes), mostly occurred in the house, and the skin manifestations were the most frequent. Although the use of IM adrenaline was substantial, that of antihistamines and corticosteroids reached almost 90%. The evolution of the patients was satisfactory and a biphasic reaction occurred in few patients.

Keywords: anaphylaxis, clinical manifestation, epidemiology



LB-PP-09

BRAZILIAN REGISTRY OF ANAPHYLAXIS OF BRAZILIAN ASSOCIATION OF ALLERGY AND IMMUNOLOGY (RBA-ASBAI): ETIOLOGY AND DIAGNOSTIC INVESTIGATION OF REGISTERED PATIENTS

Dirceu Solé, Herberto Jose Chong Neto, Alexandra S. Watanabe, Maria Cecília B. S. Figueira, Elaine Gagete, Alex E. Lacerda, Cynthia M. F. Lima, Albertina V. Capelo, Renata P. Bittar, Marisa R. Ribeiro, Priscila G. Wolff, Ingrid Souza Lima, Ana C. A. F. S. Santos, Lucila C. L. Oliveira, Mario Geller, Mara M. R. Félix, Jane Silva, Juliano C. Philippi, Fátima R. Fernades, Aleonara Santos, Norma P. M. Rubini, Emanuel S. C. Sarinho
Brazilian Association of Allergy and Immunology

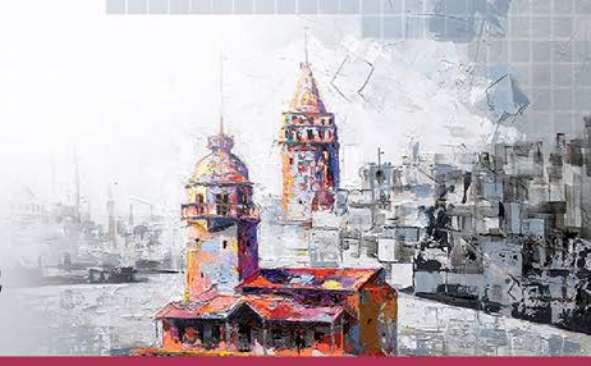
Objectives: To identify the etiological agents and investigation methods used in the follow-up of patients treated by immunoallergists due to an episode of anaphylaxis and whose data were entered in the RBA-SBAI.

Method: To evaluate online data from 136 patients (male gender, N=61; median age 23 years [1 to 77 years; 14.7% under 4 years]) regarding the etiologic agent of the anaphylactic reaction and diagnostic tests employees for their confirmation.

Results: The agent responsible for the current episode was identified by 91.2% of the patients (N=124) being food (46.8%; cow's milk, seafood, wheat, peanuts, among others), drugs (26, 6%; non-steroidal anti-inflammatory drugs, antibiotics among others), insects (23.4%; ants, wasps and bees) were the most reported. Food predominated among children and drugs among adults. Exercise (10.3%), medication (6.6%), alcohol (2.9%) and emotional stress (2.2%) were cofactors indicated by some patients. For diagnostic confirmation, the following were performed: determination of serum levels of specific IgE/components (73.5%), intradermal skin test (17.6%), immediate reading skin test (15.4%), oral challenge and clinical history. (5.9% each). Serum tryptase was determined in only 12 patients and in 3 it was elevated.

Conclusion: Food, drugs and insect bites were the most frequently mentioned etiological agents and among them, cow's milk, non-steroidal anti-inflammatory drugs and ant predominated, respectively. The search for specific serum IgE has been one of the main ways to establish the diagnosis. Serum tryptase dosage has been used by a small portion.

Keywords: Anaphylaxis, diagnoses, epidemiology



LB-PP-10

EVALUATION OF ENCOUNTERS WITH TEST DRUGS IN CHILDREN AFTER THE DRUG PROVOCATION TESTS

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Division of Pediatric Allergy and Immunology, Pamukkale University, Denizli, Turkey

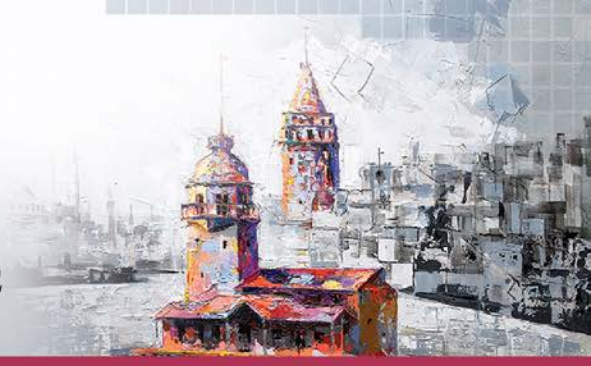
Introduction: Drug provocation tests (DPT) are gold standard methods in the diagnosis of drug allergies. There is limited data about exposures to the drugs after DPTs in children. In this study, we investigated encounters with the tested drugs after DPTs.

Method: We reviewed medical records of patients who underwent DPT between 2017 and 2022 at our department. We performed the telephone interview with the parents to ask about patients' encounters with the test drugs.

Results: The telephone interview was conducted with 156 (69.3%) of 225 patients who underwent DPTs. Ninety-three (59.3%) were male. The mean age of patients at the DPT was 8.2±0.4 years. One-hundred forty (89.7%) tests were performed with the suspected drugs, while 16 (10.3%) with the alternative drugs. The most frequently tested drugs were beta-lactam antibiotics (n=76; 48.7%) and nonsteroidal anti-inflammatory drugs (NSAIDs) (n=39; 25%). Of the tests, 123 (78.8%) resulted in negative; 33 (21.2%) were positive. Among patients with negative DPTs, 80 (65%) children encountered test drugs after the DPT, and one (0.8%) experienced mild urticaria. In patients with positive DPTs, 3 (9.1%) encountered test drugs, but none had reactions. Among the negative DPTs, the rate of encountering tested drugs after tests was significantly higher in NSAIDs compared to BLs (87.1% vs. 54.9%, p=0.004).

Conclusion: In our department, beta-lactams and NSAIDs were the most frequently tested drug groups in DPTs. After DPTs, nearly two-thirds of the patients with negative DPT results encountered the test drug, and the rate of exposure to NSAIDs was higher than BLs.

Keywords: Drug provocation test, children, antibiotics, beta-lactams, nonsteroidal anti-inflammatory drugs



LB-PP-11

A CASE OF COMMON VARIABLE IMMUNODEFICIENCY WITH EOSINOPHILIC GASTROINTESTINAL DISEASE IN AN OLD AGED EGYPTIAN MALE

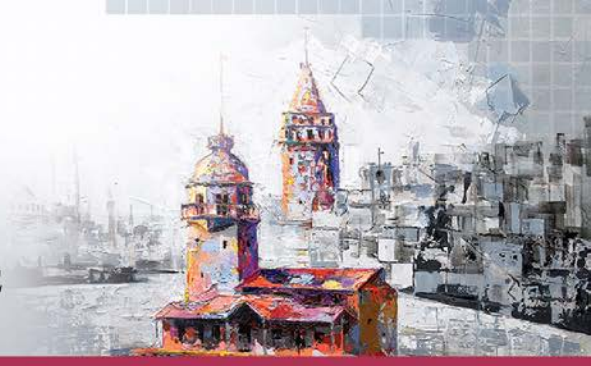
Ahmed Yehia Elmazaly
Ahmed Yehia Elmazaly

Introduction: Common Variable Immunodeficiency (CVID) is the most common primary immunodeficiency disorder (PIDD), it displays impaired terminal B-cell differentiation and defective antibody responses. CVID has a diversity of heterogeneous phenotypes, such as infections, non-infectious gastrointestinal (GI) disorders, cytopenia, lymphoproliferative disorder and other autoimmune diseases.

Case Description: A 60-year-old male patient presented with 2-year history of weight loss (15 kg) and diarrhea with no fever, abdominal pain or vomiting. Examination revealed no jaundice, lymphadenopathy, splenomegaly or lower limb edema. Vital signs were normal. Routine laboratory findings were significant for high C-reactive protein. Serology for HIV was negative and for immunoglobulins (Ig) showed marked reduction. Immunological studies, as regard Peripheral lymphocyte count and B-cell count were normal. Stool samples were positive for occult blood and calprotectin. Upper & lower GI endoscopies revealed antral gastritis, scalloping duodenitis, small flat polyps at sigmoid colon, pathological analysis of biopsies were taken revealed diffuse increased eosinophils infiltration at duodenal, ileal and colonic mucosa (35, 50 and 35/HPF, respectively). A diagnosis of CVID with Eosinophilic GI disorder (EGID) was made. Treatment was initiated in the form of IVIG at a dose of 0.5gm/kg on 21-day interval with oral budesonide 9mg tab at once daily dose with marvelous improvement as regard of weight gain (4 Kg) and normal bowel habits.

Discussion: EGID, including eosinophilic esophagitis (EoE) are complex inflammatory disorders of the mucosa. Reports have described EGID in PIDD patients, including agammaglobulinemia, CVID and STAT3-deficient hyper-IgE syndrome (AD-HIES).

Keywords: Immunodeficiency, Common Variable Immunodeficiency, Phenotypes, Eosinophilic Gastrointestinal Disease, Egyptian



LB-PP-12

A CASE OF COMMON VARIABLE IMMUNODEFICIENCY WITH EOSINOPHILIC GASTROINTESTINAL DISORDER IN AN OLD AGED EGYPTIAN MALE

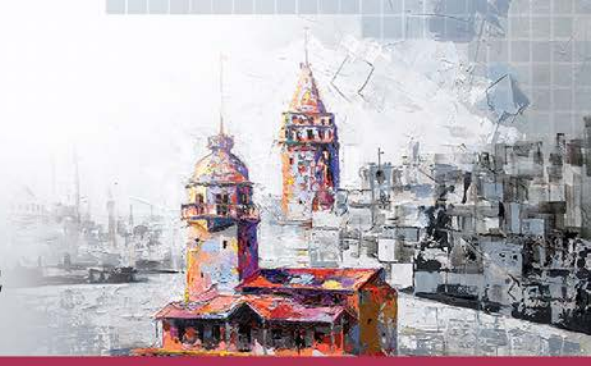
Ahmed Yehia Elmazaly
Ahmed Yehia Elmazaly

Introduction: Common Variable Immunodeficiency (CVID) is the most common primary immunodeficiency disorder (PIDD), it displays impaired terminal B-cell differentiation and defective antibody responses. CVID has a diversity of heterogeneous phenotypes, such as infections, non-infectious gastrointestinal (GI) disorders, cytopenia, lymphoproliferative disorder and other autoimmune diseases.

Case Description: A 60-year-old male patient presented with 2-year history of weight loss (15 kg) and diarrhea with no fever, abdominal pain or vomiting. Examination revealed no jaundice, lymphadenopathy, splenomegaly or lower limb edema. Vital signs were normal. Routine laboratory findings were significant for high C-reactive protein. Serology for HIV was negative and for immunoglobulins (Ig) showed marked reduction. Immunological studies, as regard Peripheral lymphocyte count and B-cell count were normal. Stool samples were positive for occult blood and calprotectin. Upper & lower GI endoscopies revealed antral gastritis, scalloping duodenitis, small flat polyps at sigmoid colon, pathological analysis of biopsies were taken revealed diffuse increased eosinophils infiltration at duodenal, ileal and colonic mucosa (35, 50 and 35/HPF, respectively). A diagnosis of CVID with Eosinophilic GI disorder (EGID) was made. Treatment was initiated in the form of IVIG at a dose of 0.5gm/kg on 21-day interval with oral budesonide 9mg tab at once daily dose with marvelous improvement as regard of weight gain (4 Kg) and normal bowel habits.

Discussion: EGID are complex inflammatory disorders of the mucosa. Reports have described EGID in PIDD patients, including agammaglobulinemia and CVID. Thus, CVID represents a unique model to study the pathogenesis of GI disorders, either Ig-dependent or Ig-independent mechanisms.

Keywords: Immunodeficiency, Primary Immunodeficiency Disorder, Common Variable Immunodeficiency, Phenotypes, Eosinophilic Gastrointestinal Disorder



LB-PP-13

CLIMATE CHANGE AND AIR POLLUTION: TWO SIDES OF THE SAME COIN

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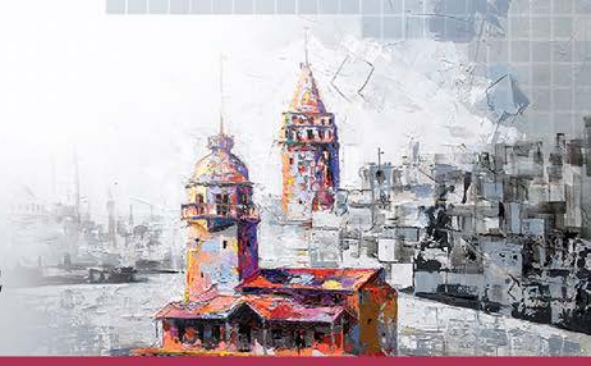
Background and Objectives: Climate change is an environmental issue created by mankind. the ever-increasing population continuously supported by improved agriculture and forestry productivity in the anthropogenic era has continuously and abruptly led to environmental variation leading to change in: Biodiversity and vegetation, air quality, precipitation duration, and temperature recordings.

Materials-Methods: NA

Results: Increasing cases of respiratory disorders especially among vulnerable groups, due to climate change and air pollution are observed in different continents.Immune intolerance and malnutrition are emerging as public health concerns. The spread of epidemics is correlated with natural climate, which are occurring more rapidly and intensely. Anthropogenic air pollution accounts for 9 million deaths per year globally. As per WHO, every year, 3 million people die prematurely because of outdoor air pollution. A number of studies have revealed potential impacts of climate change on aeroallergens such as pollen and moulds, and thus of enormous clinical significance for allergic patients.The rapid increase in the incidence of allergic symptoms globally over the past few decades is also attributed partly to change in climate with enormous increase in CO2 and atmospheric temperature, besides genetic predisposition.

Conclusions: However impact of climate change on allergens and allergy are yet to be scientifically initiated in India and details will be presented and discussed.

Keywords: Air pollution, Climate change and allergy,respiratory allergy



LB-PP-14

PHENOTYPIC PATTERNS OF VΔ1 AND VΔ2 ΓΔ T CELL SUBSETS IN PATIENTS WITH ACTIVE PULMONARY TUBERCULOSIS

Tekle Kalichava[1], Tamar Tsertsvadze[1], Nunu Mitskevich[1], Zaza Avaliani[2], Peter Maldwyn Lydyard[3], Mark Bodman Smith[4], Nina Porakishvili[5]
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[4]Institute for Infection and Immunology, St Georges' University of London, UK.
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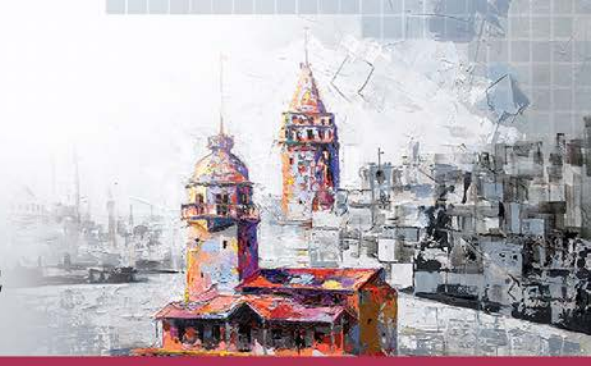
Background: Tuberculosis (TB) represents a global health problem. γδT cells are a focus of attention regarding their importance in *Mycobacterium tuberculosis (Mtb)* disease. Our aim was to characterize the expression patterns of the early activation marker CD69 on the Vδ2 subset of γδT cells with effector and memory phenotype in patients with active pulmonary TB (ATB).

Methods: Peripheral blood (PB) was obtained from 22 untreated, newly diagnosed patients with ATB and 10 healthy age-matched volunteers as controls. Peripheral blood mononuclear cells were separated and γδT cells identified in the CD3+T cell pool using fluorescent monoclonal antibodies(mAbs) in combinations CD3+Vδ1 or CD3+Vδ2. Anti-CD69, anti-CD45RA, anti-CD27, anti-CD183 and anti-CD195 mAbs and flow cytometry.

Results: No differences in the CD3+Vδ1+ T cells were observed in the PB of patients with ATB but there was a significant increase in CD3+Vδ2+T cells ($p=0.03$) as well as CD69 expressing Vδ2T cells ($p=0.02$). Co-expression of CD27 and CD45RA (CD27+CD45RA+cells) was significantly increased on both subpopulations of γδ T cells in ATB. In addition, expression of CD183(CXCR3) and CD195(CCR5) combination with CD45RA was also increased on both subpopulations of γδT cells (all of the above $p<0.05$).

Conclusion:ATB is characterized by accumulation of γδT cells with short-lived multifunctional CD27+CD45RA+ phenotype enriched for CD69 marker. This phenotype of γδT cells might be driven by *Mtb* infection, whereby elevated expression of chemokine receptors CXCR3 and CCR5 on both γδT cell subtypes may lead to their migration to the site of infection and granuloma formation.

Keywords: Pulmonary Tuberculosis, γδ T cells, Monoclonal antibodies(mAbs)



LB-PP-15

IS THERE RELATIONSHIP BETWEEN TOXOPLASMA GONDII IGG SEROPOSITIVITY AND IDIOPATHIC PARKINSONISM AND DOES IT HAVE CORRELATION WITH CORTISOL BLOOD LEVEL ?

Ahmed Abdelrahman Daoud
Department of medicine,faculty of medicine, Tanta university

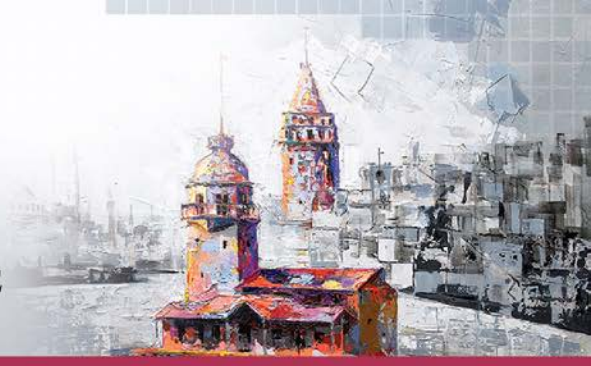
Background: some researches linked between latent Toxoplasmosis and neurological diseases, now the main interest is the propable relation between toxoplasmosis and neurological diseasesas epilepsy and Parkinsonism. AIM: To detect the incidence of Toxoplasma gondii infection in patients idiopathic Parkinsonism and correlate it to their blood level of cortisol.

Materials-Methods: This study was conducted on 30 idiopathic Parkinson's Patients, 30 psychiatric Patients, 30 apparently healthy individuals. All subjects were submitted to a questionnaire, detection of ant-Toxoplasma IgM, anti-Toxoplasma IgG and cortisol level by ELISA.

Results: of the 90 cases; 41.11% and 1.11% were positive for ant-Toxoplasma IgM and IgG, respectively. The percentage of positive anti-Toxoplasma IgG cases was in healthy group (46.67%.) followed by Parkinsonism group (43.3%). Mean cortisol level higher in Pakinson's group than other groups but still within normal levels. Contact to cats, drinking unfiltered water and consuming unwashed raw vegetables were significantly higher in Toxoplsma IgG seropositive Parkinson's patients. Highest anti-Toxoplasma IgG positive casaes in Parkinson's group were detected in stage 3 of the disease.

Conclusion: A high Toxoplasma seropositivity in association with Parkinsonim. Toxoplasma gondii oocyst may be was the most propable main mode of transmission of Toxoplasma gondii in idiopathic Parkinson's patients. Toxoplasma gondii may worsen idiopathic Parkinsonism. Cortisol level was higher in Parkinson's patients, still it showed no significant relationship with Toxoplasma gondii seropositivity.

Keywords: Toxoplasma gondii, Toxoplasmosis, Parkinson's disease, Cortisol.



LB-PP-16

AIRBORNE PARTICULATE MATTER INDUCES NLRP3 INFLAMMASOME-MEDIATED PYROPTOSIS VIA ACTIVATION OF ROS IN HUMAN AIRWAY EPITHELIAL CELLS

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[2]Clinical Research Institute, Daejeon St. Mary's Hospital, Daejeon, Republic of Korea

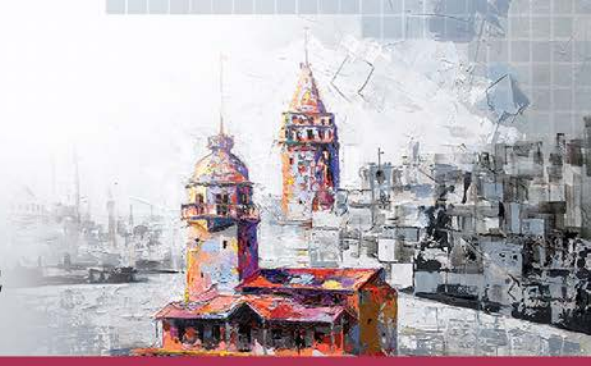
Background and Objectives: Exposure to airborne particulate matter(PM) has been linked to the aggravation of various health problems. Thus we investigated the effect of PM on human airway eithelial cell and the underlying pathway.

Materials-Methods: The effects of PM on viability of human bronchial epithelial cell were determined by MTT. DCFDA was used to measure ROS levels. Western blotting analysis were used to measure NLRP3, IL-1b, IN-18.

Results: PM reduced cell viability and increased ROS expression in human bronchial epithelial cell. PM increased the NLRP3, IL-1b, IL18. NAC(N-acetyl cysteine) treatment decreased ROS production in PM-exposed human bronchial epithelial cells.

Conclusions: PM exposure induces NLRP3 inflammasome- mediated pyroptosis via activation of ROS in human bronchial epithelial cells.

Keywords: Particulate matter, epithelial cell, pyroptosis, inflammasome



LB-PP-17

MOLECULAR SENSITIZATION PROFILE TO DERMATOPHAGOIDES PTERONYSSINUS IN TURKISH CHILDREN

Sevda Tüten Dal, Ümit Murat Şahiner, Özge Soyer, Bülent Enis Şekerel
Department of Pediatric Allergy and Asthma Division, Hacettepe University, School of Medicine, Ankara, Turkiye

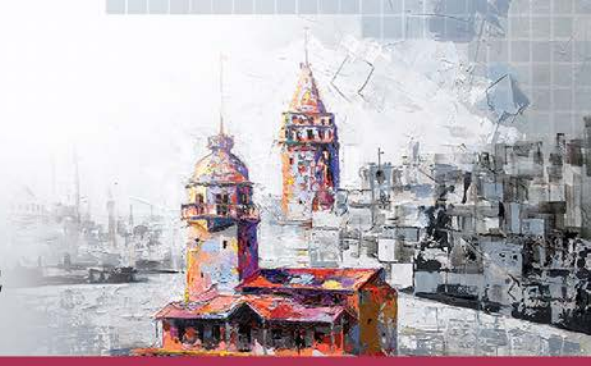
Objectives: We aim to document sensitization profile of Dermatophagoides pteronyssinus (Der p) in Turkish children (1-18 year) and its association with atopic diseases and age.

Methods: The study population consisted of 76 patients (median/IQR age, 6.43 [4.62-9.89] years; 68.4% males) selected from those evaluated for aeroallergen sensitivity with the multiplex test (ALEX2 test). Most had co-sensitivity to other aeroallergens (69,7%), and 61.8%, 53,9%, and 57.9% had ever atopic dermatitis, ever asthma, and current allergic rhinitis.

Results: The prevalence of sensitization was 36,8%, 39,5%, 7,9%, 13,2%, 19,7%, 19,7% 1,3% and 17,1% for Der p1, Der p2, Der p5, Der p7, Der p10, Der p20, Der p21 and Der p23, respectively. There was no patient with Der p11 and only one patient with Der p21 sensitivity. While 17,1% and 13,1% of patients had only Der p 10 (tropomyosin) and Der p 20 sensitivity, all of the remainder had Der p 1 and/or Der p2 sensitivity. As the age of the patients increased, both the percentages of sensitivity for almost all molecules except Der p10 increased, and the percentage of those sensitive to only one mite molecule decreased. Sensitization profiles did not differ according the presence of atopic diseases and their active and inactive states during the past year.

Conclusion: In house dust mite allergy, Der p1 and Der p2, followed by Der p10, Der p20 and Der p23 are the most common sensitivities in Turkish children. The sensitization profile reflects both the outcome of exposure time and the future risks of patients.

Keywords: allergy, rhinitis, component, dermatophagoides pteronyssinus



LB-PP-18

MOLECULAR SENSITIZATION PROFILE TO CAT IN TURKISH CHILDREN

Gulnar Alıyeva, Ümit Murat Şahiner, Özge Soyer, Bülent Enis Şekerel
Pediatric Allergy and Asthma Division, Hacettepe University School of Medicine, Ankara, Turkiye

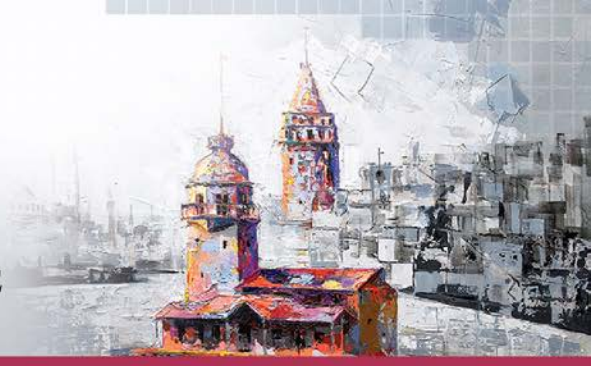
Objectives: Documentation of molecular sensitization profile of cat in Turkish children (1-18 year) and its association with atopic diseases and age may contribute to our understanding.

Methods: The study population consisted of 104 patients (median/IQR age, 8.17 [4.85-11.4] years; 67.3% males) selected from those evaluated for aeroallergen sensitivity with the multiplex test (ALEX2 test). Most had co-sensitivity to other aeroallergens (68.3%), and co-sensitization rates for dog, horse and rabbit were 49%, 19.2% and 1.9%, respectively. Furthermore, 41.3%, 51.9%, and 39.4% had ever atopic dermatitis, ever asthma, and current allergic rhinitis, respectively.

Results: The prevalence of sensitization was 91.3%, 19.2%, 17.3%, and 17.3 for Fel d 1, Fel d 2, Fel d 4 and Fel d 7, respectively. Almost 2/3 of patients were mono-sensitive to Fel d 1 and 7.7% to Fel d 2. There was no patient with Fel d4 and Fel d7 monosensitivity. As the age of the patients increased, both the percentages of sensitivity for Fel d 1 and Fel d 7, the number of sensitized cat allergen molecules and co-sensitization percentages to other allergens increased. Molecular sensitization profiles did not differ according the presence of atopic diseases and their active and inactive states during the past year. None of the patients with sensitization to Fel d 2 reported reaction upon with beef and pork meat exposure.

Conclusion: In cat allergy, Fel d 1 is the most common sensitivity in Turkish children. The sensitization profile reflects both the outcome of exposure time and the future risks of patients.

Keywords: Cat allergy, cat molecular allergen, Felis domesticus



LB-PP-19

MULTICENTER STUDY ON HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH HEREDITARY ANGIOEDEMA IN ARGENTINA

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[2]Instituto de Medicina Respiratoria, Rafaela, Argentina
[3]Instituto de Asma, Alergia y Enfermedades Respiratorias, Corrientes, Argentina
[4]Hospital San Martín, Paraná, Argentina
[5]Hospital Interzonal Especializado de Agudos y Crónicos San Juan de Dios, La Plata, Argentina
[6]Sanatorio Parque, Rosario, Argentina
[7]Centro Cardiológico Trelew, Trelew, Argentina
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[9]Hospital General De Agudos José María Penna, Buenos Aires, Argentina
[10]Clínica Privada Monte Grande, Buenos Aires, Argentina

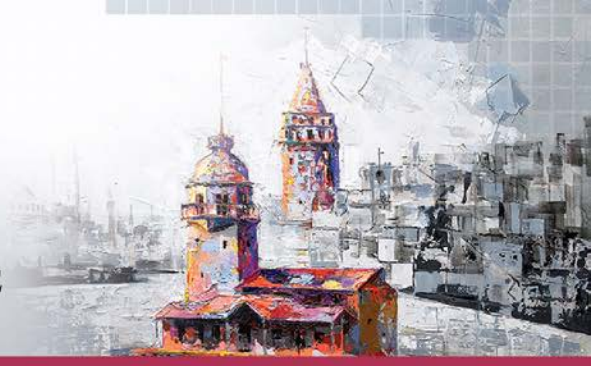
Background and Objectives: Hereditary angioedema (HAE) may been associated with a deleterious impact on health-related quality of life (HRQoL). Scarce data evaluating HRQoL in this population is available in Argentina. Our objective was to describe HRQoL in a nationwide cohort of stable adult outpatients with HAE with validated tools.

Materials-Methods: a nation-wide, cross-sectional, descriptive study was performed in 9 specialized centers. HRQoL was evaluated by the HAE-QoL questionnaire and the SF-12v2 Health Survey.

Results: 100 patients were included (median age: 41.5 years [range: 18-77]; 100% auto-reported Hispanic ethnicity; 65% female; 79% type 1 AEH). Asymptomatic, mild, moderate and severe cases were 6%, 29%, 38% and 27%, respectively. Only 17% of patients were receiving long-term prophylaxis. Icatibant was the most frequent treatment for acute episodes. All health domains SF-12v2 scores were lower than expected in general population, excepting "vitality" and "physical functioning". Total and individual HAE-QoL domains scores were reduced. Among females, total and each domain scores were below percentile 50, excepting "concern about offspring" and "disease-related stigma" in older patients. Among males, total and each domain scores were below percentile 50, excepting "concern about offspring" and "emotional role and social functioning" (younger patients), and "physical functioning and health", "disease-related stigma" and "emotional role and social functioning" (older patients). Among males aged ≥ 50, total and each domain score were below percentile 25, excepting "concern about offspring".

Conclusions: HRQoL was strikingly reduced in Argentinean patients with HAE. The need for multidisciplinary strategies approaching this complex disease is highlighted.

Keywords: hereditary angioedema, health-related quality of life, Argentina, HAE-QoL, SF-12v2



LB-PP-20

MOLECULAR PROFILE OF LATEX ALLERGENS WITH POTENTIAL IMPORTANCE FOR CROSS-REACTIVITY

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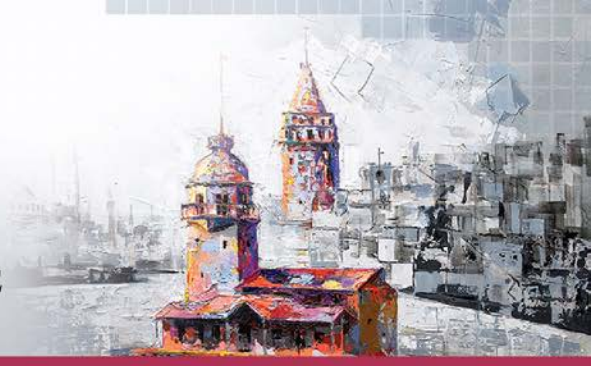
Background and Objectives: The prevalence of latex type I allergy in the general population is between 0% and 2.3%, serological examination is highly recommended for diagnosis; Various latex allergens responsible for latex-fruit-pollen cross-reactivity are discussed, such as Hev b 2, Hev b 6.02 Hev b 7, Hev b 8.The aim of the study was to determine the molecular profile and evaluate cross-reactivity in latex-sensitive patients.

Materials-Methods: 941 patients examined with ALEX2 molecular multiplex test were included in the study.

Results: Data of 941 patients were analyzed. A total of 46 (4.8%) patients had latex positivity. The most common latex allergens are Hev b 8- 31(67.4%), Hev b 3-10(21.7%), Hev b 5-1(2.2%)Hev b 11-7(15.2%) Hev b 6.02-6(13%), Hev b1-6(13%). The most common allergen was found to be Hev b 8. In 25 of our Hev b 8 susceptible patients, 80% were found to be pollen sensitive. Eight Hev b 8 positive patients presented with food allergy. One patient with Hev b 5 positive was monosensitized. Other latex allergens were negative, betv2, ole2 and phl p12 were negative. One of our cases who presented with anaphylaxis was hev b1 and hev b3 positive.

Conclusion: It is useful for scanning in multiplex system and for diagnosis of latex allergy. It helps to distinguish sensitivity from cross-reactivity. Hev b 8 sensitization in pollen-sensitive patients is mostly of no clinical significance and results from cross-sensitivity to pollen allergens (Phl p 1-12).

Keywords: latex, molecular diagnosis, cross-reactivity, CRD



LB-PP-21

RISK OF DEPRESSION AND POST TRAUMATIC STRESS DISORDER WITH RESPIRATORY ALLERGIES AMONG ADULT FILIPINO PATIENTS DURING THE COVID-19 PANDEMIC: A CROSS SECTIONAL STUDY

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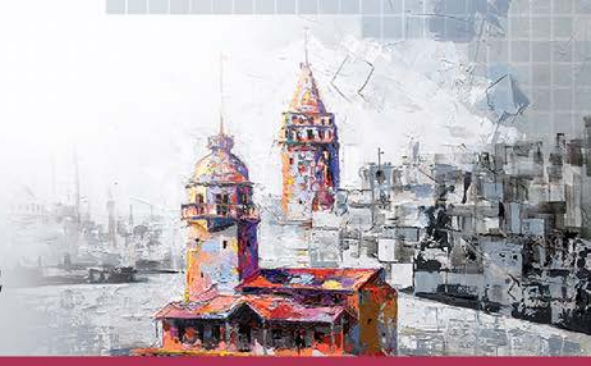
Background and Objectives: Public health emergencies can adversely affect the health, safety, and well-being of people. These effects may translate into a range of emotional reactions such as distress or psychiatric conditions, with some groups being more vulnerable than others. Various studies have shown a consistent link between allergies and psychiatric disorders. Hence, this study was performed to determine if patients with respiratory allergies are at an increased risk of developing depression and post traumatic stress disorder during the COVID 19 pandemic.

Materials-Methods: A total of 173 respondents from a single center completed the online survey from January to May 2022. Data included sociodemographic factors, presence of respiratory allergies, and PHQ-9 and IES-R ratings. Descriptive statistics and regression analysis were performed.

Results: Proportion of participants with a post-graduate education and with a higher monthly income was significantly higher among those with allergies than those without. Most of the participants with depression had mild form of depression (37.21%), while 58.14% of the participants had probable PTSD. Age and marital status were the only factors significantly associated with depression. Sociodemographic factors and presence of respiratory allergies of any degree did not have significant association with PTSD ($p>0.05$).

Conclusion: Younger population and being single are risk factors for developing mental health conditions. A multicenter study utilizing more patients and a longitudinal study design should be considered for a more comprehensive analysis of the psychologic impact of the pandemic to the mental health status of patients.

Keywords: depression, post traumatic stress disorder, COVID-19



LB-PP-22

FIXED DRUG ERUPTION AFTER COVID-19 INFECTION ABSTRACT AFTER CORONAVIRUS DISEASE 2019 (COVID-19) BECAME WIDESPREAD AROUND THE WORLD, IN CORONA DISEASE, THE SYMPTOMS OF THE DISEASE ARE FATIGUE, COUGH, FEVER, LUNG INFECTION AND INFECTION OF VARIOUS BODY

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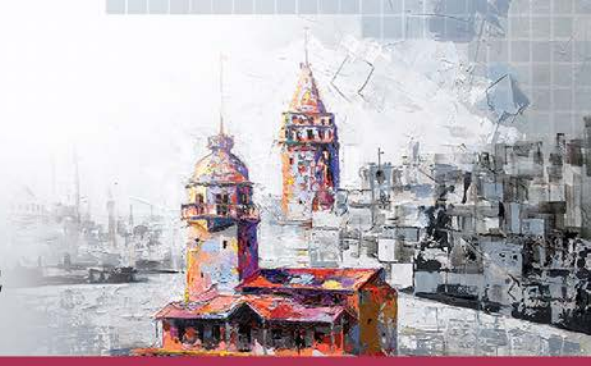
Fixed drug eruption after COVID-19 Infection. After coronavirus disease 2019 (COVID-19) became widespread around the world, In corona disease, the symptoms of the disease are fatigue, cough, fever, lung infection and infection of various body organs. Different skin symptoms were seen in corona virus including urticaria and vasculitis Dermatological reactions Like Fixed drug eruption are also reported as less common. Fixed drug eruption (FDE) is a rare and unusual adverse effect and accounts for less than 1% of all severe acute respiratory syndrome coronavirus 2.FDE has not been reported following the COVID-19 infection.Here, we describe a rare case of FDE following the administration of the first covid infection. Most skin manifestations following corona infection are mild and self-limited. Fixed drug reaction (FDE) is a rare skin side effect previously reported in nine cases after COVID-19infection.

A 26-year-old man was admitted to the allergy clinic of our hospital because of skin lesions that had begun 15 day after covid disease. The lesions were slightly itchy and painful. Physical examination demonstrated well-defined erythematous patches located on the hands, genital area and around the mouth.The lesions varied in size and did not disappear with pressure. Ten days later, his skin lesions improved leaving residual hyperpigmentation. The next time, 4 days after taking a naproxen tablet, He again developed skin lesions in the previous areas with greater severity., No systemic manifestations were observed.The laboratory investigations included CBC diff, ESR, CRP were normal. PCR for covid was Postive.

Keywords: Fixed drug eruption,COVID-19, Infection



LB-PP-23

EVALUATION OF COVID-19 VACCINATION STATUS AND POST VACCINE REACTIONS IN ADOLESCENTS WITH ALLERGIC DISEASES

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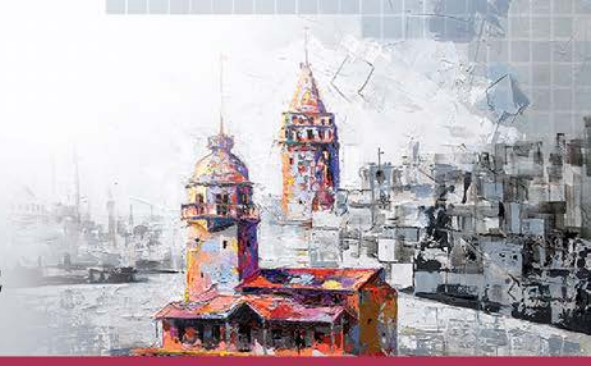
Background: Studies examining COVID-19 vaccine reactions and reasons for parental hesitancy to COVID-19 vaccines in allergic adolescents are limited.

Methods: Between January 2022-April 2022, a questionnaire was filled by the parents of adolescents who were followed up in the Pediatric Allergy Outpatient Clinic. Vaccination status, characteristics of reactions after vaccination, frequency of parental vaccine hesitancy were recorded.

Results: In 104 patients, seventy were followed for asthma, 64 for allergic rhinitis, 12 for drug allergy, 3 for food allergy, 1 for chronic urticaria. Of the patients, 52.5% were vaccinated after a previous COVID-19 infection, 70% without a previous history of COVID-19 infection (p=0.07); 38 were not vaccinated. Eight patients were not vaccinated due to recent COVID-19 infection. Reasons for vaccine hesitancy/rejection were (n=30): thinking that the vaccine is harmful (63.3%), the vaccine is not effective (53.4%), or not suitable for children (46.7%). 14 (21.2%) had symptoms within first 2 hours after vaccination. Most common symptom (n=10) was arm pain. Urticaria and itching were reported in one patient and respiratory symptoms in one patient. These two patients could receive second dose without reaction.

Conclusion: Vaccination was more frequent among children who did not have covid-19 infection. One third of patients were not vaccinated and most common reason for vaccine hesitancy was distrust to vaccine. However vaccinated allergic children in our study did not experience any serious events.

Keywords: covid-19, adolescents, vaccination, allergic reactions



LB-PP-24

RITUXIMAB, THERAPY FOR THE MANAGEMENT OF PANESCLEROSING SCLERODERMA OF CHILDHOOD

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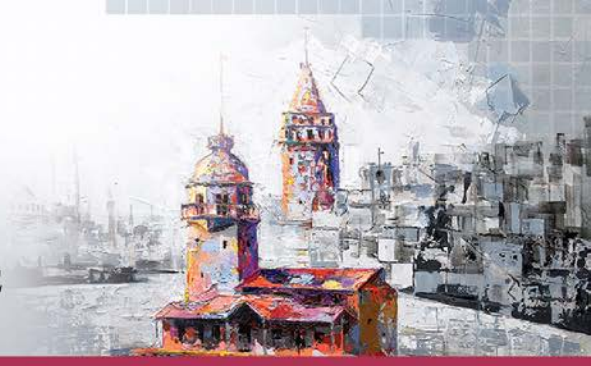
Background: Scleroderma is an autoimmune disease of connective tissue. Disabling Pan sclerotic Morphea of Childhood or Pansclerosing Scleroderma (PD) is a very rare and severe variant of localized scleroderma. It manifests as rapidly progressing Deep skin fibrosis leading to skin ulceration and joint flexion contractures. There is no specific treatment therapy.

Objective: To present the case of a patient with PD with a good response to biological treatment (Rituximab) in a public hospital.

Materials-Methods: Eleven-year-old male, with no personal or family history of pathological background. He presented with varicella zoster virus infection that resolved without acute complications. Two months later, he presented hyperpigmented skin lesions located in abdominal region and both lower limbs, with bilateral ankylosis of the ankles, without ulceration. Immunological studies: negative antinuclear antibodies (ANA) negative, SCL-70, IgG hypergammaglobulinemia of 3,041 mg/dl, normal serum complement and eosinophilia. No affectation was found in other systems. Treatment with immunosuppressant (Methotrexate and prednisone) was started at therapeutic doses. After 4 weeks with general deterioration, evident progress of sclerosis and contracture in the hip, knees and ankles making walking impossible. For this reason, management with biological monoclonal anti-CD20 antibodies (Rituximab) at a dose of 375 mg/m2 once a week for four doses was started; after which the child regained skin elasticity, joint mobility, knee flexion and extension, and hip movements achieving own ambulation.

Conclusion: Biological therapy in conjunction with immunosuppressive management is useful in cases of PD.

Keywords: Scleroderma, immunosuppressive Therapy, Rituximab



LB-PP-25

COVID-19 AND IMMUNODEFICIENCY. A FATAL CASE IN A PEDIATRIC PATIENT

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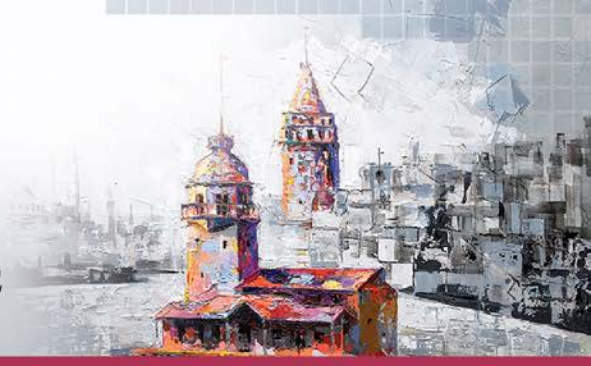
Background: COVID-19 has caused high lethality in older adults with comorbidities. In children, fatal cases occur mostly in patients with pre-existing heart disease, lung disease, and immunosuppression.

Objective: To present the autopsy findings of a pediatric patient with confirmed SARS-CoV-2 infection and immunosuppression.

Case presentation: A 3-year-old girl with a five-month history of steroid-resistant nephrotic syndrome treated with steroids and cyclosporine, who presented clinical signs of COVID-19, a positive epidemiological link and positive RT-PCR for SARS-CoV-2. On the third day of illness, was admitted for hospital treatment for mild pneumonia, two days later she progressed to ventilatory, hemodynamic and kidney failure, causing his death in intensive care unit. Macroscopically, the autopsy revealed lung with red hepatization, thrombi in the inferior vena cava, portal vein and right renal vein with 95% obstruction. Microscopically, the cortex of the thymus with a decrease in lymphoid cells, medulla with dilated, large, and cystic Hassall's corpuscles. In the lung: alveoli and alveolar ducts with thick hyaline membranes, as well as intraalveolar hemorrhage. A decreased in lymphoid tissue was found in the small intestine, appendix, and colon, in addition to the total absence of plasma cells in the lamina propria of all intestinal segments. It was concluded that the cause of death was infection by SARS-CoV-2 complicated with bronchopneumonia in red hepatization, thrombosis of the inferior vena cava, portal vein and right renal vein, glomerulopathy due to minimal change disease, and primary common variable immunodeficiency.

Conclusion:SARS-CoV2 infection in pediatric patients with immunosuppression can be fatal.

Keywords: COVID-19, immunosuppression, glomerulopathy



LB-PP-26

CORRELATION BETWEEN INTERLEUKIN 6 (IL-6) LEVELS AND BIOMARKERS IN PATIENTS WITH POST-COVID (COVID-19) RESPIRATORY COMPLICATIONS

Revaz Sepiashvili[1], Irina Pkhakadze[2], Manana Chikhladze[1], Sophio Gamkrelidze[2], Darejan Khachapuridze[2], Ketevan Jugeli[2], Mariam Rodonaya[2], Mariam Sturua[2], Mariam Kiria[2]
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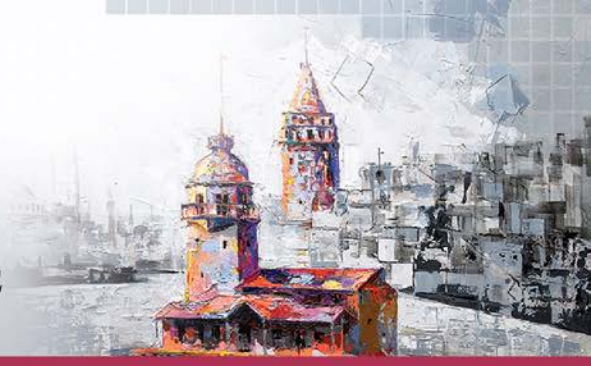
This part of the study was aimed at determining the correlation of interleukin 6 with the main biomarkers among the patients with post-COVID respiratory complications. 78 adult patients (46 women and 32 men, 18 to 75 years of age), with post-COVID respiratory symptoms - prolonged dry annoying cough, shortness of breath, discomfort in the shoulder blades area, who applied to the Institute of Allergology, Asthma and Clinical Immunology for further diagnosis and management, were involved in the study. In patients with post-COVID (COVID-19) respiratory complications, have been investigated such several biomarkers and Interleukin-6 (IL-6).

Interleukin-6, an increase in the level of this marker by 22.5 ± 3.1 (norm < 7) was found in 41 (52 %) patients. In addition, a slight increase in D-dimer level - 218.5 ±2.45 (norm < 200) was revealed only in 17 (22%) of 78 examined patients; an increase in CRP level was noted in 40% of the patients involved in the study, and only 7 (10%) patients with complicated respiratory changes showed a slight increase in procalcitonin level - 0.75 ±0.23 (norm 0 -0.5). Since the main clinical symptoms of the patients were a dry, annoying cough, acute respiratory failure with breathing difficulty (exhalation and/or inhalation), the allergic status has been assessed and an increase in total IgE level was revealed in 28 (36 %) of examined patients.

The study evidenced the necessity in investigation, control and monitoring of biomarkers, as well as IL-6 and total IgE levels in patients with post-COVID respiratory complications.

Keywords: COVID-19, IL-6, respiratory complications,post-COVID



LB-PP-27

ALLOPURINOL-INDUCED SEVERE CUTANEOUS ADVERSE REACTIONS: A REPORT OF TWO CASES

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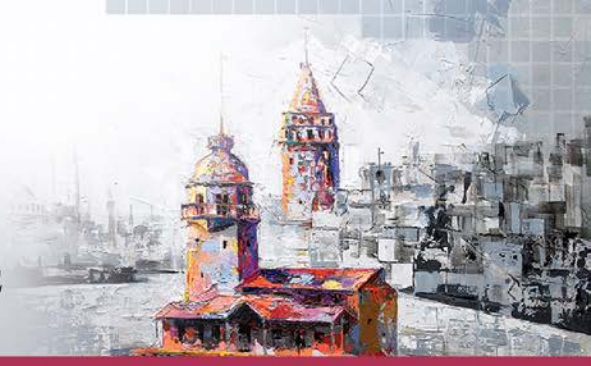
Background and Objectives: Severe cutaneous adverse reactions (SCARs) are rare and frequently represent with a drug reaction. The use of allopurinol is among the drugs with the highest risk factors for SCARs worldwide. There are multiple risk factors for allopurinol-induced SCARs, including genetic and non-genetic factors. Allopurinol-induced SCARs such as Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), and drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome are reportedly associated with the HLA-B*58:01 genotype. Genotyping before allopurinol has not been used routinely yet; We aimed to draw attention to genotypic analysis with two cases we followed.

Material-Methods: We presented the treatment and follow-up protocol of two cases of allopurinol-induced SCARs followed in our clinic.

Results: Two patients who were treated with allopurinol for gout were diagnosed with SCARs based on clinical, laboratory and pathology results, one was diagnosed with TEN and the other was DRESS syndrome. These two cases were treated with systemic corticosteroid therapy. However, one patient died due to Covid19 pandemic infection. The patient with the diagnosis of DRESS was discharged with a corticosteroid reduction scheme and the follow-up was continued.

Conclusions: Allopurinol is the first-line agent for the treatment of gout, but it also carries the risk of serious side effects, potentially including risks of morbidity and mortality, as seen in our patient with TEN. Therefore, HLA-B genotyping can help prevent serious problems attributable to allopurinol therapy.

Keywords: Allopurinol, SCARs, TEN, HLA-B, DRESS



LB-PP-28

KREBS VON DEN LUNGEN-6 (KL-6), COVID-19, AND OTHER VIRAL INFECTIONS

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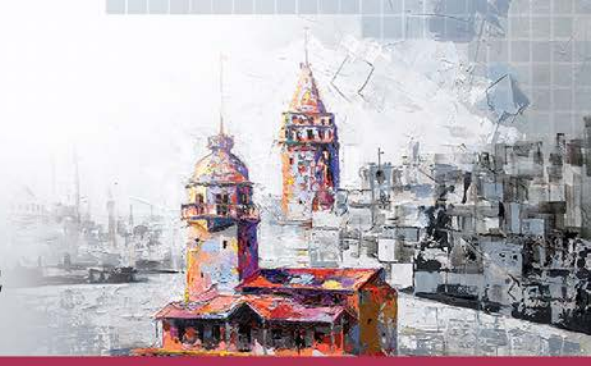
Objective: COVID-19 pandemic has caused numerous deaths. Studies have shown that Krebs von den Lungen-6 (KL-6) levels are associated with severe disease. KL-6 is mainly expressed on type II alveolar epithelial cell surface and respiratory bronchiolar epithelium and is a good indicator of alveolar epithelial cell damage. The purpose of this meta-analysis is to evaluate the association of serum KL-6 levels with COVID19 and other viral infections.

Method: A systematic literature search was conducted with the keywords "Krebs von den Lungen-6" OR "KL-6" AND "virus" OR "viral infections" OR "COVID-19" in PubMed, Web of Science and Scopus. A total of 229 studies were screened, of which 6 were eligible for cumulative meta-analysis.

Results: According to the cumulative meta-analysis results, serum KL-6 levels were significantly higher in the patient groups than in the controls (mean difference: 53.36, 95% CI [27.92, 78.80], $p<0.0001$). Cumulative ROC analysis results showed that the cut-off value of KL-6 level in viral infections was 262.85 U/mL with 92.3% specificity and 52.2% sensitivity (AUC: 0.920, $p<0.001$). Data showed, serum KL-6 level was shown to be inversely proportional to both CD8 lymphocyte count and NK cell count (p: 0.0262, r: -0.9738 (n=4); p: 0.0066, r: -0.9934, respectively. (n=4)).

Conclusion: Our results showed that patients with viral infection had higher serum KL-6 levels than controls. However, due to the limited number of studies that can be included and the lack of data in the studies, more studies are needed to understand the relationship between serum KL-6 level and viral infections.

Keywords: COVID-19, krebs von den lungen-6, meta-analysis, SARS-CoV-2, viral infection



LB-PP-29

AUTHOR AFFILIATIONS MUST HAVE ALL THE AFFILIATIONS. PLEASE DELETE UNNECESSARY AFFILIATIONS OR CORRECT THE AFFILIATION NUMBERS

Revaz Sepiashvili[1], Manana Chikhladze[1], Irina Pkhakadze[2], Sophio Gamkrelidze[2], Darejan Khachapuridze[2], Ketevan Jugeli[2], Mariam Rodonaya[2], Mariam Sturua[2], Mariam Kiria[1]
[1]National Institute of Allergology,Asthma & Clinical Immunology, Tskhaltubo,Georgia
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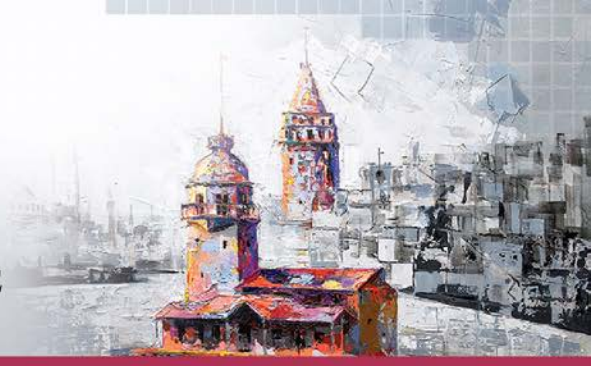
The study was aimed at monitoring the vitamin D and determining its clinical relevance in patients with post-COVID complications among Georgian population. In order to pursue the desired objective, 150 patients (81 women and 69 men; 18 to 75 years of age) with SARS-CoV-2 infection.

All patients included in the study had SarsCov-2 infection confirmed by polymerase chain reaction (PCR) testing within the last 6 months.

We study 1-st group consisted of 92 (61%) patients with post-COVID complications, and II - control group - 58 (39%) patients without post-COVID complaints, respectively.

Vitamin D insufficiency was revealed in 41 (44%) patients, deficiency in 36 (39%) and norm - only in 15 (9%), while in the control group, of 58 patients without post-COVID complaints, insufficiency was revealed only in 11 (19%), deficiency in 19 (33%), and norm in 28 (48%) patients, respectively. In addition, the statistical analysis of the obtained results showed high correlation between the vitamin D level and other COVID markers in patients of the study group with post-COVID complications. As a result of targeted management along with the regulation of vitamin D levels, post-COVID complaints were alleviated in direct proportion. The study suggested that the patients of the study group with post-COVID complaints showed statistically significant changes in vitamin D levels compared to the patients of the control group without post-COVID complications. Consequently, the study suggested the need for long-term control and monitoring of vitamin D concentrations in all patients with COVID-19 infection, especially those with post-COVID complications.

Keywords: COVID-19, SARS-2 infection, vitamin D, Post-COVID



LB-PP-30

AN UNCOMMON COMPLICATION OF INTRAVENOUS IMMUNOGLOBULIN TREATMENT: BILATERAL PLEURAL EFFUSION

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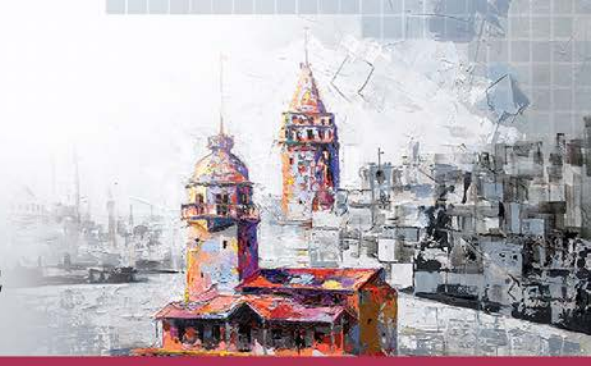
Introduction: Intravenous immunoglobulin (IVIG) treatment is frequently used for many diseases. Although often considered safe, mild to severe side effects may occur during or after the IVIG infusion. However, IVIG-induced pleural effusion (PE) is extremely rare in the literature. Here we present a pediatric case who developed bilateral pleural effusion after IVIG treatment.

Case: Twenty-three month-old girl was admitted to the pediatric intensive care unit (PICU) with sepsis and acute respiratory failure. Her symptoms resolved significantly with the treatments of a high-flow nasal cannula, fluid replacement, and broad-spectrum antibiotics. On the 4th day of her hospitalization, IVIG replacement treatment was given at a dose of 500 mg/kg, because the serum IgG level was found below - 2 standard deviation for her age. Twelve hours after the treatment, she had tachypnea, dyspnea, and desaturation. Thorax ultrasound revealed bilateral anechoic PE. The findings of pleural fluid were transudate. Serum albumin levels were within the normal range. No causative factors of PE were detected despite detailed investigations. Finally, we considered IVIG as the possible cause of PE in this case. She was successfully treated with bilateral thorax tube drainage and discharged with recovery.

Discussion: Pleural effusion is an extremely rare complication of IVIG and the pathophysiology of IVIG-related PE is unknown. Hypersensitivity reactions, increased free oxygen radicals, or toxic effects of drugs have been suggested as the possible mechanisms of drug-related PEs in the literature.

Keywords: Pleural effusion, intravenous immunoglobulin, IVIG, child



LB-PP-31

A RARE CAUSE OF ESOPHAGEAL STRICTURE IN PEDIATRICS; EOSINOPHILIC ESOPHAGITIS: CASE REPORT

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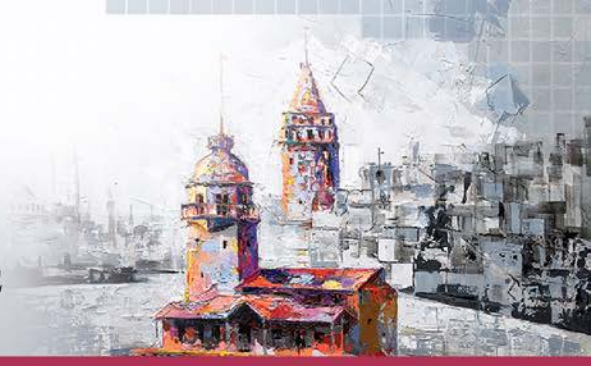
Dysphagia is a symptom that occurs as a result of mechanical inhibition of the transfer of food from the mouth to the stomach, decreased strength of the muscles that provide the swallowing movement, or deterioration of coordination. Eosinophilic esophagitis; It is a chronic disease with symptoms such as dysphagia due to eosinophil infiltration in the esophagus. Although its clinical findings vary according to age, it is similar to gastroesophageal reflux disease.

Upper gastrointestinal endoscopy should be performed when eosinophilic esophagitis is suspected in patients who present with dysphagia, have gastroesophageal reflux disease unresponsive to 24-hour pH-negative treatment, have esophageal stenosis, and are followed up for allergy atopy. Even if the endoscopic appearance is normal when eosinophilic esophagitis is considered, multiple biopsies should be taken for histopathological examination.

Esophageal stenosis, which was thought to be secondary to gastroesophageal reflux, was detected, and the patient, whose esophageal stenosis and dysphagia continued despite the application of esophageal balloon-bougie dilatation in a one-year period in pediatric surgery, was referred to us.

A pediatric patient who was found to have eosinophilic esophagitis as a result of endoscopic biopsy was presented in the light of literature to increase awareness.

Keywords: Dysphagia, eosinophilic, esophagitis, child, esophageal dilatation



LB-PP-32

DIFFICULT-TO-MANAGE FOOD ALLERGY: RESULTS FROM THE WAO FASE SURVEY

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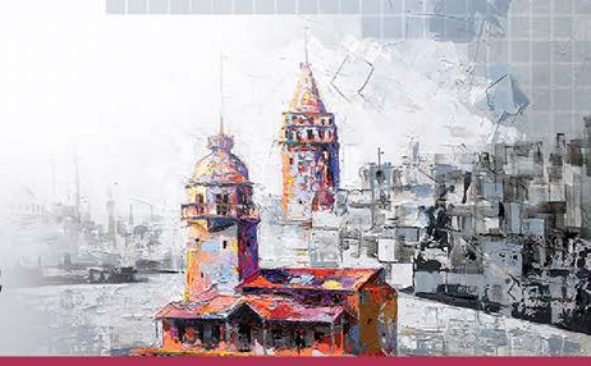
Background and Objectives: while a shared definition of difficult–to–manage asthma is available, difficult–to–manage food allergy is ill-defined. The World Allergy Organization (WAO) aim to fill this gap.



Methods: a survey on Food Allergy SEverity (FASE), centred on the frequency and characteristics of food allergy in the respective countries, was emailed to 36,000 members of the World Allergy Organization (WAO) in November 2021. Reminders were launched to re-engage potential respondents. Herein, we report its results relative to clinical criteria associated to difficult-to-manage food allergy. These were defined as difficulty to...

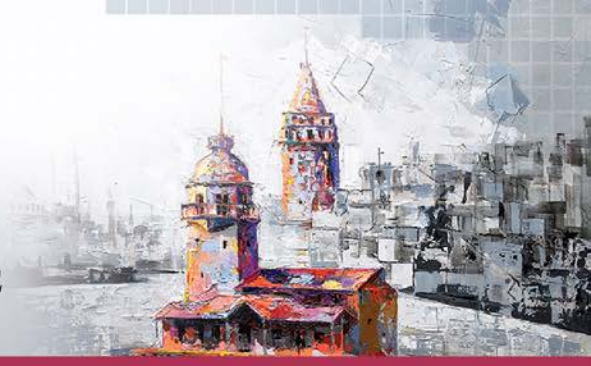
(I)...avoid the triggering allergen(s),
(II)...define triggering food allergen(s),
(III)...educate patient and family,
(IV)...be prepared to manage reactions, or
(V)...properly treat a reaction.

Results: We got answers from 50 countries. The criteria were rated as follows:
(I) 20,5% of respondents
(II) 21,6%
(III) 17,8%
(IV) 20,5%
(V) 23,8%.

The regions where a labelling legislation is in place (North America, Japan, South Africa, Oceania and Europe) are those in which issue (I) was less reported (9% to 18.6%, compared to 18.2% to 31.2% in Northern Africa, Latin America and Southern & Western Asia).
Issue (II) was more reported in Africa (40%), least reported in Japan (10%).
Issue (III) exceeded 20% in South-Eastern and Western Asia, Sub-Saharan Africa and Latin America.
Issues (IV) and (V) were less frequent in Japan, followed by Europe. Difficulties remain in other regions, included North-America.

Conclusions: Difficult-to-manage food allergy issues are present in one fifth of food allergic patients worldwide.

Keywords: Food allergy, food allergy severity, grading, survey, DEFASE



LB-PP-33

COMMON FOOD ALLERGENS: RESULTS FROM THE WAO-FASE SURVEY

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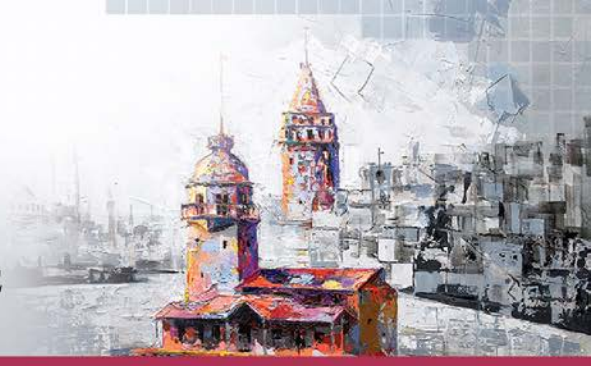
Background and Objectives: in 2014, a World Allergy Organization (WAO) survey established the relative importance of the various food allergens in the world. We aim to verify whether this frequency had been stable over time.

Materials-Methods: a survey on Food Allergy Severity (FASE) was emailed to 36,000 WAO members in November 2021.

Results: We got answers from 50 countries. Milk allergy affects more than half food-allergic patients in Latin America (55.5%) and Western Asia (50.6%). It accounts for less than one fifth in Eastern (13.0%) and Southern (17.3%) Asia, North America (15.1%) and Western Europe (6.0%). Egg is the main allergen in Western Asia (37.7%) and Sub-Saharan Africa (35.0%). Peanut predominates in North America (42.8%), and is prevalent in North (29.3%) & Western (20.0%) Europe, Oceania (20.0%) and South Africa (31.7%). Wheat, frequent in Northern (21.7%) and Sub-Saharan (18.3%) Africa, is rare in Eastern (8.0%) and Southern (5.3%) Asia, in Northern (4.5%) and Central (4.0%) America. Hazelnut is important in Africa (17.5%) and Europe (15.0%), less represented in in Eastern (10.0%) and Southern (1.3%) Asia, in Northern (8.8%) and Latin (7.1%) America. About 31% of patients displayed multiple food allergy, peaking at 55% in Southern Europe, 48% in North America, and 45% in Northern Europe.

Conclusions: egg allergy has exceeded milk allergy in Oceania, North America and Western Europe. Milk remains the most common allergen in Western Asia, Latin America, Northern Southern and Eastern Europe. Multiple food allergy affects in particular the regions with highest incidence of food allergy.

Keywords: Food allergy, DEFASE, epidemiology.



LB-PP-34

FREQUENCY AND SEVERITY OF FOOD ALLERGY OVER THE PAST 10 YEARS: RESULTS FROM THE WAO-FASE SURVEY

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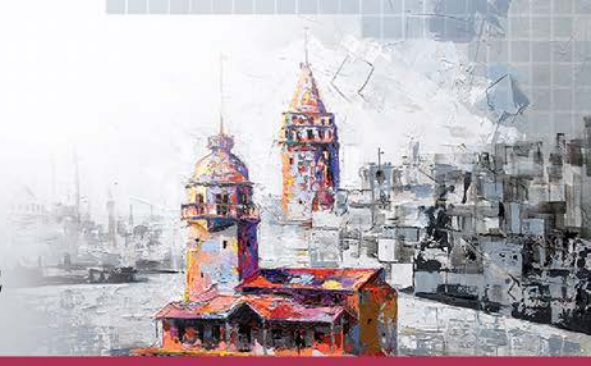
Background and Objectives: it is often stated that food allergy is on the increase, but there are few epidemiological studies that support this data. As part of the Food Allergy Severity (FASE) survey, we aimed to explore the



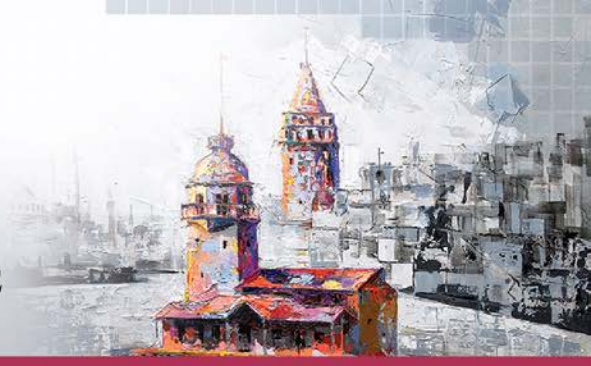
perception of clinicians across the world about the epidemiological trend of food allergy over the last 10 years.

Materials-Methods: FASE, centred on the frequency and characteristics of food allergy in the respective countries, was emailed to 36,000 members of the World Allergy Organization (WAO) in November 2021. Reminders were launched to re-engage potential respondents. The allergists were asked if the trend of frequency and severity of food allergy in their country had increased, decreased, or remained stable.

Results: We achieved answers from 50 countries. About 90% of respondents reported an increase of the trend, while no one reported decrease. Food allergy prevalence was particularly reported as increased in Southern Europe, South America, North America and Central America. The severity of food allergic manifestations was also reported increased in the majority of respondents' allergy services (71.3%). Again, this increase was particularly reported in Southern Europe, South America, and North America. None of the respondents indicated a reduction in the severity of food allergy among their patients. Most of the responses (81.6%) were based on observations of their own clinical experience, and only 18.4% on published evidence.

Conclusions: with the limitations of a questionnaire, the impression of the increase in the frequency and severity of food allergies is widespread

Keywords: Food allergy, epidemiology, DEFASE.



LB-PP-35

QUALITY OF LIFE IN FOOD ALLERGY: RESULTS FROM THE WAO-FASE SURVEY

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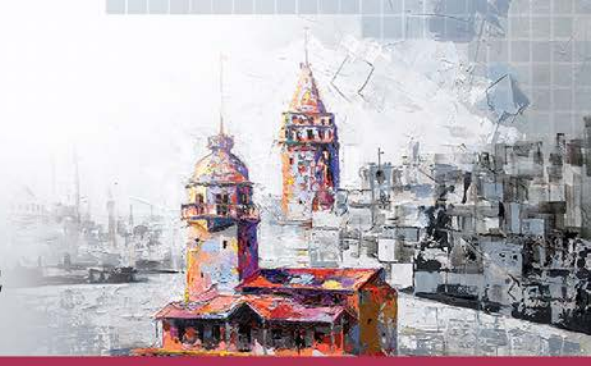
Background and Objectives: food allergy severely penalizes the quality of life (QoL). As part of the Food Allergy Severity (FASE) survey, we aimed to explore the amount of reduction in QoL in patients followed by allergists around the world.

Materials-Methods: FASE, centred on the frequency and characteristics of food allergy in the respective countries, was emailed to 36,000 members of the World Allergy Organization (WAO) in November 2021. Reminders were launched to re-engage potential respondents. We report here its results relative to QoL, and specifically personal impact of dietary restrictions, emotional factors, risk of accidental exposure, social and dietary limitations.

Results: We received answers from 50 countries. A significant impact on QoL was reported in about 37 % of cases. Latin America (45.5%), together with Eastern Europe (50.0%), Western (42.4%) and Southern (43.3%) Asia, are the regions where the impact of food allergy on QoL is most reported. The best-equipped region seems to be Japan, where severe limitations on the QoL reportedly occur in 1% of cases only.

Conclusions: the proportion of patients with significant impact of food allergy on QoL largely exceeds the number of food allergy sufferers that experienced anaphylaxis and used adrenaline. It also exceeds the percentage of multiple food allergy, indicating that a detriment to the quality of life can also occur in patients allergic to single foods and not suffering from severe manifestations.

Keywords: Food allergy, food allergy severity, grading, severity, survey, DEFASE.



LB-PP-36

THE DIAGNOSTIC STEPS OF WHEAT ALLERGY IN CHILDHOOD

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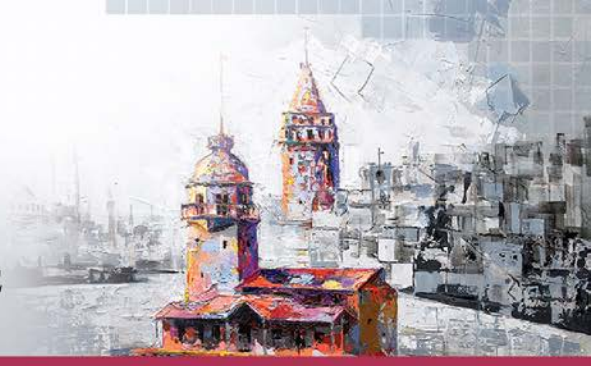
Background: Grain products constitute the most basic source of all nutrition types. It is important to make a correct diagnosis of wheat allergy in order not to restrict the diet unnecessarily.

Methods: The children older than one-year (n=63,79.3% male) with prediagnosis of IgE-mediated wheat allergy underwent wheat SPT, sIgE and component measurements, lip dose challenge (LDC) and wheat provocation for definite diagnosis.

Results: The median age was 30 months (IQR 18-50). One third of children had history of anaphylaxis after exposure to wheat. Forty-two OFCs were performed and 9 patients exhibited positive reactions. OFC was not performed due to history of anaphylaxis with wheat within the last 6 months (n=11), high SPT and sIgE values (n=6) and positive LDC (n=4). Thirty patients (47.6%) had the definite diagnosis of wheat allergy after diagnostic work up. The cutoff for wheat sIgE level that predicted clinical reactivity was 6.785 kU/L. For wheat sIgE sensitivity, specificity, PPV, and NPV were 93.3, 90.9, 93.3, and 60.6, respectively. The cutoff for wheat SPT wheal diameter that predicted clinical reactivity was 5.25 mm and for wheat SPT sensitivity, specificity, PPV, and NPV were 79.4, 89.7, 90 and 78.8, respectively. Tri a 19(Omega-5-Gliadin) sIgE was higher [1.6kUA/L(IQR 0.2-3.8)] in the wheat allergy group compared with the wheat allergy negative group [0.3 kUA/L(IQR 0.1-0.6)](p= 0.019).

Conclusion: The gold standard diagnostic method is the oral food challenge test in wheat allergy. In our study, we showed the contribution of LDC and molecular tests in predicting a positive reaction before OFC.

Keywords: Wheat, allergy, OFC, LDC, Omega-5-Gliadin



LB-PP-37

THE ASSOCIATION BETWEEN CELIAC DISEASE AND EOSINOPHILIC ESOPHAGITIS AMONG CHILDREN, IN ISFAHAN, IRAN

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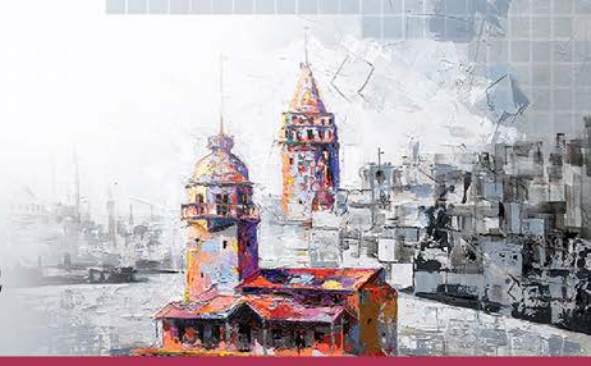
Background: Recent studies have found that the prevalence of eosinophilic esophagitis(EoE) in patients with celiac disease (CD) is much higher than the general population. In this study, the prevalence of EoE in children was evaluated and their clinical symptoms, endoscopic and histopathological findings were compared.

Methods: This was a retrospective study conducted on the data records of the patients diagnosed with CD during 2012-2020 and Clinical findings, endoscopic reports, serological and histopathological data of the patients were recorded and analyzed.

Results: A total of 80 children with CD were included in the study. The mean age of the patients with CD and EoE (n=8) was 7.75± 3.99 years, and in children with CD alone (n=72), the mean age was 7.85± 3.83. The most common clinical findings were abdominal pain, anorexia, diarrhea and constipation. There were no significant differences in the symptoms of either group. The most common endoscopic view was duodenal scalloping and esophagitis; and 50% of EoE patients had a normal endoscopic view of the esophagus. With regards to serological findings, the level of TTG-IgA (U/ml) in the CD and EoE group was higher than the CD group (183.73 ± 101.54 vs. 117.07 ± 95.34 U/ml); however, no statistically significant difference was observed.

Conclusion: Our study found that the prevalence of EoE in children with CD appears to be higher than in previous studies. We have also shown that the presence of EoE cannot be detected solely based on clinical and even endoscopic results,so an esophageal biopsy is recommended.

Keywords: Celiac disease, children, Eosinophilic esophagitis, Upper gastrointestinal Disorder



LB-PP-38

THE PREVALENCE OF SELF-REPORTED ATOPIC DERMATITIS AMONG YOUNG ADOLESCENTS IN PRISHTINA

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Introduction: This was a cross-sectional study conducted in the town of Prishtina, Kosovo in 2018. After receiving passive consent from parents/ guardians, we elaborated a total of 1056 school children (adolescents) aged 13-14 years from randomly selected schools in the city of Prishtina.

Resultes: Skin problems were processed by analyzing the adolescents' responses to 7 questions.

a) itchy rash coming and going for at least six months EVER in live - was confirmed by 144 (13,6%) of adolescents. Among boys vs. girls this prevalence was consequently 55 (11,2%) vs. 89 (15,8%).

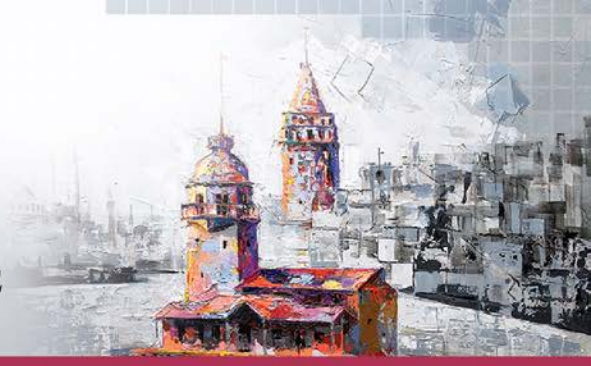
b) itchy rash any time in the last 12 MONTHS – had 132 (12,5%). Among boys vs. girls adolescents this prevalence was consequently 41 (8,3%) vs. 91 (16,2%).

c) prevalence of itchy rash (folds of the elbows or behind the knees, in front of the ankle, under the buttocks or around the neck, ears or eyes) EVER in life - had 96 (9,1%) of adolescents, 33 (6,7%) of boys and 63 (11,2%) of girls.

d) itchy rash cleared completely at any time during the past 12 MONTHS - happened in 148 (14%) adolescents, in 59 (12%) of boys and 89 (15,8%) of girls. We didn't find significant association between gender and answers to this question (Pearson Chi-square: 3,217; df=1; p=0,7291.

g) eczema confirmed by a doctor - had only 34 (3,2%) of adolescents, 14 (2,8%) of males and 20 (3,5%) of females.

Keywords: Atopic Dermatitis, Prevalence, Self reported questionaires



LB-PP-39

NUT ALLERGY INVESTIGATION IN IRANIAN CHILDREN

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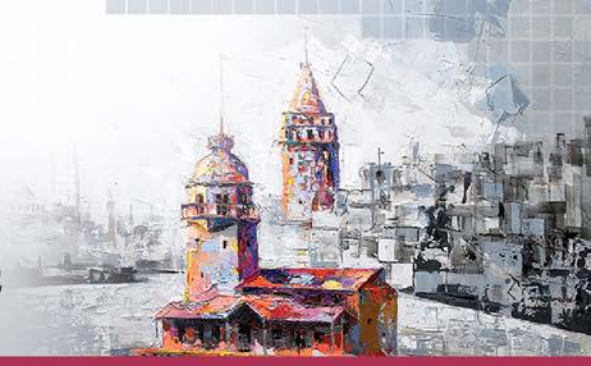
Background: Food allergies cases are increasing worldwide. The present study aimed to investigate the prevalence and clinical presentation of tree nut allergy among Iranian children.

Methods: The study include 1920 children with a history of atopic disease and a history of type I allergic reactions. There were Eighty seven patients presenting skin, digestive, respiratory symptoms or anaphylaxis after consuming tree nuts. A skin test was carried out for patients. For some cases, the serum specific IgE level against the desired nuts was applied. To complete the data, a questionnaire form was filled by the parents of children.

Findings: A prevalence of 4.5% allergy to tree nuts with a frequency of 62.1% for almonds at the top was found in the population. In most of the patients, the interval between the consumption of nuts and the onset of symptoms was between a few minutes and an hour (62.2%). Allergy to more than one type of nuts was 47%. Allergic reactions to sesame was 26.4%. More than half of the people (52.9%) reacted to only one type of nuts. The prevalence of atopic dermatitis was 83.9%. Moreover, 93.1% of people reacted to other foods besides tree nuts. The highest relative frequency among other allergenic foods was for egg (67.8%).

Conclusion:A few number of studies have been performed in this field in the Asian region. Therefore, the practical use of such studies is to carry out comprehensive research and use the best methods of diagnosing food allergies, including food challenge tests.

Keywords: Food Allergy, Children, Prevalence, Iran



LB-PP-40

EFFECT OF FOOD ALLERGY IN SHORT TERM PROGNOSIS OF INFANTILE ATOPIC DERMATITIS

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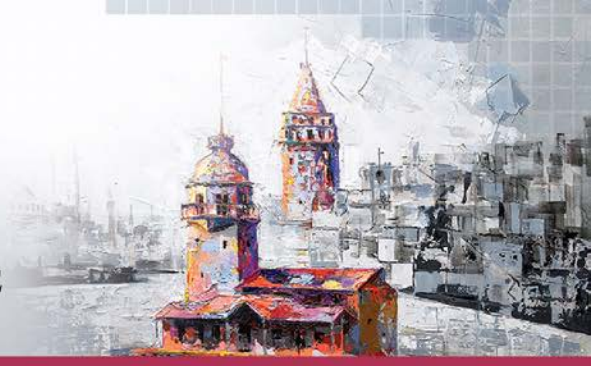
Background/Objective: Atopic dermatitis (AD) is a chronic inflammatory skin. AD predisposes to FA and food allergens are presumed as one of the triggers of AD exacerbations. Food-elimination diets in food-allergic cases may have a beneficial effect on AD morbidity; however the data whether food allergy presence change the AD course in infantile AD is lmited.

Material-Methods: AD patients (n=138, male 73,2%) diagnosed within the first 6 months of age were included in the study and were followed until they reach 3 years of age. The diagnosis of AD was made based on the Hanifin-Rajka criteria. Food allergy diagnosis was made with positive skin prck testing plus a clear-cut history of disease exacerbation upon consumption of the suspected food by mother and or infant.

Results: The median age of onset of symptoms was 2 (1.0-3.0) months. Food allergy was found in 39.1%. Responsible foods were in order 45 (32.6%) egg white, 25 (18.1%) cow's milk, 11 (8.0%) peanut and 8 (5.8%) hazelnut. Eyelashes (p=0.001), nipples (p=0.01) and wrist involvement (p=0.021) were higher in the food allergic group than in the non-allergic group. The median objective SCORAD index in the whole group was 26 (16-38). Up to 3 years of age, 114/138 (82.6%) of AD patients resolved. AD in children with food allergy persisted longer than those without food allergy (p=0.048 Log-Rank).

Conclusion: Presence of food allergy in AD includes more nipple, eyelash and wrist involvement, and food allergy increases the risk of persistence of AD.

Keywords: atopic dermatitis, food allergy, persitance, prognosis.



LB-PP-41

INFANTILE ATOPIC DERMATITIS AND SLEEP QUALITY ASSESSMENT WITH BISQ-R SCORE

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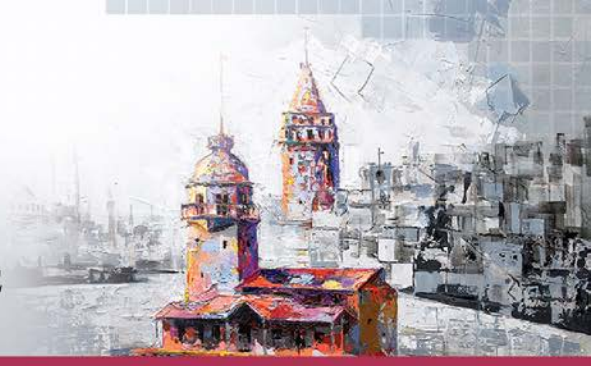
Background/Objective: Atopic dermatitis(AD) is one of the most common chronic inflammatory skin conditions and is commonly associated with sleep disturbances. Brief Infant Sleep Questionnaire-Revised (BISQ-R) is a sensitive and specific tool to identify sleep problems which is validated in Turkish language as well.

Material-Methods: The diagnosis of AD was made based on the Hanifin-Rajka criteria. Atopy was defined by skin prick test positivity to common food allegrens and house dust mite. Families were also applied Pittsbugh Sleep Quality Index and VAS scores to assess their sleep quality.

Results: AD patients(n=80,male 62,5%, aged median(IQR) 8(5-12)months and age-sex matched control group were included in the study. BISQ-R infant sleep (p<0,001); BISQ-R total score (p=0,004) and BISQ-R parental perception (p=0,057) scores were lower compared to the health controls (the lower the score the higher the sleep problem). Similarly atopic patients showed lower scores in BISQ-R infant sleep (p=0,016) compared to the non-atopics. However BISQ parental behaviour; BISQ-R Parental Perception and BISQ-R total scores didn't differ between atopic vs non-atopics. Pittsbugh Sleep Quality Index scores within parents of AD patients with and without atopy did not differ except Pittsbugh Sleep duration (p=0,043) and Pittsbugh Sleep Efficiency(p=0,013) which were lower in atopic group. VAS scores did not show any difference between atopic and non-atopic groups.

Conclusion:AD patients and their families face different levels of sleep disturbances and the presence of atopy may worsen this situation even more.

Keywords: Atopic dermatitis, Atopy, Sleep disturbance, BISQ-R, Pittsbugh Sleep Quality Index, VAS score



LB-PP-42

DEVELOPMENT OF VENOM-SPECIFIC IGG1 AND IGG4 CLASS OF ANTIBODIES IN INDIAN BEEKEEPERS DUE TO NATURAL IMMUNIZATION

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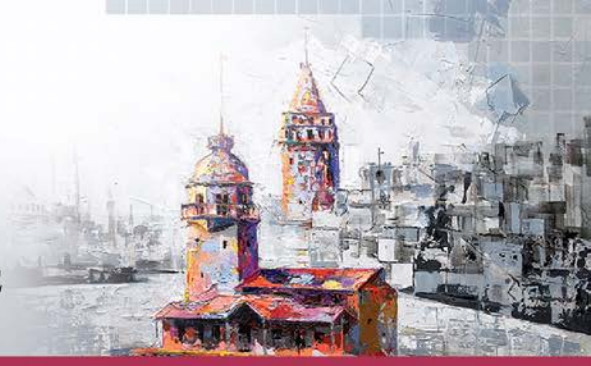
Background and Objectives: Allergen immunotherapy (AIT) has been shown to provide clinical benefit for allergic individuals. Similarly repeated bee stings in bee keepers leads to natural desensitization and tolerance towards sting reactions. The present study was undertaken to understand the effect of exposure to various parameters viz. duration spent in the bee keeping, frequency of stings on venom specific IgG1, IgG4, IgG levels.

Materials-Methods: Present study was conducted in apiaries across in and across Delhi NCR, India. BKs were classified in different groups based on duration spent in the bee keeping, sting frequency and intensity of skin reaction after the sting. Bee venom specific IgG1, IgG4, IgG levels were estimated by ELISA in Bee keepers and controls.

Results: A significant correlation was observed between venom specific IgG4 antibodies and duration spent in the bee keeping, sting frequency ($p < 0.05$). Bee keepers showing large local sting reaction had significantly reduced levels of IgG4 antibodies as compared to tolerant bee keepers. Further, a negative association was observed between the duration spent in the bee keeping and venom specific IgG1 levels.

Conclusions: Our study revealed that duration spent in the bee keeping, sting frequency has significant effect on the immune profile and natural desensitization. Bee keepers showing increased tolerance had higher levels of IgG4 antibodies as compared to control subjects. These findings suggests that AIT has potential for prevention of allergic disease progression by development of blocking antibodies

Keywords: Bee venom, immune profile, beekeepers, IgG1, IgG4, bee stings.



LB-PP-43

MOLECULAR PROFILE OF SENSITIZATION TO HOUSE DUST MITE ALLERGENS IN CHILDREN AND ADULTS WITH ASTHMA

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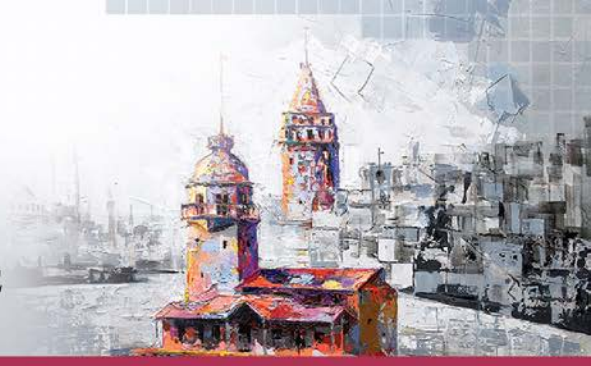
Background and Objectives: House dust mites produce aeroallergens that can cause hypersensitivity particularly in atopic individuals those with atopicdermatitis (AD), allergic rhinitis (AR), and allergic asthma (AA). Assessing the role of allergic sensitization in asthma pathophysiology is an important step in disease workup because such patients might benefit from allergen immunotherapy (AIT) as add on to pharmacological asthma therapy.There are many potential allergens related to house dust mites, the most sensitising of which are Der p1/Der f1 and Der p2/Der f2. The aim of the study was to determine the profile of sensitization to house dust mite allergens in children and adults with asthma.

Materials-Methods: Asthma patients aged from 0 to 80 years, who were senstitized to house dust mites, examined by molecular multiplex test ALEX2 were included the study.

Results: 140 patients' data were analysed. The most common allergens were Der f 2 (16%), Der p 2 (16%), Der p 23 (14%). Der p 1 (13%), Der f 1 (13%), While the most common allergens under the age of 18 were Der f 2 and Der p1,2, the most common allergen was Der p 23 in patients between the ages of 18-30.

Conclusions: House dust mite sensitization is a risk factor for asthma in children and adults.The profiles of house dust mite allergens sensitization among patients with asthma were dominated by the molecules of Der f 2, Der p 2, Der p 23 allergens, respectively. It was seen that the sensitization profile changes according to age groups.

Keywords: asthma, molecular diagnosis, house dust mite



LB-PP-44

EVALUATION OF PEDIATRIC ASTHMATIC PATIENTS WITH CORONAVIRUS INFECTION IN LONG-TERM

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Background: After Covid-19 infection, many patients complain from persistent symptoms. There are limited studies evaluating the long-term consequences of COVID-19, in pediatric patients with asthma.

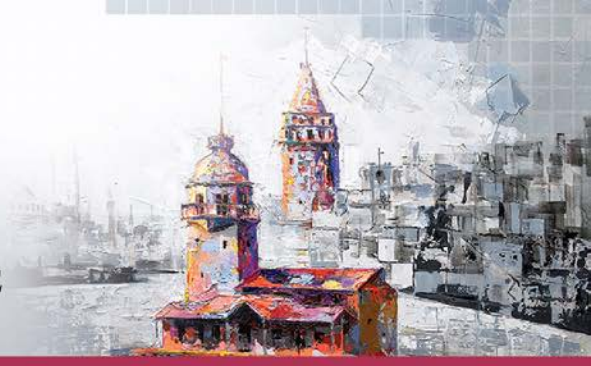
Aim: The aim of our study is to evaluate the long-term clinical features, asthma control and response to treatment of pediatric patients with a diagnosis of asthma after Covid-19 infection.

Method: Children with asthma who admitted to our hospital between March 11, 2020 and August 31, 2021 for COVID-19 infection were included. Patıents were evaluated for long term symptoms and asthma control by phone call at least 6 months after infection.

Results: Eighty five children with asthma were evaluated. The median duration of follow-up was 20 months. Patients having symptoms after 1 month, 3 month and 6 month of COVID were 45.8% (n:39), 30.6% (n:26), and 23.5% (n:20) respectively. At the time of phone call, 8.2% (n:7) still had persistent sypmtoms. Most common symptom was cough. No relationship was found between time period from date of COVID-19 to phone call and symptom persistence. Patients adopting a new pet and having stress were significantly higher in group of patients having symptoms at first month. Frequency of being well controlled was not different before and at 1 and 6 month of infection but was significantly more frequent at the time of last assessment.

Conclusion: This study prompts us that in a long period respiratory symptoms may persist in pediatric asthma diagnosed patients.

Keywords: asthma, COVID-19, pediatrics, long-term



LB-PP-45

THE ROLE OF INTRANASAL CORTICOSTEROID THERAPY ON PEDIATRIC ADENOIDAL HYPERTROPHY

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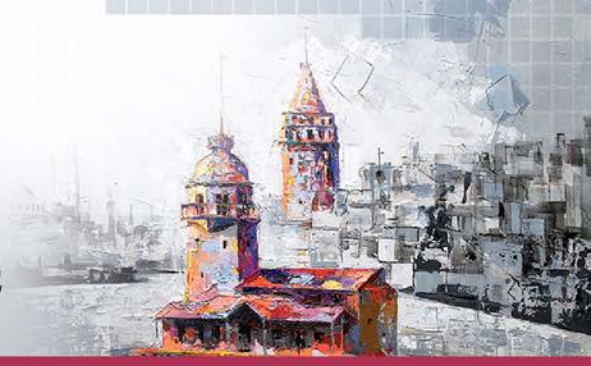
Background: Adenoidal hypertrophy (AH) is a common disorder in pediatric population with severe complications due to nasal air way obstruction. Adenoidectomy is a choice treatment for children with severe symptoms due to AH, however; it is accompanied with several side effects such as complication of surgery and emotional distress. We evaluated the efficacy of intranasal corticosteroid (Fluticasone) therapy on size and symptoms of Adenoid Hypertrophy. Materials: In this clinical trial 45children with AH (2-14 years old) were enrolled. All of them underwent 8 weeks course of intranasal Fluticasone therapy and their symptoms before and after treatment were scored and also compared by questionnaires. They were divided into Atopic and non- Atopic groups and these two groups were compared with each other after treatment according to their response to therapy.

Results: After 8 weeks treatment with intra nasal fluticasone, improvement in all symptoms score of AH including (Snoring, Sleep Apnea,Mouth breathing and Nasal congestion) was statistically significant(p=0.000). Significant improvement after treatment was observed in atopic patients and 92% of them (36 of 39) showed decrease clinical symptom of AH however this number in non-atopic patients was 50% (p value =0.024).

Conclusion: Our study demonstrates that an 8 weeks treatment with intranasal corticosteroid (Fluticasone) is associated with decrease in size of AH and all symptoms of obstruction. So intranasal corticosteroid therapy can prevent of adenoidectomy especially in atopic patients.

Keywords: Adenoid Hypertrophy, Intranasal Corticosteroids, Adenoidectomy



LB-PP-46

NATIONAL COHORT: DETERMINATION OF MONTELUKAST-RELATED NEUROPSYCHIATRIC SIDE EFFECTS AND SLEEP DISORDER IN CHILDREN

Seda Tunca[1], Özge Yilmaz[1], Merve Ocalan[1], Mustafa Arga[2], Ozlem Cavkaytar[2], Deniz Ozceker[3], Mehmet Kiliç[4], Fatma Duksal[5], Demet Can[6], Ozlem Sancakli[6], Mehmet Sirin Kaya[6], Nazli Ercan[7], Nursen Cigerci Gunaydin[8], Metin Aydogan[9], Esen Demir[10], Recep Sancak[11], Şerife Ilknur Kokcu Karadag[12], Nihat Sapan[13], Ahmet Ugur Demir[14], Oznur Bilac[15], Emine Dibek Misirlioglu[16], Ahmet Turkeli[17], Hasibe Artac[18], Haluk Cokugras[19], Fazil Orhan[20], Aysen Bingol[21], Pinar Uysal[22], Sennur Keles[23], Aylin Kont Ozhan[24], Tuba Tuncel[25], Ozlem Keskin[26], Elif Arik[26], Oner Ozdemir[27], Ceren Can[28], Nazan Altinel[28], Koray Harmanci[29], Yurda Simsek[30], Derya Ufuk Altintas[31], Serap Ozmen[32], Nevin Uzuner[33], Hasan Yüksel[1]

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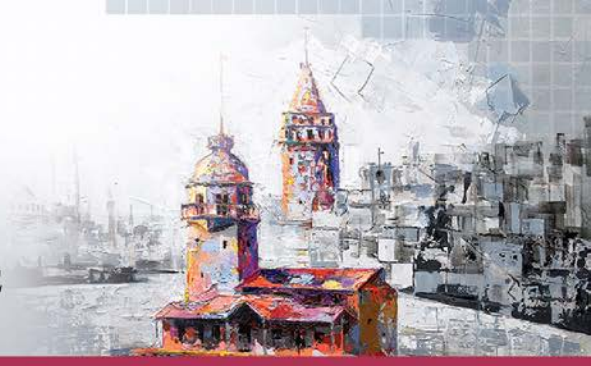

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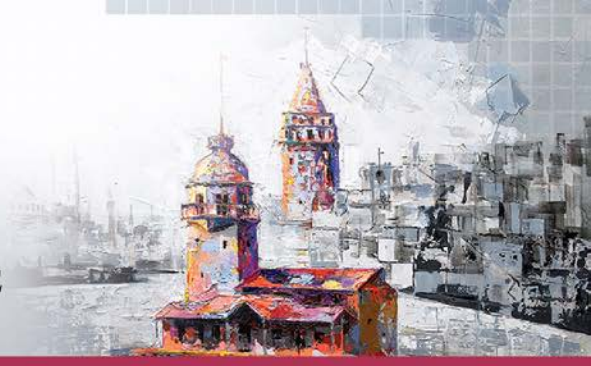
This study aims to determine the frequency, severity, and risk factors of the neuropsychiatric side effects and sleep disorders associated with montelukast treatment.Cases aged between 6 months and 17 years who applied to 31 Pediatric Allergy and Immunology centers across Turkey between June 2021 and 2022. A total of 1542 cases were included in the study from the centers. Of these, 1163 cases completed the follow-up, and the mean age was 91 months (SD: 45.1). When Montelukast indications were considered, it was seen that 39% had allergic rhinitis, 33% had asthma, and the remaining had two diagnoses together.In the pre-admission neuropsychiatric symptom questionnaire, insomnia was reported in 3.4%, nightmares in 2.3%, night terrors in 1.6%, lethargy in 2.2%, behavioral problems in 3.2%, irritability in 4.9%, depressed mood in 2.7%, agitation in 2.5%, anxiety in 3.2%, hyperactivity in 2.3%, learning disability in 1.5% and headache in 2.2% of cases.One month later, there was a significant increase in these frequencies at the follow-up. Insomnia was reported in 12.1%, nightmares in 14.2%, night terrors in 10.8%, lethargy in 10.6%, behavioral problems in 12.1%, irritability in 16.6%, depressed mood in 9.3% agitation in 13.2%, anxiety in 11.1%, hyperactivity in 10.6%, learning difficulties in 7.1%, headache pain in 8.9% of cases. While any neuropsychiatric symptoms were reported by 142 cases (14.8%) before treatment, it was reported by 399 cases (34.3%) after treatment ($p<0.001$).This result suggests that pharmacovigilance should be considered again for the period when neuropsychiatric development is most dynamic, such as childhood.

Keywords: montelukast, neuropsychiatric, sleeping disorder



LB-PP-47

EVALUATION OF CLINICAL CHARACTERISTICS OF PEDIATRIC PATIENTS WITH MOLD SENSITIVITY

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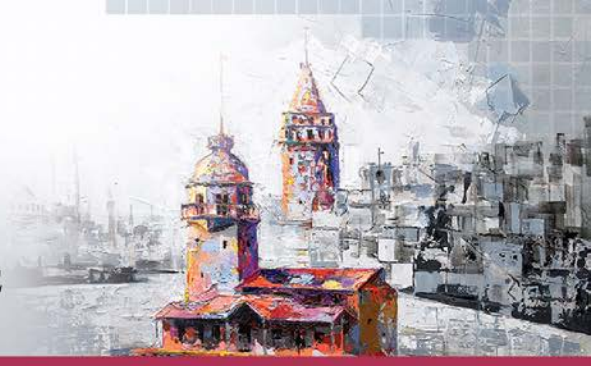
Background: Mold fungi are important indoor and outdoor aeroallergens known to cause allergic respiratory diseases. The aim of this study was to evaluate the clinical features of pediatric patients with mold sensitivity.

Methods: Children who were observed to be sensitive to mold allergens in the skin prick tests (SPT) performed between June 2019-June 2022, were included in the study. Demographic, clinical features and laboratory findings were retrieved from patient records.

Results: Mold allergen sensitivity was detected in 451 patients (5% n: 451/8900). Median age was 9 (IQR: 6-12) years and 65.2% of them were male. 369 patients had sensitization with only one mold allergen (alternaria:318, aspergillus:20, cladosporidium:31), 63 had with two different mold allergens. The most common symptoms were respiratory symptoms (n:391 86.7%); 235 (52.1%) patients had nasal complaints, 164 (36.4%) had cough and 119 (26.4%) had dispnea. An additional inhalant allergen sensitization was observed in 84% (n:379) of the patients, and pollen sensitivity was the most common (n:274, 60.8%), followed by cat and dog allergen sensitivity (53%, n:239). At least one allergic respiratory disease was presented in 87.4 (n:394) patients; 65.2% had allergic rhinitis(n:294) and 57% had asthma(n:257). It was observed that male gender, mite positivity were more frequent and absolute eosinophil count and total IgE levels were higher in asthmatic patients (p: 0.013, 0.014, 0.003 and 0.01, respectively).

Conclusion: Mold sensitivity is detected in 5% of children undergoing skin prick test, in 84% there was an additional inhalant allergen sensitization and most of these children had respiratory symptoms.

Keywords: allergic diseases, children, mold sensitivity



LB-PP-48

THE PREVALENCE OF SELF-REPORTED SEVERE ASTHMA (THREE SELECTED SYMPTOMS) AMONG YOUNG ADOLESCENTS IN PRISHTINA

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Introduction: This was a cross-sectional study conducted in the town of Prishtina, Kosovo in 2018. The study was part of the project "Project of the Global Asthma Network (GAN) Phase One". It addressed the prevalence and risk factors for asthma, eczema and conjunctivitis in school children aged 13-14 years as well as their parents/guardians.

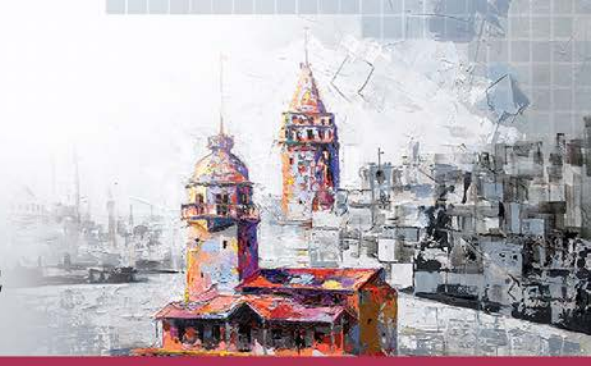
Resultes: After receiving passive consent from parents/ guardians, we elaborated a total of 1056 school children (adolescents) aged 13-14 years from randomly selected schools in the city of Prishtina. Out of 1056 school children 493 (46,64%) were male and 563 (53,26%) were female with gender ratio of 1:1,14. The percentage difference between the genders, was statistically significant (Difference test: Difference 6,62% [(2,36-10,85) CI 95%]; Chi-square=9,26; df=1 p=0,0023) in favor of female.

We analyzed the adolescents in the sample for severe asthma, based on the presents of the three symptoms in the last 12 months as

a) more than 4 attacks of wheezing in the past 12 months;
b) 1-2 nights per week sleep disturbance due to wheezing in the past 12 months;
c) wheeze affecting speech in the last 12 months.

One of the three symptoms was present in 104 (9,8%) of adolescents, 46 (9,3%) male and 58 (10,3%) female. Two of the symptoms were present in 20 (1,9%) adolescents, 8 (1,6%) male and 12 (2,1%) female. All three symptoms were present in 1 (0,1%) of the adolescents, and all of them among female 1 (0,1%).

Keywords: Prevalence,severe asthma, children



LB-PP-49

AGE AT MENARCHE AND MENOPAUSE AND NEW-ONSET ASTHMA IN WOMEN: A MATCHED CASE-CONTROL STUDY

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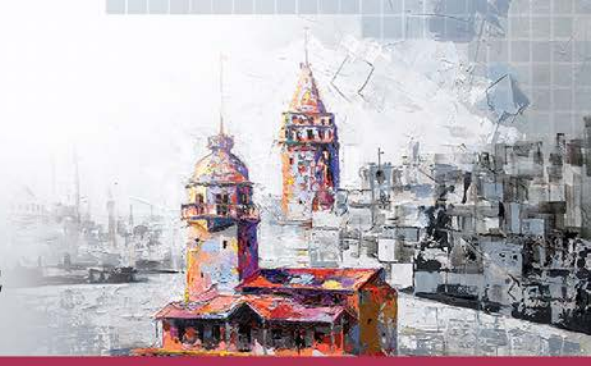
Background and Objectives: Evidence on the role of endogenous female sex hormones in the development of asthma in women is conflicting. To quantify the relation of age at menarche and menopause to risk of new-onset asthma.

Materials-Methods: We conducted a matched case-control study based on the West Sweden Asthma Study (WSAS), including women aged 16–75 years followed from 2008 to 2016. We applied Frequentist and Bayesian conditional logistic regression models.

Results: We included 114 cases and 717 controls. In Frequentist analysis, the odds ratio (OR) for early-onset menarche (≤ 12 years vs > 12 years) was 1.34 (95% confidence interval [CI] 0.81–2.22). Subgroup analyses showed that the point estimate decreased consistently with older baseline age: ≥ 25 years: 1.41; ≥ 35 years: 1.30; ≥ 45 years: 1.09; ≥ 55 years: 0.88; and ≥ 65 years: 0.89. The OR for early-onset menopause (≤ 50 years vs > 50 years) among menopausal women was 1.13 (95% CI 0.48–2.65). In Bayesian analysis, the OR for early-onset menarche and menopause had a 95% probability of falling between 0.97 and 1.65 and between 0.65 and 1.70, respectively. The respective probability of OR being larger than 1 was 95.7% and 59.1%.

Conclusions: Early-onset menarche may increase asthma risk in women. Selection bias due to selection of women by baseline asthma status may likely explain the decrease and the reversal of effect estimate with increasing age. We did not find evidence that age at menopause influences asthma risk in menopausal women.

Keywords: asthma, women, sex hormones, menarche, menopause, case-control



LB-PP-50

HEART RATE VARIABILITY ANALYSIS TO EVALUATE AUTONOMIC CHANGES IN PEDIATRIC ASTHMA PATIENTS

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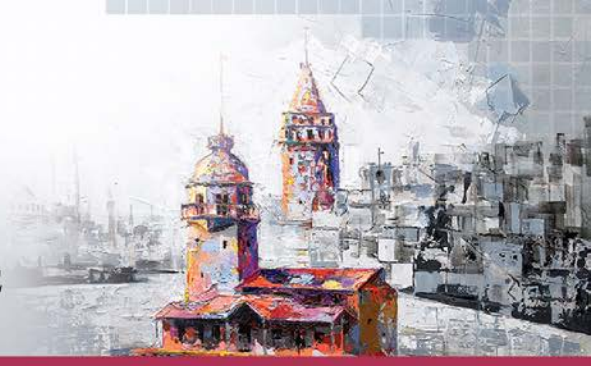
Background and Objectives: The imbalance in favor of parasympathetic activity in the autonomic nervous system is thought to play an important role in development of asthma. Heart rate variability (HRV) can be used to assess autonomic balance. We aimed to investigate the autonomic changes in childhood asthma via assessing HRV measures.

Materials and Method: We've assessed HRV frequency domain indices TP, LF, HF, LF/HF; and time domain indices SDNN, RMSSD, PNN50 measurements among 139 asthma patients aged 5-18 years and 82 age and sex matched controls. Asthmatic patients were compared with the controls. Patients with mild and moderate/severe asthma were compared with each other. TP, LF and HF components were expressed in absolute values of power(ms 2); SDNN24, RMSSD was expressed in millisecond(ms); PNN50 was expressed in percentage(%).

Results: Asthmatic patients had significantly increased value of RMSSD compared to healthy controls. (mean ± standard deviation[sd] 51,4 ±17,2 ms vs 47,30±16,2 ms; p=0,038). We did not find any significant difference in other indices. (mean±sd; TP: 4457,5±2185,3 vs 4768,8 ±2118,3; LF: 987,8±411,4 vs 1015,4±402,7; HF: 622,3±311,3 vs 637,8±305,4; LF/HF: 1,8±0,8 vs 1,8±0,9; SDNN: 141,6±35,0 vs 146,7±44; PNN50: 21,0 ± 11,1 vs 24,7±12,5) There was no significant difference between mild and moderate/severe asthma groups.

Conclusions: The RMSSD difference between asthmatic patients and the controls may indicate an increased parasympathetic activity especially during nighttime in asthmatic children and adolescents. However, no difference was found between two groups in other HRV parameters. More comprehensive studies are needed to evaluate autonomic activity in asthma.

Keywords: asthma, heart rate variability, parasympathetic activity



LB-PP-51

REGULATORY B CELL ANALYSIS IN ALLERGIC RHINITIS PATIENTS WITH ALLERGEN SPECIFIC IMMUNOTHERAPY

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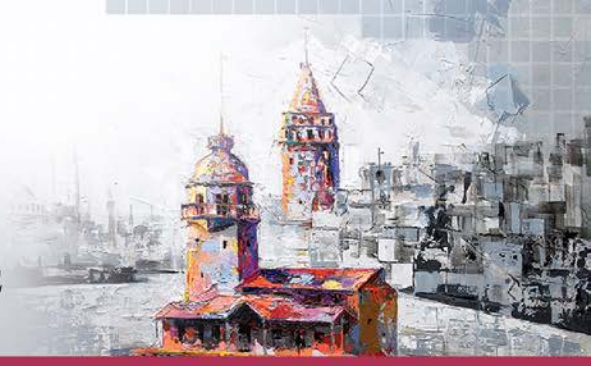
Introduction: Allergic rhinitis (AR) is an immunoglobulin (Ig) E-mediated disease which is triggered by inhalation of perennial or seasonal allergens. Due to relapse of disease following ceasing of conventional pharmacotherapies, allergen-specific immunotherapy stands as the sole therapy option for induction of tolerance which in turn helps for long term cure of allergic diseases. Previous studies revealed that induced regulatory T (Treg) cells following AIT play important roles in maintenance of tolerance but the role of regulatory B (Breg) cell populations is still unclear. This study aimed to investigate Breg subsets following a clinically successful long-term AIT.

Method: The patients enrolled to this study (25 new diagnosed patients with AR, 25 patients with long-term (32.52±5.25 months) house-dust mite specific sub-cutaneous allergen immunotherapy and 25 healthy controls) were followed by Istanbul University, Istanbul Faculty of Medicine. Lymphocyte subsets were determined with a direct staining protocol in fresh blood samples. CD19+CD25+CD71+CD73- and CD19+CD24hiCD27+ Breg cell subsets were investigated.

Results: The initial results of this study revealed that CD19+CD25+CD71+CD73- subset was significantly increased following AIT. The lowest levels were observed in healthy controls. CD19+CD24hiCD27+ subset was also significantly increased following AIT, however the lowest content was observed in AR patients.

Discussion: The initial results of this study revealed induction of both Breg cell subsets in AR patients as a consequence of a successful AIT. The different expression patterns of these cell subsets may be due to differential regulatory roles in healthy individuals and also in patients, which should further be investigated.

Keywords: Regulatory B cell, Allergen Specific Immunotherapy, Allergic Rhinitis



PP-001

EVALUATING TREATMENT RESPONSES OF DUPILUMAB VERSUS OMALIZUMAB IN TYPE 2 PATIENTS: THE EVEREST TRIAL

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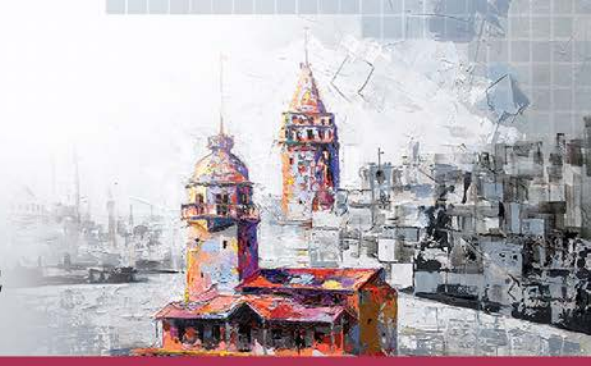
Background: Chronic Rhinosinusitis with Nasal Polyps (CRSwNP) and asthma are chronic type 2 inflammatory diseases. Dupilumab (DUP) blocks the shared receptor component for interleukin-4/-13, key and central drivers of type 2 inflammation. Omalizumab (OMZ) is a humanized, monoclonal antibody which blocks the action of IgE. DUP and OMZ are approved for the treatment of uncontrolled CRSwNP or nasal polyps and asthma. To contribute to evidence-based decision making for treating respiratory diseases, head-to-head studies are required to investigate the comparative efficacy and safety of these interventions.

Methods: EVEREST (NCT04998604) is a global, multicenter, randomized (1:1), double-blind, active-controlled study to compare the efficacy and safety of DUP versus OMZ over 24 weeks of treatment as add-on to nasal corticosteroid therapy. Approximately 422 adult patients with CRSwNP, with ongoing symptoms of nasal congestion and loss of smell, and coexisting asthma will be recruited across 15 countries.

Results: Primary objective is to assess the comparative efficacy of DUP versus OMZ in reducing NP size and improving sense of smell (change from baseline to week 24 in NP score and University of Pennsylvania Smell Identification Test, respectively). Secondary objectives include the assessment of lung function (pre-BD FEV1), nasal peak inspiratory flow, nasal congestion, quality of life (SNOT-22), asthma control, and safety.

Conclusions: EVEREST is the first head-to-head trial assessing the comparative efficacy and safety of two biologics in patients with severe CRSwNP and comorbid asthma. The study will provide evidence to help optimize treatment plans for patients that suffer from severe CRSwNP and comorbid asthma.

Keywords: Asthma, CRSwNP, dupilumab, omalizumab



PP-002

MANAGEMENT OF PEMPHIGUS WITH RITUXIMAB VERSUS DEXAMETHASONE PULSE THERAPY: A COMPARATIVE STUDY

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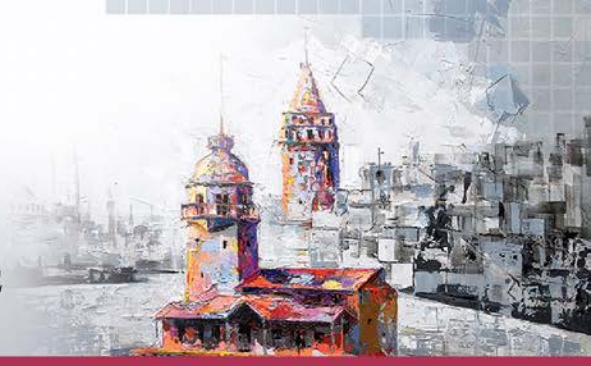
Background: Rituximab has emerged as a safe and effective modality for treating pemphigus. Dexamethasone pulse therapy on the other hand is an established modality for the same.

Methods: In this open label trial, patients with histopathologically proven moderate-to-severe pemphigus were randomly assigned in 1:2 proportion into group A and group B, respectively. Group A received 2 doses of 1gm Rituximab given monthly. Group B received dexamethasone-cyclophosphamide pulse (DCP) therapy in phase 1 (6-9 months) and phase 2 (9 months). The primary endpoint was the development of complete remission for 12 weeks with a reduction in Pemphigus Disease Area Index(PDAI) activity score to 0. Clinical, direct immunofluorescence(DIF), and histopathological data were correlated after every 12 months, until 52 weeks.

Results: Of the 60 randomized patients, 20 received Rituximab, and 40 received DCP. The mean PDAI activity scores at baseline in group A were 22.1 and 19.7 in group B. At week 52, 68% of patients in group A and 53% in group B had sustained complete remission ($P<0.001$). Most patients at baseline had suprabasal(63.50%), intraspinous(14.62%), and subcorneal(12.12%) blistering. DIF was positive for igg and C3 throughout the dermis in 88% of cases. A significant reduction in the splitting, perivascular inflammation was observed after 52 weeks in 92% of cases. DIF at the end of the treatment was negative in 64% and 56% cases in groups A and B,respectively.

Conclusion: Rituximab has superior efficacy compared to DCP for the management of pemphigus.Clinical recovery in pemphigus strongly correlated with histopathological and immunological improvement.

Keywords: Pemphigus, rituximab, Dexamethasone pulse therapy



PP-003

COULD OMALIZUMAB BE AN ALTERNATIVE MEDICINE IN IDIOPATHIC ANAPHYLAXIS: A CASE REPORT

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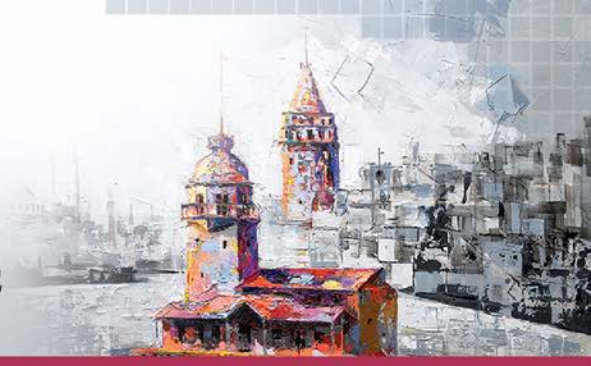
Introduction: Case series using omalizumab with idiopathic anaphylaxis are reported in the literature. We would like to share a case whose both chronic urticaria and anaphylaxis symptoms were brought under control with omalizumab treatment.

Case: A 16-year-old female patient with urticaria attacks that lasted for 1 week at certain times of the year for 8 years. While there was no urticaria attack for the past 2 years, swelling and itching started on his hand during first attack after a dinner, then she became dizzy and had shortness of breath 10 months ago. They applied to the emergency within 15 minutes, adrenaline was administered, and their complaints regressed. Two days after the first anaphylaxis, similar symptoms developed again, they applied to the emergency and adrenaline was administered again. Cetirizine and pheniramine were started. An adrenaline autoinjector was issued to the patient. The patient, who had anaphylaxis 4 times in 8 days, with similar but milder symptoms, applied to our outpatient clinic. It was investigated for chronic spontaneous urticaria and anaphylaxis and a cause could not be determined. Tryptase: 2.36 µg/L. Montelukast was added and was decided to start omalizumab 150 mg in the control. The patient had anaphylaxis one more time until the 3rd month under omalizumab treatment, then omalizumab dose was increased to 300 mg/month. The patient has been followed for 8 months without any symptoms.

Conclusion: Omalizumab may be an effective treatment option for patients with idiopathic anaphylaxis who do not respond to antihistamines and mast cell stabilizers.

Keywords: Idiopathic anaphylaxis, Omalizumab, Urticaria



PP-004

THE INTERACTION BETWEEN BODY WEIGHT AND MEPOLIZUMAB EFFECTIVENESS IN PATIENTS WITH SEVERE EOSINOPHILIC ASTHMA: A REAL LIFE STUDY

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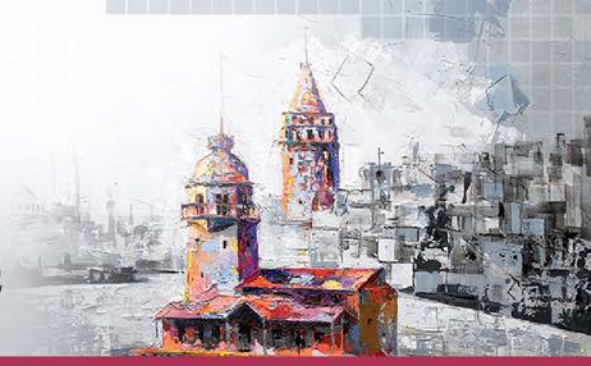
Background And Objective: Body weight and body mass index (BMI) are the two most common parameters that influence the pharmacokinetics of biologics. We evaluated the efficacy of mepolizumab in patients with severe eosinophilic asthma (SEA) according to body weight and BMI. We also evaluated the effect of mepolizumab on body weight as a secondary outcome.

Materials-Methods: We retrospectively analyzed the data of patients with SEA who received fixed-dose (100mg/4weeks) mepolizumab at least 12 months. Mepolizumab efficacy was evaluated 52nd weeks. Patients were grouped, and data were analyzed according to their baseline body weight (≤75 and >75 kg) and BMI (≤30 and >30 kg/m2).

Results: A total of 42 patients were enrolled in study. Mepolizumab significantly reduced asthma exacerbations, reduced maintenance oral corticosteroid (mOCS) dose, and improved asthma control test scores at the 52nd weeks. We found no significant difference in the efficacy of mepolizumab between patients lighter or heavier than 75 kg. Furthermore, we found that mOCS dose reduction at the 52nd week was significantly higher in patients with >30kg/m2 than those with ≤30 kg/m2 (73.8 ± 33.3% vs 98.6 ± 4.2%; p=0.036). The mean decrease in body weight and BMI after 52 weeks of mepolizumab treatment was -0.97 ± 4.3 kg and -0.17.±1.3 kg/m2.

Conclusions: Our cohort showed that fixed-dose mepolizumab is an effective biological treatment for adult patients with SEA, and this effect was independent of the patients' weight or BMI. Mepolizumab therapy caused a decrease in body weight

Keywords: Mepolizumab, weight-based dose, body mass index



PP-005

CHARACTERIZATION OF SEVERE ASTHMA PATIENTS FOLLOWED UP IN A TERTIARY ADULT IMMUNOLOGY AND ALLERGY CLINIC

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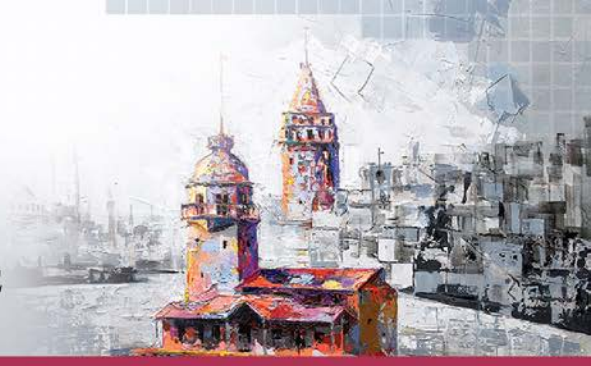
Background: Many asthma phenotypes have been described according to patients' demographic, clinical, and pathophysiological features, but a strong relationship between specific pathological features and certain clinical patterns has not yet been determined. This study aims to determine the demographic, clinic, laboratory, and treatment profile of severe asthmatics treated with biologics

Method: Sixty-four severe asthma patients treated with biologics (five treated with dupilumab, 3 with mepolizumab, and 56 with omalizumab) were examined, and data were collected from their medical records.

Results: A total of 50 (78%) patients were female. The mean age was 51.8±11.7 years. The mean BMI was 27.6±5.9 and 17 patients had a BMI≥30 kg/m2. The mean asthma duration was 14.4±8 years and the mean duration of biologic use was 2.8±1 years. While the mean FEV1 was 2833 ml before biologics, it increased to 3199 after biologics ($p<0.0001$). The median of the increase in patients' FEV1 was 340 (240-480) mL. Similarly, the Asthma Control Test score was significantly increased after biologics (13±4 vs 23±1.4 points, $p<0.0001$). Beclomethasone (68%) and budesonide (18%) were used most frequently as maintenance inhaled corticosteroid treatment in patients. The median Total serum IgE was 154 (48-361) IU/mL. Peripheral eosinophil counts before and after biological treatment were not significantly different from each other and were found to be 300 and 325 cells, respectively.

Conclusion: Our study showed that selecting appropriate biologics at the correct time in patients with severe asthma after detailed phenotype analysis resulted in a significant increase in FEV1 and ACT compared to pre-treatment.

Keywords: severe astma, biologics, omalizumab, mepolizumab, dupilumab, biologic treatment



PP-006

NICOTINAMIDE SUPPORTS GUT EPITHELIAL BARRIER INTEGRITY IN HUMAN ORGANOIDS AND GUT ON A CHIP MODELS

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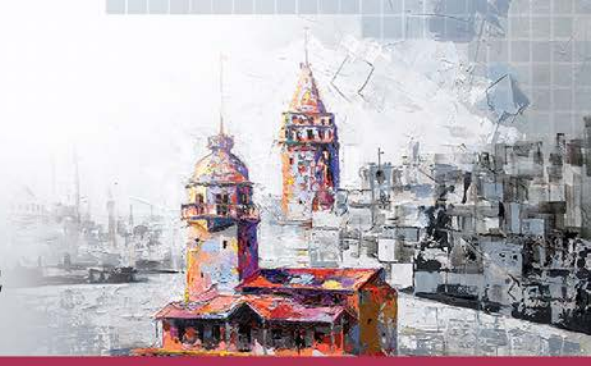
Background-Aim: In parallel with increased exposure of epithelial barrier disrupting agents after 1960s the need of finding new epithelial barrier supporting molecular mechanisms&substances is crucial. We investigated healing potential of nicotinamide on the epithelial barrier integrity of the human-gut-on-a-chip model.

Methods: Treatment of barrier disrupting emulsifier p80 was done on Caco2-on-a-chip plates from the apical part, and nicotinamide(NAM) treatment was done from the basolateral part. 4 doses of p80 which are 0.5%, 0.25%, 0.1%, and 0.05% were given and the concentration of NAM was 3mM. Trans-epithelial electrical resistance (TEER) measurement and paracellular flux of FITC dextran 150kDA and TRITC dextran 4.4kDA were performed. Confocal images of paracellular flux were analyzed.

Results: 0.1% and 0.05% doses of p80 showed a decreasing trend in the TEER values. Nicotinamide treatment reversed this decrease for both 0.1% and 0.05% of p80. High doses of p80, 0.5% and 0.25%, caused an immediate decrease of TEER values to the zero and nicotinamide treatment did not reverse this decrease. Paracellular flux of FITC dextran and TRITC dextran were increased with the treatment of p80 0.5% and, 0.25%.However, 0.1% and 0.05% of p80 did not cause any significant difference in the paracellular flux compared to unexposed control.

Conclusion: Nicotinamide showed a healing potential over the disruption of the epithelial barrier integrity by emulsifier p80 with concentrations of 0.1% and 0.05%. Confocal staining and qPCR analysis of tight junction genes will be performed to better understand the molecular mechanisms of support of the epithelial barrier integrity in human gut.

Keywords: nicotinamide (NAM), Trans-epithelial electrical resistance (TEER), paracellular flux (PF)



PP-007

SEVERE ASTHMA – THE FUTURE IN SELF-ADMINISTRATION THERAPY

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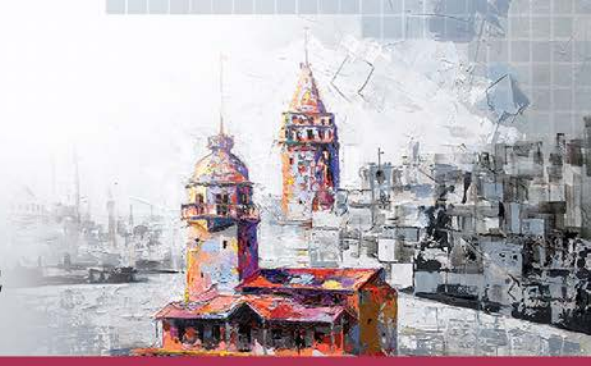
Background and Objectives: The treatment of severe asthma has become increasingly a challenge given the diversification of therapies with monoclonal antibodies. The safety and efficacy of this treatment has allowed the transition to self-administration regimens, avoiding the periodic displacement of the patient to the hospital. We intend to assess the impact of exacerbations in this population among patients on biological therapy administered in the hospital (group 1) and with self-administration (group 2).

Materials-Methods: We performed a retrospective and observational study in patients with severe asthma under biological therapy. Data were obtained through the clinical processes from consultation until June 2022.

Results: We selected 59 patients (mepolizumab (n=22) and omalizumab (n=37)), 79.7% (n=47) were female and had a mean age of 52 years. The main co-morbidities were rhinitis, sinusitis, arterial hypertension, dyslipidemia and diabetes. Thirty-six patients had Covid-19 infection (52.8% (n=19) under self-administration), without serious complications. There were no adverse effects from self-administration, after teaching the technique in outpatient hospital. The mean number of exacerbations among patients on self-administration and hospital administration is not significant ($p>0.05$). Total IgE and eosinophil count at diagnosis were not significantly different between the exacerbating and non-exacerbating groups ($p>0.05$).

Conclusions: Although patients under self-administration have less hospital supervision, with a lower number of hospital visits, there is no increase in the number of exacerbations, so we can state that self-administration is effective in controlling exacerbations in patients with severe asthma.

Keywords: Severe Asthma, Self-administration, Compliance, Biological therapy



PP-008

RARE INDICATIONS OF MEPOLIZUMAB IN EOSINOPHILIC DISORDERS: A REAL-LIFE STUDY

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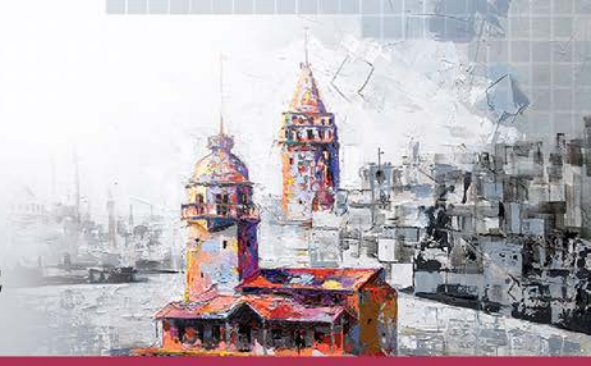
Aim: Assessment of effectiveness and safety of mepolizumab in various rare eosinophilic diseases.

Method: We analysed the demographic and clinical features of 22 patients who were treated with mepolizumab due to eosinophilic disorders including hypereosinophilic syndrome (HES), aspirin exacerbated respiratory diseases (AERD), allergic bronchopulmonary aspergillosis (ABPA), chronic eosinophilic pneumonia (CEP) and eosinophilic granulomatosis with polyangiitis (EGPA). We collected the data from their medical records.

Results: The most common disease was AERD (n=10) followed by HES (n=6), EGPA (n=2), ABPA (n=2) and CEP (n=2). In the AERD group, the mean age was 42.6±9.41 years. The median (min-max) duration of the disease and treatment with mepolizumab,basal peripheral eosinophil counts were 9 (3-30) years, 12(4-43) months and 675(300-5,200), respectively. The peripheral eosinophil counts significantly decreased to mean 180±83.6 after mepolizumab treatment (p=0.043). 80% of the patients were responsive to mepolizumab. In p patients with HES, the mean age was 33.5±13.6 years. The median (min-max) duration of the disease and treatment with mepolizumab, basal and control peripheral eosinophil counts were 6(2-11) years, 12(6-49) months, 3,400(1,500-20,000/mm3) and 100 (0-300). Decrease in the eosinophil count after mepolizumab treatment was significant (p=0.04). All patients with HES, ABPA, EGPA and CEP were responsive to the mepolizumab treatment. No significant side effects were observed after mepolizumab injections.

Conclusion: Our findings showed that mepolizumab is an effective and safe treatment in rarely seen eosinophilic diseases including AERD, HES, EGPA, ABPA and CEP.

Keywords: Mepolizumab, hypereosinophilic syndrome, aspirin exacerbated respiratory diseases, allergic bronchopulmonary aspergillosis, chronic eosinophilic pneumonia, eosinophilic granulomatosis with polyangiitis



PP-009

ANAPHYLAXIS AFTER CONSUMPTION OF GUAR GUM-CONTAINING FOOD: A REPORT OF TWO CASES

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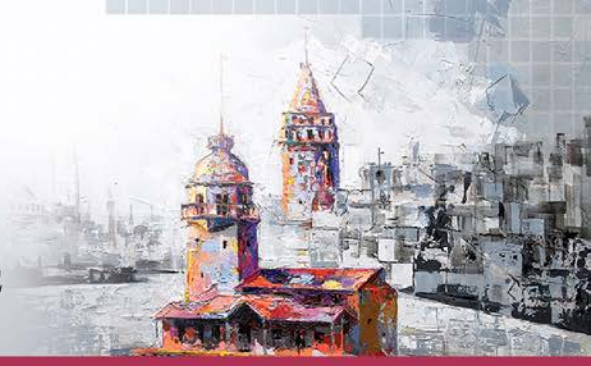
Guar gum is a food additive that acts as a thickening agent. Although the relationship between guar gum and occupational rhinitis/asthma was established, only very few cases of anaphylaxis were associated with guar gum ingestion. Here we presented two cases with anaphylaxis induced by guar gum.

Case1: A 23-year-old woman developed hives, bronchospasm, dizziness, and syncope thirty minutes after eating two packets of Indomie Noodle®. Tryptase concentration 24 hours after the reaction was 30.6 ug/L with a basal value of 2.82 ug/L (UniCAP®-Pharmacia). She was able to ingest gluten which is the primary allergen of wheat flour in the noddle. However she had adverse events to guar gum as an additive in the noodle and guar gum-serum specific IgE was detected class 6 positive (114kuA/L).

Case 2: A 19-year-old male patient presented to the outpatient clinic complaining of swollen lips and shortness of breath 3-4 hours after consuming cornbread. Since the patient could consume corn alone, the additives in the bread were examined. Guar gum-serum specific IgE was 49.2 kuA/L-class 4, whereas tryptase level after provocation with cornbread was 4.47 ug/L.

We were able to demonstrate the IgE-mediated immune mechanism in both cases with anaphylaxis. We instructed our patients to read food labels, advised them to avoid guar gum and use adrenaline auto-injectors when necessary. No reaction was detected in the 6-month follow-up of both patients. This report aimed to raise the awareness of rare food additive allergies such as guar gum.

Keywords: food additives, guar gum, allergy, anaphylaxis



PP-010

A RARE CASE PRESENTING WITH ANGIOEDEMA

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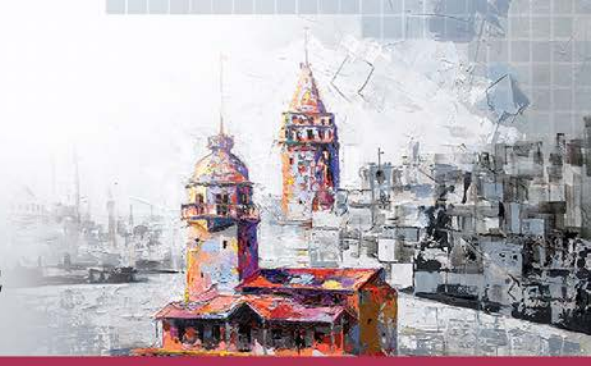
Introduction: Melkersson-Rosenthal syndrome (MRS) is a rare disease that presents with recurrent peripheral facial paralysis, tongue fissures, and localized nonpitting edema on the face. It is more common in women and between the ages of 20-40. Its etiopathogenesis is not clear, The diagnosis is made clinically by the presence of at least 2 symptoms or by the histopathological findings accompanying a symptom. There is no specific treatment for MRS. We present our case in order to consider MRS in the differential diagnosis of angioedema in cases admitted to allergy clinics.

Case: A 39-year-old male patient presented with the complaint of recurrent lip swelling. The patient had a history of angioedema in the left upper lip 3-4 times a year for 19 years. He had left peripheral facial paralysis for the first time at the age of 16. He had no other symptoms. He had mild edema on the left upper lip and fissures on the tongue. Whole blood and biochemistry tests (including Ig G-A-M and C4) were within normal limits.Lip edema was thought to develop secondary to MRS. The patient had all three classical symptoms and no allergic cause was detected. Oral methyl prednisolone (16 mg/day) was prescribed in case of increased symptoms. He was referred to the dermatology department for lip biopsy to rule out granulomatous diseases in terms of etiology.

Conclusion: MRS should be considered in the differential diagnosis of bradykininergic or histaminergic angioedema in patients presenting to allergy clinics with angioedema.

Keywords: Melkersson-Rosenthal syndrome, facial paralysis, angioedema, Plica linguata



PP-011

BEYOND PEANUTS: CASHEW / PISTACHIO - REACTIONS IN OUR CLINICAL MATERIAL

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Background and Objectives: Among oilseeds, severe allergic reactions are mainly associated with peanuts but more and more studies are reporting severe reactions to other oilseeds, especially cashew and pistachios.

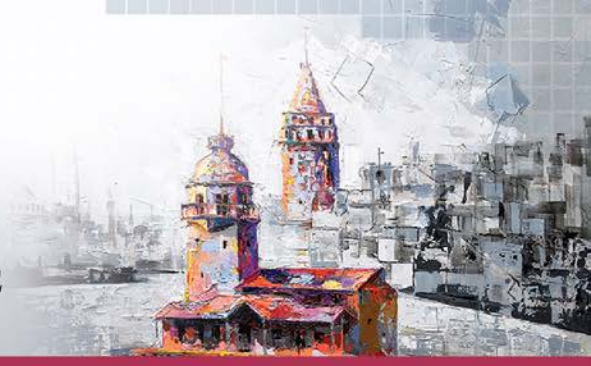
Materials-Methods: Case reports of two patients with anaphylaxis:

Patient 1: 16 -year- old -girl, with a reaction after consuming pistachios.
Patient 2: 4- year- old -girl, with a reaction from a nut bar of unknown composition.
Multiple molecular immunoglobulin E measurements: (ALEX, FABER 244).

Results (U/ml):
Patient 1: Ana o: 7.35; Ana o 3: 2.66; Pis v 1: 3.37
Patient 2: Ana o: 85.06; Ana o 3: 2.96; Pis v: 51.01
No increase in peanut specific immunoglobulin E was observed in either case.

Conclusions: Cross-reactivity due to the high homology of the cashew and pistachio proteins is typical, as evidenced by both of our cases presented. Therefore, it is important to avoid both oil seeds from the beginning if necessary!

Keywords: cashew, pistachios, cross-reactivity, high homology, anaphylaxia



PP-012

SYSTEMIC MASTOCYTOSIS AND ASSOCIATED LYMPHOPROLIFERATIVE DISORDERS: REPORT OF TWO CASES

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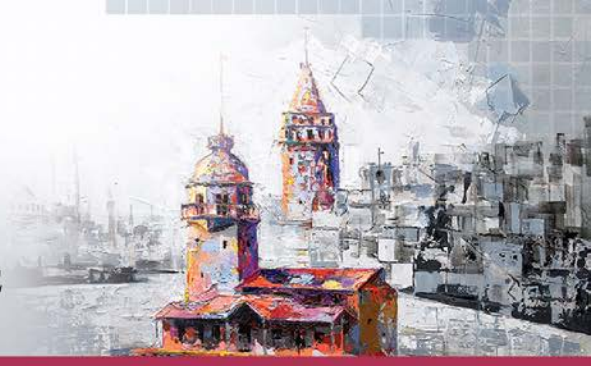
Introduction: Systemic mastocytosis (SM) may rarely be associated with lymphoproliferative malignancies. Most of these malignancies are of myeloid origin, and SM-associated lymphoid malignancies are rare. Here, we present two cases of mastocytosis accompanying lymphoproliferative malignancies.

Case Report 1: A 39-year-old female was admitted to our clinic with a history of severe anaphylaxis after a yellow-jacket sting on her right arm 20 days ago. She has been receiving venom immunotherapy (VIT) for four years. Before initiation of VIT, apis specific Immunoglobulin E (sIgE) was 0.06 kUA/L(Class 0), vespula sIgE 1.27 kUA/L(Class 2), baseline serum tryptase level 8.68 ug/l. At admission to our clinic, her baseline serum tryptase was 13.7 g/dL. Bone marrow biopsy was consistent with low-grade B-cell lymphoproliferation, with 10% positive CD138 cells in scattered small groups. Imatinib treatment was started by the hematology department.

Case Report 2: A 50-year-old male patient presented with hypotension attacks of unknown origin, while being investigated in the hematology department for multiple myeloma recurrence. There were no findings compatible with cardiac, neurological and endocrinological diseases to explain these hypotension attacks. The patient's bone marrow biopsy, which was performed as a control after myeloma chemotherapy, was suspicious for mastocytosis. The basal serum tryptase level was 7.96 ug/l. Midostaurin treatment was administered and no hypotension attack occurred within one month after the treatment.

Conclusion: The predisposition to possible hematological malignancies in patients with mastocytosis, or vice versa, is an interesting phenomenon and should be suspected in patients with unexplained symptoms such as hypotension attacks and anaphylaxis.

Keywords: mastocytosis, lymphoproliferation, bone marrow, anaphylaxis, venom immunotherapy, multiple myeloma



PP-013

A CASE OF INHALATION ALLERGY INDUCED BY MEALWORM

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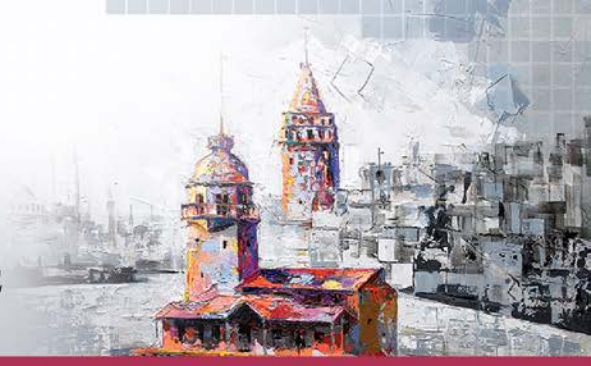
Mealworms(MW) are the larvae of darkling beetles. MW are easy to breed and feed and have a valuable protein profile. MW produced industrially as feed for pets(birds, reptiles, rodents, fish). We report a case of allergic rhinoconjunctivitis and uncontrolled asthma induced by an allergy to MW. A 22-year-old male patient presented with rhinitis symptoms and eczema during the pollen season 1 year ago. The patient was keeping dogs, lizards, and tarantulas at home. On laboratory test, grass-mix specific IgE: 31.8Ku/L, mite spc IgE<0.1Ku/L, dog spc IgE: 0.11Ku/L. In the winter, the patient complained of cough and dyspnea and diagnosed with asthma.

The patient's asthma, rhinitis, conjunctivitis-angioedema, eczema can't be controlled with standart treatment, and ALEX test was performed to detect specific triggers. In the test, phl p5:22,89Ku/L, sec:3,15 Ku/l, Ten M:6,26 kU/L (MW). But, cat, mite, blatella, storage mite, and pan b(shrimp) were negative. After these results, it was learned that the patient fed his animals with MW. Besides pollen allergy, the patient was diagnosed with MW allergy.. Recent publications are stating that MW can cause both respiratory and food allergies and may be related to cross-reaction to house dust, cockroaches, and shrimp owing to the presence of tropomyosin and arginine kinase. However, primary sensitization to mealworm protein(ten m) was detected in our patient, lack of cross-sensitization to other food and inhalant allergens. Rare allergies will increase with increasing entomophagy and feeding of various animals. Detailed component-resolved tests should be requested for patients whose allergic diseases can't be controlled.

Keywords: mealworm allergy, food allergy, inhalant allergy



PP-014

CAN DOSE REDUCTION BE MADE IN PATIENTS WITH ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS RECEIVING HIGH-DOSE OMALIZUMAB TREATMENT?

Elif Tuğçe Korkmaz Mutlu, Ömür Aydın, Dilşad Mungan, Betül Ayşe Sin, Yavuz Selim Demirel, Sevim Bavbek
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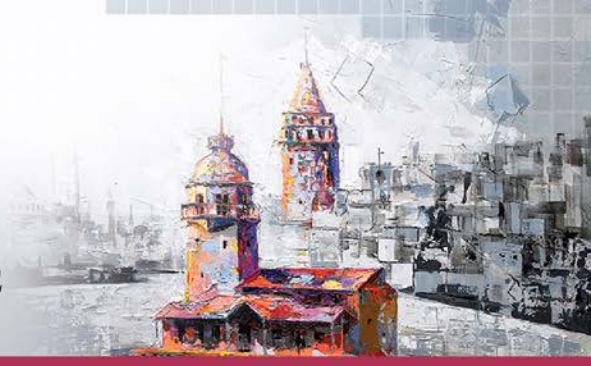
Background and Objectives: To reduce the omalizumab dose in patients with allergic bronchopulmonary aspergillosis (ABPA) who were on long-term omalizumab treatment.

Materials-Methods: Once asthma was controlled, two approaches were used to reduce total monthly omalizumab dose, (1) both extending dose intervals from 2 to 4 weeks and decrease omalizumab dose, (2) to reduce omalizumab dose while keeping dose intervals stable.

Results: Thirteen patients with ABPA (8F/5M, mean age 53.4±13.0 years) were included. Pre-omalizumab, mean blood eosinophil count was 723.1±547.1 cells/mcL, mean numbers of attacks and hospitalizations were 2.5±1.5 and 1.3±0.8; respectively. Median total monthly omalizumab dose was 750 (min 300, max 900) mg. First and 2nd approach to reduce omalizumab dose was used in nine and four patients with a median time of reduction 32 (min 13, max 47) months. The 2nd dose reduction was made in four patients at median of 23.5 months. Pre-omalizumab, mean oral corticosteroid (OCS, as methylprednisolone) dose was 12.2±10.4 mg daily, it decreased to 0.69±0.95 mg ($p=0.001$) in the 1st year of omalizumab and could be stopped in 11 patients. Attacks and hospitalizations decreased to 0.31±0.86 ($p<0.001$) and 0 ($p=0.003$), respectively, in the 1st year of omalizumab. Total omalizumab dose was reduced by median 40%(min 20, max 60) in 1st intervention and 50% (min 20, max 67) after 2nd intervention. After omalizumab reduction, asthma control did not deteriorate and there was no need to increase the omalizumab or OCS-dose.

Conclusions: Decreasing the total omalizumab dose does not cause clinical deterioration in ABPA after the disease is controlled.

Keywords: omalizumab, ABPA, asthma, asthma control, omalizumab dose reduction



PP-015

CASE SERIES ON THE IDENTIFICATION OF TYPE 1 HYPERSENSITIVITY WITH PROTON PUMP INHIBITORS

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Background: Proton pump inhibitors (PPIs) are widely used for the treatment of gastroesophageal reflux disease and peptic ulcer disease. PPIs can cause severe hypersensitivity reactions (HSRs). Although simply avoiding a PPIs after an HSRs is appropriate for most patients, there are clinical scenarios that require treatment with a PPIs.

Method: 11 patients who applied to allergy and immunology clinic with suspicion of type 1 hypersensitivity with PPIs between 1.4.2019 and 31.5.2022 were evaluated.

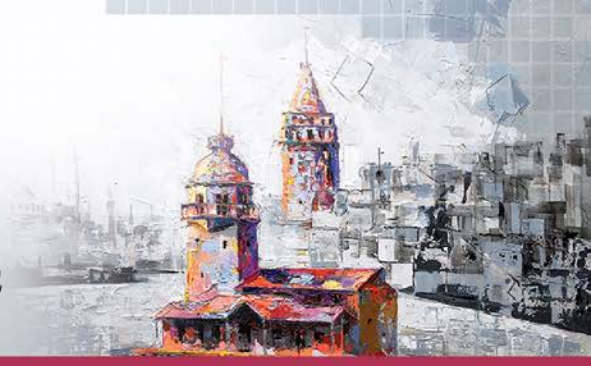
Results: In total, 11 patients were included. Patients had a mean age of 48,8(SD:11,2) years, 72% were female. 4 patients reacted with pantoprazole, only solution form of PPIs in Turkey, and 7 patients reacted with lansoprazole.The reported reactions of our patients were anaphylaxis in 8 patients and urticaria in 3 patient.

All tests were found to be negative in 3 of 11 patients. Sensitivity was detected in skin tests in 8 patients whose tests were positive, including 6 patients with lansoprazole. No reaction was observed in skin tests performed with pantoprazole in 5 patients with lansoprazole sensitivity After oral provocation tests (OPTs), 1 patient had urticaria and 1 patient had widespread itching.

No reaction was observed in 3 patient who completed all tests including OPTs. In this patients, whose skin tests were negative, OPTs were performed without the need for BAT(basophil activation test) because of low clinical suspicion.

Conclusion: Skin tests correctly supported the diagnosis in all our patients. However, in scenarios where the use of ppi is required, OPTs should be considered after skin tests to demonstrate cross-reactivity.

Keywords: type 1 hypersensitivity,proton pump inhibitors,skin tests,oral provocation tests



PP-016

NEARLY FATAL MULTIPHASIC ANAPHYLAXYS IN PATIENT TREATED WITH ANTI IL-4 13 ANTIBODY DUPILUMAB

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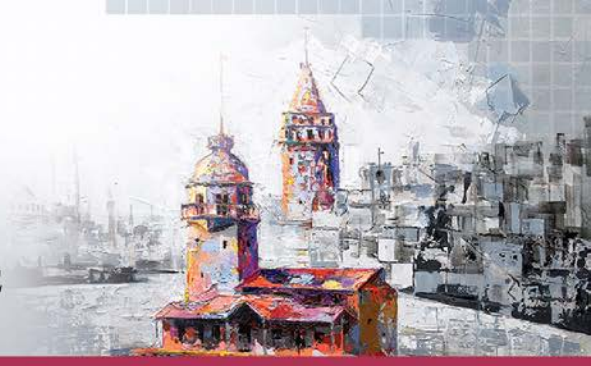
Background: Dupilumab is a fully human monoclonal antibody that blocks the interleukin 4 and interleukin 13 receptor. Dupilumab is effective on type 2 inflammatory disease: atopic dermatitis (AD), asthma, chronic rhino-sinusitis with nasal polyps and eosinophilic esophagitis. Additionally, significantly greater decreases in total and allergen-specific IgE levels were observed in dupilumab-treated patients.

Case report: 57-years-old female affected by atopic dermatitis, and Type-2 allergic diseases. She has been treated with Dupilumab for atopic dermatitis. Previous clinical exams showed high prevalence of total IgE and specific IgE, especially for LTP and other allergens. After eating walnut she suddenly developed an anaphylactic reaction with multi-organ involvement, hypotesion and sudden cardiac arrest with troponin increase. She needed three intramuscular adrenaline injections, high doses of steroids and antihistamines and fluids support and later was intubated and admitted in ICU.

Results: Acute phase serum tryptase resulted 17.6 ug/ml. Specific IgE serum level evaluated with Immuno CAP assay was positive to food allergens Bet v1, LTP, but clearly reduced compared to previous exams before Dupilumab therapy. ISAC test that evidenced specific IgE to walnut seed storage protein Jug r1 (2S albumin).

Conclusions: The severe anaphylactic reaction leading to shock was related to the seed storage protein allergy. Some trials are ongoing to evaluate efficacy of Dupilumab on reducing symptoms in food allergy. However, despite the prominent reduction of serum IgE, Dupilumab therapy was not effective on reducing reactivity to food allergens. On the other hand, the patient showed a good control of the other Type 2 Inflammatory disease.

Keywords: biologics, anaphylaxis, food allergy, atopic dermatitis, case report



PP-017

RECURRENT ANAPHYLAXIS WITH WATERMELON AND PUMPKIN SEEDS IN A BOY TOLERANT TO THEIR PULPS

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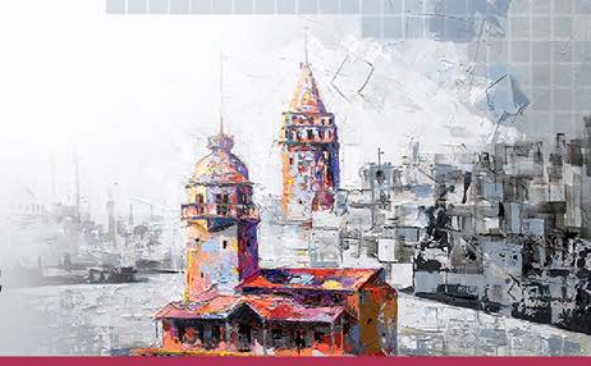
Selcuk University Medical Faculty, Division of Pediatric Allergy and Immunology

Background: The frequency of seed allergies has increased in recent years. Allergic reactions associated with seeds are frequently severe,persist into adulthood and affecting quality of life.

Case: A 11 years-old boy patient was referred to our allergy clinic with a recurrent anaphylaxis. His past medical history revealed that he had recurrent rash since the infancy. He was hospitalized three times with itching, swelling on his face, and increasing dyspnea at the age of three years. The patient was diagnosed with anaphylaxis, but its etiology could not be determined. In the follow-up, his father kissed him after eating pumpkin seeds, and he had itching and redness on his face. After this event, his family remembered that he had eaten pumpkin seeds first in previous reactions. Later he was hospitalized two times again with anaphylaxis due to watermelon seeds and poppy bread. He can also consume watermelon and pumpkin pulps without any reaction.He had been receiving intranasal steroid due to his allergic rhinoconjunctivitis. The skin-prick-to-prick test was positive for pumpkin seed (12.5 mm), watermelon seed (20 mm), and poppy seed (10 mm), but negative for pumpkin pulp and watermelon pulp with histamine wheal 3 mm. As a result of these findings, the causes of anaphylactic reaction as the seeds of pumpkin, poppy and watermelon was identified. His elimination diet was continued.

Conclusion: This case showed that the seeds of pumpkin and watermelon may be related to food allergies.The seeds should be considered to cause of IgE-mediated anaphylaxis even if tolerated their pulps.

Keywords: anaphylaxis, seed allergy, children, pumpkin seed, watermelon seed,



PP-018

AN UNUSUAL SITE OF INVOLVEMENT IN FIXED DRUG ERUPTION: BACK

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[1]Department of Immunology and Allergy, University of Health Sciences, Gülhane Education and Research Hospital
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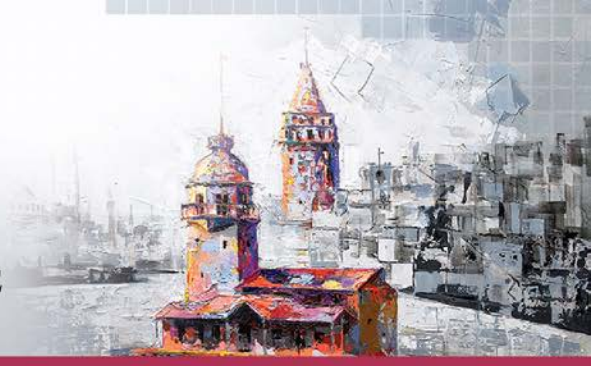
Background And Objective: Fixed drug eruption(FDE) is characterized by sharply circumscribed, round or oval, erythematous or hyperpigmented, sometimes vesicular or bullous lesions that can be itchy, occurring in the same area after each separate use of the culprit drug. Acute lesions often develop within 30 minutes to 8 hours after drug usage. Although these lesions can be in any region, they are more commonly located on the face, lips, hips, genital area, hands, or upper body. We aimed to present a case of FDE with atypical localization.

Materials-Methods: A 26-year-old male patient without any chronic disease was admitted to our clinic. Two months ago, 30 minutes after taking a non-steroidal anti-inflammatory(NSAID) due to a headache, he had itching and redness on the upper right side of his back and itching and redness in the scrotal region. After one day, he retook an NSAID because his headache continued. Itching and redness started again in the same area of the back and scrotal region 15 minutes after taking the NSAID. The lesion on the patient's back has become a bullous structure with discharge. This lesion healed within ten days, leaving a scar. In physical examination, there was a lesion with a diameter of 8 cm and a hyperemic bullous structure on the right side of his back.

Conclusion: We wanted to draw attention to the fact that the FDE rash may occur in the back, which is a less typical area.

Keywords: fixed drug eruption, NSAIDs, back



PP-019

A CASE OF HEREDITARY ANGIOEDEMA WITH A LATE DIAGNOSIS PRESENTING WITH RECURRENT ABDOMINAL PAIN

Fikriye Kalkan, Fevzi Demirel, Ezgi Sönmez, Özgür Kartal
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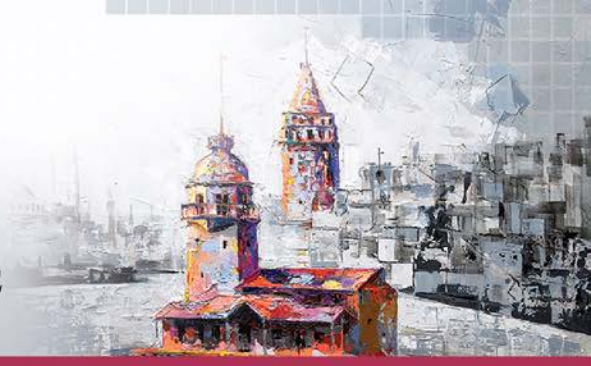
Background And Objective: Hereditary angioedema (HEA) is an autosomal dominant, rare disease resulting from excessive bradykinin burden in tissues, presented as recurrent angioedema attacks in the extremities, gastrointestinal tract, oropharynx, face, and genital organs. The most characteristic feature of the attacks is the unresponsiveness to antihistaminic/corticosteroid and adrenaline treatment. In this case, we aimed to discuss late diagnosis HAE. Materials and methods A 20-year-old male patient has developed a complaint of diffused swelling of the lips and face after it started initially on the eyes in the morning. There was no previous story of any culprit agent, allergic condition, or trauma. Steroid and antihistamine parenteral therapy was performed to the patient, but there was no improvement in the patient. From the age of 16, abdominal pain attacks were triggered especially after meals eaten outside the home. The patient has no family history from 1st degree relatives. In laboratory examination: C4 was 3 mg/dl (10-40), C1 esterase inhibitor level was 5.67 mg/dl (18-40), C1 inhibitor function was 7% (70-130).

Results: The patient was diagnosed with HAE, the patient's angioedema recovered after C1esterase inhibitor applied.

Conclusion: A family history is extremely important in the diagnosis of HAE. However, "de novo" mutation is observed in approximately 1/4 patient group. This situation leads to difficulties in diagnosis. For this reason, the concept of newly developing mutation; recurrent angioedema cases that are resistant to antihistamines and not accompanied by urticaria should be kept in mind in terms of mortality-morbidity.

Keywords: Hereditary angioedema, recurrent abdominal pain, late diagnosis



PP-020

An adolescent case of wheat-dependent exercise-induced anaphylaxis

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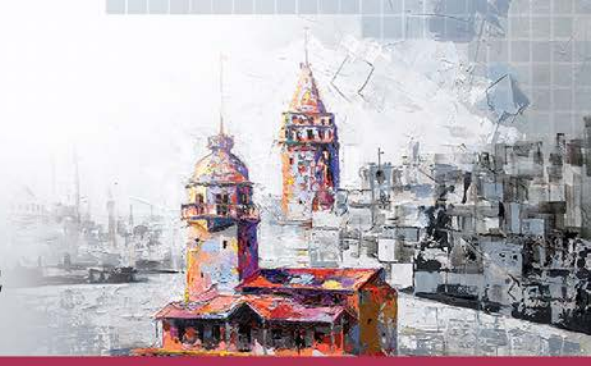
Background: Wheat-dependent exercise-induced anaphylaxis (WDEİA) is a rare but life-threatening food allergy. We report an adolescent case admitted with recurrent anaphylaxis and diagnosed as WDEİA.

Case: A 15-year-old girl patient, who has been followed up with the diagnosis of allergic asthma since the age of five, was referred to our pediatric immunology and allergy clinic with recurrent anaphylaxis.The patient had applied to the emergency department 3 times in the last 6 months due to rash and dyspnea.The patient had consumed ravioli before the first reaction, raw meatballs (çiğ köfte) before the second reaction, and hamburger before the third reaction. In addition, the patient had a history of exercising after food intake in all three reactions. In the skin prick test of the patient; house dust mite, pollen, cat, dog, egg yolk, and wheat sensitivity were detected. In laboratory evaluation; eosinophil:0.29 K/uL, total IgE:531 IU/mL, basal serum tryptase:3.63 ug/L, wheat flour specific (sp) IgE:5.22 kUA/L was detected. Omega 5 gliadin spIgE:5.62 K/uL was detected by using the Multiplex test ALEX 2-Allergy Explorer (ALEX, MacroArray Diagnostics, Wien, Austria).The patient was diagnosed with WDEİA. Adrenaline autoinjector was prescribed and training was given to use it. It was recommended not to consume wheat products 4-5 hours before exercise. The treatment of the patient with allergic rhinitis and asthma was arranged.

Conclusions: Food is the most important cause of anaphylaxis in children, and detection of triggers is very important in recurrent anaphylaxis cases. WDEİA should be kept in mind as a rare cause of anaphylaxis.

Keywords: Anaphylaxis, Children, Wheat allergy



PP-021

EFFECTIVENESS OF OMALIZUMAB THERAPY IN LATEX-FRUIT SYNDROME UNRESPONSIVE TO ANTIHISTAMINE THERAPY

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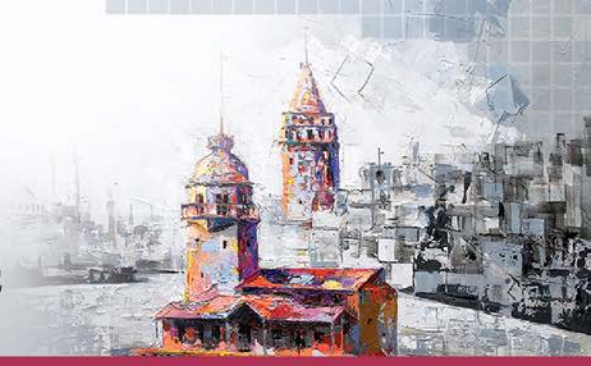
Background And Objective: About 30 to 50 percent of individuals with a latex allergy have an associated hypersensitivity to certain plant-derived foods, remarkably fresh fruit (avocados, bananas, chestnuts, kiwis, peaches, tomatoes and white potatoes). We presented a case in which Omalizumab was effectively used in a patient with the latex-fruit syndrome who did not respond to high-dose antihistamine treatments and progressed with urticaria.

Materials-Methods: A 60-year-old male patient applied to the outpatient clinic with complaints of itching and swelling following ingestion of some food products. In the recent 3 months he became unresponsive to oral antihistamine therapy. The patient, whose profession is a cook, states that he uses latex gloves while cooking and when he uses gloves, his complaints compatible with urticaria increase. Laboratory **Results:** hazelnut: 25.7kU/L(<0.35 -), walnut:13.8 kU/L (<0.35 -), potato:70.6 kU/L (<0.35 -), tomato:30.2 kU/L (<0.35 -) Strawberry: 11.3 kU/L (<0.35 -), latex: 28 kU/L (<0.35 -), total IgE: 330 IU/Ml (0-87). Omalizumab 300mg/month subcutaneously was started in the patient whose complaints did not regress despite increasing the antihistamine dose four times and starting H1-H2 antihistamine combination treatments.

Results: After three months of Omalizumab treatment, the patient's urticaria complaints regressed to a level where no rescue antihistamine treatment was required. While the urticaria activity score was 30 before Omalizumab, it decreased to 5 after three months of starting Omalizumab treatment.

Conclusion: Omalizumab may be use in patient with latex-fruit syndrome whom resistance to antihistamine treatment.

Keywords: Latex-Fruit Syndrome, Omalizumab, Antihistamine Therapy



PP-022

THE HYPERSENSITIVITY REACTIONS TO TRANSFUSIONS COULD BE SUCCESSFULLY MANAGED BY OMALIZUMAB INDEPENDENT OF THE SERUM TOTAL IGE IN A PATIENT WITH THALASSEMIA MAJOR

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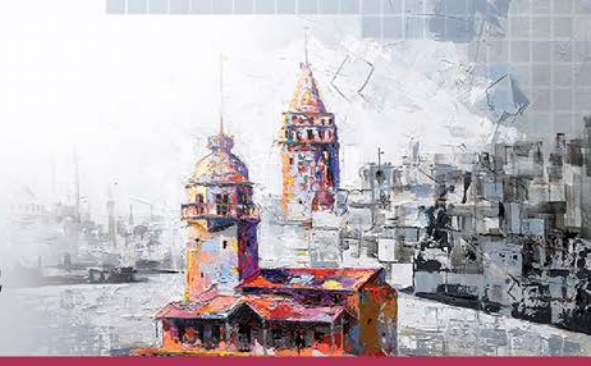
Introduction: Hypersensitivity reactions (HSRs) to erythrocyte transfusions are common in patients requiring continuous transfusion. Sometimes, antihistaminics and corticosteroids, and washing procedures before transfusions remain insufficient to prevent HSRs.

Case: A 32-year-old female diagnosed with thalassemia major has been receiving transfusions since her childhood and was referred to our clinic due to HSRs occurring within the 15 minutes of erythrocyte transfusions. In 2008, the patient had HSRs consisting of flushing, erythema, facial angioedema, abdominal cramping and nausea, and hypotension. Routine premedication with 20 mg dexamethasone and pheniramine were prescribed since then. However, premedications haven't been effective for the last 2 years. The duration of the latest reactions has been 1 week long which requires prolonged corticosteroid treatment. The patient needed to receive erythrocyte transfusions every 2 weeks. Total IgE was <17.1 Ku/L and latex-specific IgE were found as 0.00 KUa/L. Due to the unresponsiveness to previous premedications, omalizumab 150 mg/every 2 weeks, one day before transfusions was decided to be administered. No HSR was observed with omalizumab pretreatment during the subsequent transfusions, and antihistaminics and corticosteroids were quitted.

Discussion: Omalizumab prevents the degranulation of mast cells and basophils by IgE binding to FcεRI. In the recent literature, omalizumab (150-300 mg) was shown to be successful in preventing transfusion-induced anaphylaxis. In our case, the successful effect of omalizumab is supposed to be independent of the serum TIgE levels indicating the main effect of the drug is by down-regulating the FcεRI on basophils and mast cells.

Keywords: hypersensitivity reaction, transfusion, omalizumab



PP-023

A MYXOEDEMA CASE WITH A PRE-DIAGNOSIS OF ANGIOEDEMA

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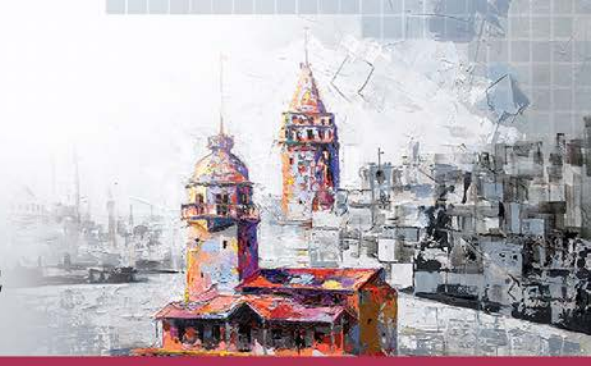
Background And Objective: Angioedema is a clinical condition of self-limiting oedema localized in deeper layers of skin and mucosa. In case of a suspected situation, a proper differential diagnostic work-up is required to rule out all other causes of hereditary and acquired angioedema etiologies. We aimed to present a case of myxoedema with a pre-diagnosis of angioedema.

Materials and Methods: A 57-year-old male patient had been admitted to emergency department for the last 3 months with complaints of swelling in the eyes, lips and dyspnea for several times. In the initial evaluation, in physical examination a macroglossia was seen, there was no oedema in his uvula, patient had tachypnea and tachycardia.He was referred to our clinic with a pre-diagnosis of angioedema. In first evaluation, it was learnt from the patient that he had a weight gain of 10 kgs in the last 3 months. In physical examination widespread swelling in eye lids, lips, face and macroglossia was seen. Lung auscultation revealed reduced lung sounds in basal parts. Complete blood count with differentials, biochemical tests, thyroid function tests and additionally tests for differential diagnosis of acquired and hereditary angioedema etiologies was planned. In the results TSH: 175 mIU/ml, sT4<0,005 ng/dl, anti-TPO >969 was obtained.

Results: Myxoedema was diagnosed in this patient who was being evaluated with a prediagnosis of angioedema.

Conclusion: We present this case with an aim of emphasising the relationship of allergic diaseases with autoimmunity and reminding common diseases other than angioedema presenting with oedema.

Keywords: myxoedema, angioedema, swelling



PP-024

MORBIHAN DISEASE: A RARE ENTITY IN THE DIFFERENTIAL DIAGNOSIS OF ANGIOEDEMA

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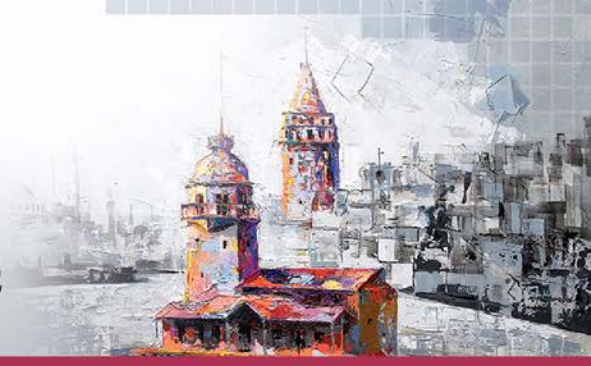
Introduction: Morbihan disease (MD) is a rare entity which is clinically characterized by chronic erythematous edema localized exclusively on the forehead, glabella, eyelids and cheeks. It is considered as a clinical variety or a complication of acne or rosacea. We present herein a patient who was diagnosed with MD, which is a rare disease from the differential diagnosis of angioedema.

Case Report: A 54-year-old man was referred to our department because of a swelling and redness in the eyelids and forehead for 2 months. The edema was unresponsive to oral antihistamines and systemic steroids. Dermatological examination revealed erythematous plaques in the forehead and malar region, edema on both eyelids. General physical examination did not reveal any other pathological finding. All laboratory tests were normal ranges. Skin punch biopsy was compatible with acne rocasea (erythematous telangiectatic type); thus, a diagnosis of Morbihan disease was made. The patient was treated with doxycycline 100 mg/daily and topical metronidazole cream for 4 weeks. There was no effect on the swelling or erythema. Later isotretinoin 20 mg/daily started and treatment continues.

Conclusion: The onset of MD is usually slow, with intermittent reversible swelling eventually becoming permanent accompanied by thickening of the skin. Other features of rosacea may be present, such as telangiectasia, papules, and pustules. In our case, these findings suggesting rosacea were not present, there was only edema and erythema in the eyelids and forehead. So that in case of prolonged edema, a biopsy must be performed to exclude other diagnoses.

Keywords: Morbihan disease, erythematous edema, angioedema



PP-025

PENICILLIN DESENSITIZATION IN A PREGNANT PATIENT WITH SYPHILIS AND ALLERGIC TO PENICILLIN

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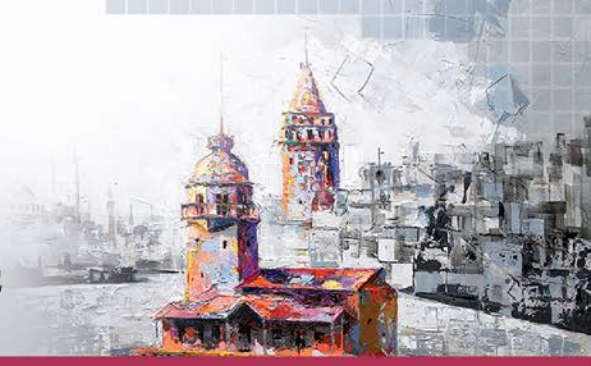
Background: Syphilis during pregnancy has a high risk of congenital transmission and may result in adverse fetal consequences such as preterm birth, fetal and perinatal death, and congenital syphilis. The recommended treatment during pregnancy is penicillin and has no alternatives. Therefore, in case of penicillin allergy in pregnant women with syphilis, penicillin desensitization is recommended. We report a case of successful oral desensitization to penicillin in a pregnant woman with latent syphilis and penicillin allergy.

Case: 20-year-old woman, with a 10-week pregnancy and presented with a history of mucous membranes lesions on genital area for two years. Latent syphilis was confirmed with positive VDRL (1/4) and IHA-TP (1/5120) tests. Benzathine penicillin G (2,400,000 units/mL, IM) was started as recommended. Within 24 hours after the treatment, the patient had developed itchy skin rashes. She was referred to allergy department for desensitization to continue penicillin tratment. Skin prick and intradermal tests were evaluated as negative. Penicillin G provocation test was not applied because she was in the first trimester, serum specific IgE to penicillin was not available and her history strongly suggested an immediate allergic reaction. Oral desensitization was performed with Penicillin V. Thirty minutes after the end of the oral desensitization procedure, an intramuscular injection of benzathine penicillin (2,400,000 units/mL) was administered without any adverse reactions or complications, and the patient was discarged after 24 hours uneventfully.

Conclusion: The oral desensitization is a simple, relatively safe, efficient and cost-effective method of penicillin desensitization.

Keywords: Penicillin desensitization, penicillin allergy, pregnancy,syphilis



PP-026

DELAYED HYPERSENSITIVITY REACTIONS TO ISONIAZID: REPORT OF 4 CASES

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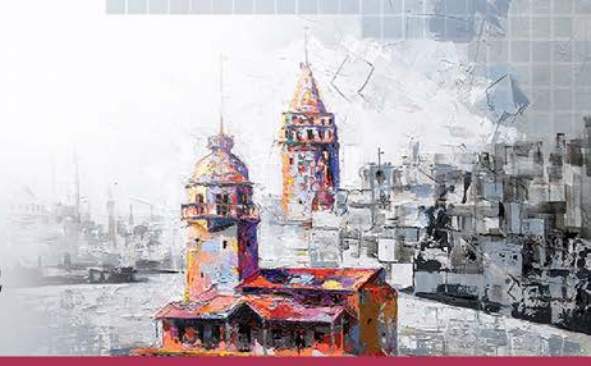
Background And Objective: Cutaneous reactions in patients on antituberculosis therapy are challenging as several drugs are taken concomitantly. In this case series, we report the clinical features of four cases which were diagnosed as isoniazid induced delayed type hypersensitivitiy reaction with patch tests.

Cases: Four patients (one female, 3 male) aged between 51 and 77 years were referred to our clinic with suspected drug allergy occurring after 2 - 8 weeks of commencement to antituberculosis therapy with isoniazid, rifampicin, ethambutol and pyrazinamide. Three of the patients had erythematous rash and one case had erythroderma. All but one of the cases had itching. Two of the patients had hypereosinophilia, one patient had mild eosinophilia,and one patient had elevated liver enzymes. After the lesions of the patients resolved with topical steroid therapy and oral antihistamines, patch tests were performed. Isoniazid, rifampicin and ethambutol were diluted at 30% in petrolatum and pyrazinamide was diluted at 10% in ethanol.While the patch tests with isoniazid were positive in all cases, ethambutol was also positive in one case. All of the patients were diagnosed as delayed hypersensitivity reaction to isoniazid and two patients was also diagnosed as probable Drug reaction with eosinophilia and systemic symptoms (DRESS). One of the patients also had a patch test positivity with ethambutol and another patient had a rash with ethambutol in the follow-up.

Conclusion: Drug patch tests can give valuable information in delayed type hypersensitivity reactions due to isoniazid and ethambutol.

Keywords: Drug hypersensitivity reaction, ethambutol, isoniazid.



PP-027

CHRONIC SPONTANEOUS URTICARIA DEVELOPED AFTER COVID-19 VACCINATION: CASE SERIES IN A SINGLE HOSPITAL

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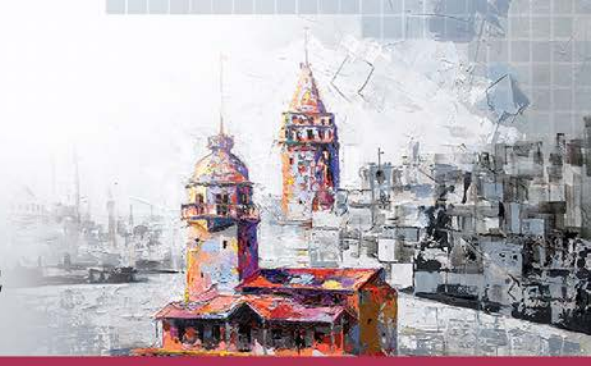
Background and objectives: Self-limited urticaria has been reported as one of adverse reactions of COVID-19 vaccines. However, less has been reported regarding chronic spontaneous urticaria (CSU) after COVID-19 vaccination. Herein, we have described characteristics of 19 patients diagnosed with CSU following COVID-19 vaccination.

Materials and Methods: We have conducted a retrospective review of the patients visiting allergy clinic in Asan Medical Center due to newly developed CSU after COVID-19 vaccination. The data of demographic information, type of administered vaccines, clinical characteristics were collected.

Results: From October 2021 to May 2022, we have identified 19 patients who were diagnosed as CSU following COVID-19 vaccination. Among them, 13 (68.4%) were females and mean age was 44.3. Most patients (17/19, 89.5%) did not have allergy history. Three, fifteen, and one patient received AZD1222, BNT162b2, and mRNA-1273 vaccine, respectively. Urticaria had initiated following the first dose in eight patients, second dose in ten patients, and third dose in one patient. Seven patients who were diagnosed as CSU after first vaccination received second dose. In most patients (6/7, 85.7%), urticaria was more severe and developed more rapidly after the second dose than initial manifestation. All patients received anti-histamines and three patients started omalizumab. The symptoms improved after the treatment generally, except one patient who did not response to antihistamine and omalizumab.

Conclusions: COVID-19 vaccination may play a role as a trigger of CSU. Similar to other CSU, vaccine-induced CSU responds well to medical treatment. However, further longitudinal follow-up is required to evaluate its long-term prognosis.

Keywords: COVID-19 vaccine, chronic spontaneous urticaria, case series



PP-028

COVID-19 SEVERITY IN PEDIATRIC PATIENTS WITH ATOPIC DERMATITIS- A CASE-CONTROL STUDY

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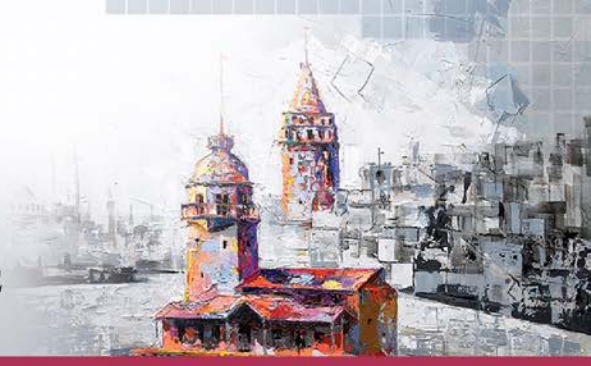
Background and Objectives: Respiratory viruses tend to run a more serious course in patients with concurrent respiratory illnesses. According to the Centers for Disease Control and Prevention asthma and allergic diathesis has been included as a risk factor for severe coronavirus disease 2019(COVID-19) illness. This study aimed at evaluating the difference in COVID-19 severity between cases with and without the concurrent atopic dermatitis(AD).

Materials-Methods: In this study real-time polymerase chain reaction positive cases of COVID-19 aged ≤18 years were included. We divided the subjects into two groups, namely, group A(cases) and group B(controls). In group A, children with AD(using revised Hanifin and Rajka criteria) were included.Group B consisted of age-and sex-matched patients without AD.We compared the viral disease severity using HRCT scores and correlated the SCORAD between both the groups.

Results: There was a higher proportion of 'severe' illness cases in group A(17.2%) than group B(13.2%), however, the difference was statistically insignificant (p-value=0.06).Group A required a significantly longer duration and higher doses of medication for COVID-19.In group A 48.3% cases and in group B 18.9% cases required systemic corticosteroids.Additionally, 20.7% cases in group A and 15.5% in group B needed to be salvaged with resuscitative measures.The mortality rates were comparable between the two groups (p value=0.07). The correlation between high SCORAD and severe COVID-19 illness was insignificant.

Conclusions: These findings suggest that atopic diathesis is not a conclusive risk factor for the acquisition of COVID-19 in children.However, patients with AD tend to take longer to recover from this infection.

Keywords: COVID-19, Atopic Dermatitis, Allergic rhinitis, Asthma



PP-029

MUCOCUTANEOUS ADVERSE EVENTS FOLLOWING COVID-19 VACCINATION- A CLINICO-HISTOPATHOLOGICAL CORRELATION STUDY

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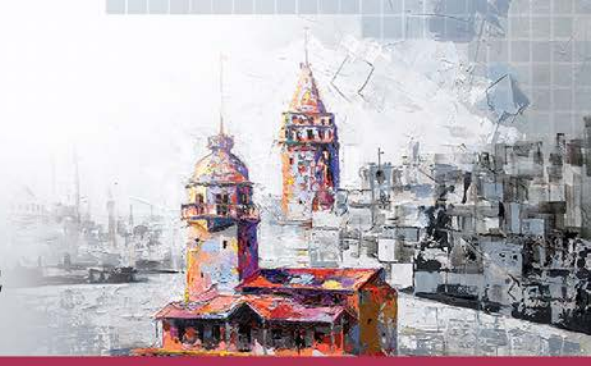
Background: The development of mucocutaneous reactions following COVID-19 vaccination has been increasingly documented. However, to date, there is still a dearth of studies that delve into the pathogenesis of these reactions. OBJECTIVES: This study was aimed at correlating the spectrum of cutaneous reactions with histopathological findings developing after the administration of COVID-19 vaccination.

Materials-Methods: In this prospective observational study, all the individuals developing any self-reported mucocutaneous adverse events within 3 weeks of receiving the COVID-19 vaccine were included. The lesions were classified into various reaction patterns on the basis of histopathological features.

Results: Out of the 103 vaccine-related reactions, only 53 patients agreed to get a skin biopsy done. The most common histological pattern of reaction was spongiotic dermatitis (n=23), clinically manifesting as pityriasis rosea like reaction, a maculopapular rash with fine scaling, and vaccine-related eruptions of papules and plaques (V-REPP). Other histopathological patterns included lichenoid dermatitis (n=18), leukocytoclastic vasculitis (n=4), dermal hypersensitivity reaction (n=2), subepidermal blistering (n=4), and granulomatous reaction (n=2). Other clinical patterns included, lichenoid skin eruptions, urticaria, vasculitis, pseudoangiomatosis, bullous pemphigoid, guttate psoriasis, herpes zoster, chilblains, and pityriasis lichenoides et varioliformis acuta. A majority of cases developed the reaction only after the 2nd dose of vaccination, suggesting the role of type IV hypersensitivity reaction.

Conclusion: Clinico-histopathological correlation helps in categorizing the various vaccine-related mucocutaneous reactions. Our work highlights that skin manifestations of the COVID-19 vaccine are often self-limiting and benign.

Keywords: COVID-19 vaccine, adverse reactions, cutaneous manifestations, V-REPP



PP-030

LEUKOCYTOCLASTIC VASCULITIS FOLLOWING COVID-19 VACCINE- A CASE SERIES

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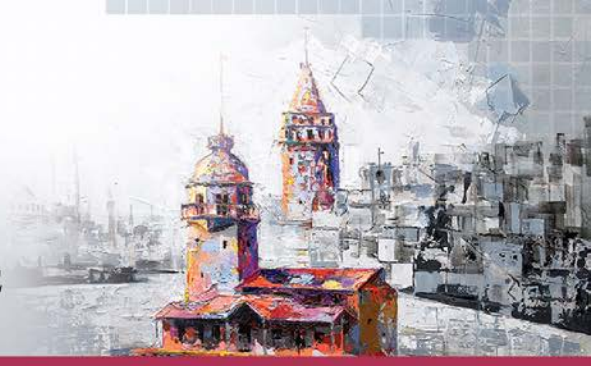
Backgrounds: Of late a handful of vaccines have been introduced across the world against the protect the masses against the COVID-19 infection. Many authors have reported the development of various adverse events following the immunization.

Objective: Herein, we report a series of 3 cases who developed cutaneous vasculitis after recombinant ChAdOx1 nCoV-19 coronavirus vaccine also known as CovishieldTM.

Results: All 3 females had received the recombinant ChAdOx1 nCoV-19 coronavirus vaccine (recombinant), also known as Covishield™, prior to onset of lesions which were histopathologically consistent with leukocytoclastic vasculitis. On the basis of strong clinical suspicion, biopsy findings, and a temporal association with onset of lesions after vaccination, the patients was diagnosed with COVID-19 vaccine induced leukocytoclastic vasculitis. The three patients denied to the development of any such similar lesions in the past. While case 1 and 2 had already been tested for COIVD-19 with RTPCR testing prior to vaccination, the 3rd case was subjected to the test after he presented to us, which turned out to be negative. After ruling out any underlying systemic illness or immunosuppression, the cases were prescribed a short course of oral corticosteroids in tapering dose (starting dose 30mg/day) and tablet paracetamol followed by an uneventful recovery. There was no recurrence in the ensuring 3 weeks' follow up period.

Conclusion: It is imperative for a dermatologist to always be on a look out to identify vasculitis and other autoimmune cutaneous inflammatory disorders as a potential adverse event of the vaccination.

Keywords: COVID-19 vaccine, leukocytoclastic vasculitis, vasculitis, adverse reaction



PP-031

INCIDENCE OF ANAPHYLAXIS AFTER ChAdOx1 nCoV-19 VACCINATION WAS RARE AMONG HEALTHCARE EMPLOYEES IN A SINGLE REFERRAL HOSPITAL

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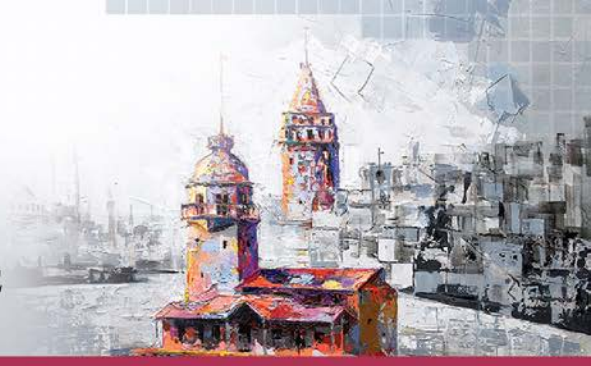
Background and Objectives: Concerns for allergic reactions contribute to vaccine hesitancy even in healthcare workers. We analyzed a self-reported questionnaire of adverse reactions after ChAdOx1 nCoV-19 vaccination among healthcare employees to analyze the incidence of anaphylaxis.

Materials and Methods: A total of 3,253 employees of a referral hospital vaccinated with ChAdOx1 nCoV-19 between March 1, 2022 and July 31, 2022 and responded to a post-vaccination self-report questionnaire about adverse reactions were included. The severity of adverse reactions was graded into four levels; mild, moderate, severe, and very severe. Subjects who met the criteria for the Brighton case definition of anaphylaxis were considered to have anaphylaxis. As data were from self-report questionnaire, we considered severe and very severe symptoms were meaningful.

Result: According to Brighton criteria, none of employees showed symptoms of anaphylaxis with level 1 certainty of diagnosis. After the first vaccination dose, five subjects (0.15%) and 30 subjects (0.92%) showed level 2 and level 3 certainty of the diagnosis, respectively. After the second vaccination dose, only three subjects (0.09%) reported level 3 certainty but none with either level 1 or level 2 certainty of anaphylaxis diagnosis. None of the five subjects, who reported level 2 certainty of the diagnosis after the first dose, required any medication on-spot nor visited the emergency room. Moreover, none showed recurrence of the symptoms after the second dose of the same vaccine.

Conclusions: The incidence of anaphylaxis after ChAdOx1 nCoV-19 vaccination was rare. ChAdOx1 nCoV-19 vaccine is safe in terms of severe allergic reactions.

Keywords: COVID-19 vaccine, post-vaccination symptom, anaphylaxis



PP-032

COVID-19 INFECTION AMONG PATIENS RECEIVING BIOLOGICS FOR SEVERE ASTHMA

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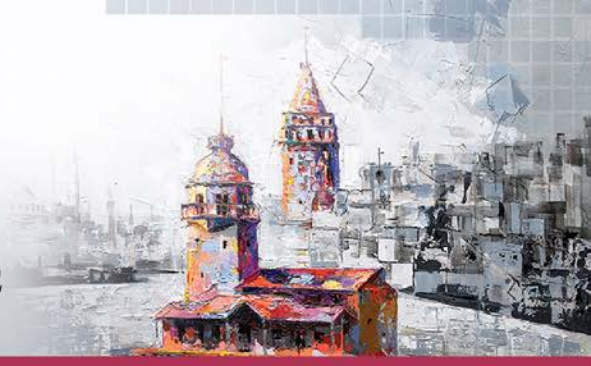
Introduction: Whether receiving biologics increases COVID-19 infection risk or not has been a concern during the pandemic. Our aim is to identify COVID-19 infection rates and disease severity in our patients receiving a biologic therapy and compare them with patients receiving subcutaneous allergen immunotherapy in a retrospective manner.

Methods: Ninety one patients (median age 53 (min- max 19-75)) receiving a biologic treatment either omalizumab or mepolizumab and 124 patients (median age 38 (min-max 18-66))receiving subcutaneous immunotherapy were included into the study. Data from January 2020 upto November 2021 was collected.

Results: Twenty two patients (24.2%) receiving a biologic treatment had COVID-19 infection. All of them had severe asthma and 11 (50%) of them reported increased asthma symptoms during COVID-19 infection. Ten of the patients (45.5%) had mild or asymptomatic disease while 5 (22.7%) had severe disease requiring hospitalization. None of them needed intensive care. Among the immunotherapy patients, 21 (16.9%) had COVID-19 infection. Thirteen of them (61.9%) had mild disease. None of the immunotherapy patients was hospitalized. Six (27.3%) patients on biologics and 1(4.8%) patient on immunotherapy had documented pneumonia. Hospitalization rate was significantly higher (0 vs 22.7% p=0.048) in patients receiving biologics.

Conclusion: There wasn't an increased rate of COVID-19 infection in patients receiving biological agents compared to those receiving subcutaneous immunotherapy. However, they needed to be hospitalized more than the immunotherapy patients. The reason for this difference may be that the biologics group consists of severe asthmatic patients whereas immunotherapy group includes allergic rhinitis or mild asthma patients.

Keywords: COVID-19, biologics, asthma



PP-033

IMPACT OF COVID-19 ON LUNG FUNCTION OF ASTHMATIC PATIENTS UNDER BIOLOGICS: ANALYSIS OF A CENTRAL HOSPITAL

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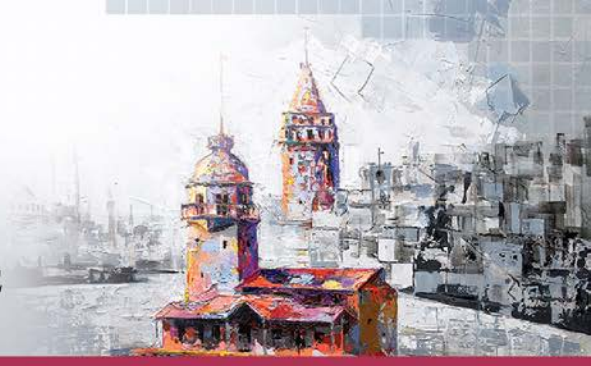
Background: Management of severe asthma and their exacerbations during the coronavirus disease 2019 (COVID-19) pandemic has been a challenge.

Aims and Methods: The objective of this work is to evaluate changes in lung function in severe asthma (SA) patients (pts) under biological therapy, after COVID-19 infection. Retrospective study of pts with SA under biological therapy followed in a severe asthma unit. Patients' data was obtained from clinical records.

Results: Fifteen patients underwent lung function tests after COVID-19 infection. Patients were mostly women (66.7%, n=10) with mean age of 58 years. 40% (n=6) were allergic asthma, 20% (n=3) eosinophilic asthma and 40% (n=6) eosinophilic and allergic asthma. Cardiovascular co-morbilities were: arterial hypertension, dyslipidemia and diabetes. Biological therapy was: omalizumab (n=10; 66.67%), mepolizumab (n=3; 20%), dupilumab (n=1; 6.67%) and benralizumab (n=1; 6.67%). No patients had clinical sequels from the infection. Mean spirometry values were, before and after COVID-19, respectively: forced vital capacity (FVC) 102%/100% predicted (p=0.379); forced expiratory volume in the first second (FEV1) 80%/82% of predicted (p=0.415); FEV1/FVC 66%/67% of predicted (p=0.374). No significant difference was noted.

Conclusions: In our study we verified that lung function maintained stable despite the infection by Covid-19, probably due to the compliance of treatment with biological therapy, allowing control of their asthma and thus lower risk of severe exacerbation.

Keywords: Asthma, Biologic therapies, COVID-19.



PP-034

KNOWLEDGE, EXPERIENCES AND ATTITUDES OF PATIENTS WITH SEVERE ASTHMA PATIENTS DURING THE COVID-19 PANDEMIC: QUALITATIVE AND QUANTITATIVE STUDY

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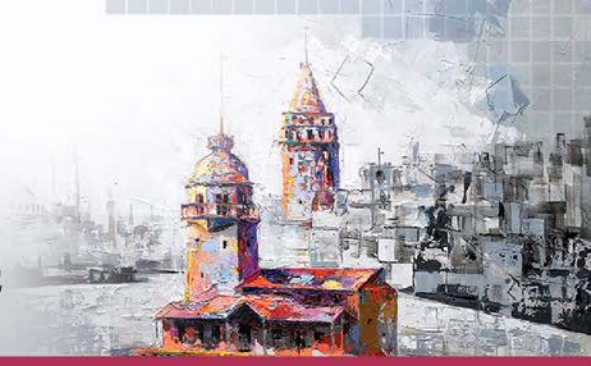
Background and Objectives: Optimal management of severe asthma during the coronavirus disease 2019 (COVID-19) pandemic is still challenging. However, no studies have yet studied the knowledge, attitudes, and practices towards in severe asthma patients during COVID-19 pandemic, especially patients' own words.

Materials-Methods: Patients with severe asthma were recruited from three tertiary hospitals in South Korea. Data were collected used the exploratory sequential mixed methods design, where qualitative data are collated and integrated based on quantitative data to interpret the overall results. Next, we investigated severe asthma patients' knowledge, attitudes and practice during COVID-19 pandemic.

Results: A total of 94 patients were enrolled, with 84 patients in the quantitative study phase and 10 patients in the qualitative study phase. Severe asthma patients reported that asthma was relatively well- controlled during COVID-19 pandemic year in 2020 than in the last year. However, there are several barriers faced (i.e., worried about cross-infection of COVID-19 in the hospital, effort to socially distance) in using healthcare services for severe asthma patients. Patients with fixed airway obstruction (FEV1 < 60%) and living in the metropolitan district had higher knowledge of asthma and COVID-19 (P = 0.045 and 0.019, respectively). Patients living in urban cities and experiencing asthma exacerbations from COVID-19 were more worried about their ability to perform their daily activities (P = 0.019 and < 0.001, respectively).

Conclusions: Individualized education aimed at improving the health literacy on asthma management and COVID-19 may be helpful for severe asthma patients.

Keywords: COVID-19, severe asthma, qualitative research



PP-035

KAWASAKI DISEASE AND GUILLAIN BARRÉ SYNDROME AS MANIFESTATIONS OF IMMUNOLOGICAL DYSREGULATION IN THE SAME PEDIATRIC PATIENT ASSOCIATED WITH SARS-COV 2 INFECTION

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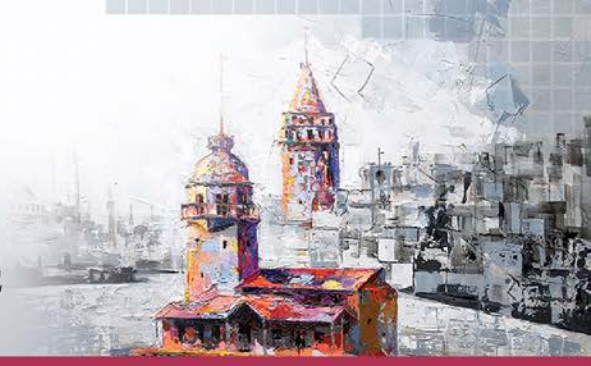
Introduction: Since the beginning of the COVID-19 pandemic there has been a plethora of reports associating the development of Kawasaki disease and Guillain Barre syndrome triggered by SARS-CoV2 infection. We report the association of Kawasaki Disease (EK) and Guillain-Barré syndrome (GBS) as in the same patient, after SARS-CoV2 infection.

Case presentation: A 20-month-old boy with a history of SARS-CoV 2 infection two weeks prior, presented to the ER with complete KD, associated with diarrheal stools; PCR for SARS COV 2 and Adenovirus was positive, he was treated with intravenous immunoglobulins, acetylsalicylic acid and methylprednisolone with good response. Two months later, he presented a clinical picture of lower motor neuron disease, lymphopenia with low CD4+ counts, a positive IgG serology for SARS COV2, negative antiganglioside antibodies; cerebrospinal fluid with cytological albumin dissociation; evoked potentials with altered conduction velocity, H reflex and F wave, somatosensory response without response and MRI compatible with GBS evidence. He was treated with high-dose methylprednisolone and IVIG on two occasions. He was discharged with improvement and sent to the physical rehabilitation service.

Discussion and Conclusion: Saldoval et al. made a report of 17 children with neurological manifestations associated with COVID-19 infection; 35.2% of them developed muscle weakness, however only one child met the diagnostic criteria for Guillain-Barré Syndrome. Four patients who presented non-GBS muscle weakness (acute flaccid quadriparesis) were associated with a Kawasaki-like disease during the same event, and were therefore classified as MIS-C. SARS-CoV2 virus has been termed autoimmune virus and our case supports this concept.

Keywords: COVID-19, Kawasaki disease, Guillain-Barré syndrome, SARS-Cov2 autoimmunity.



PP-036

COVID-19 IN ADULT PATIENTS WITH IMMUNE DEFICIENCY: A SINGLE CENTER EXPERIENCE

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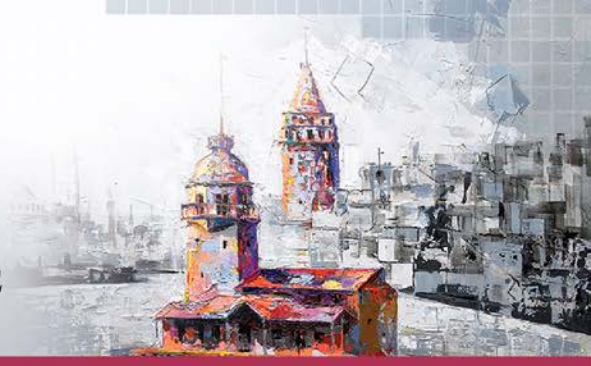
Introduction: Common variable immunodeficiency(CVID) is a heterogeneous group of diseases characterized by recurrent and severe infectious diseases,autoimmune,autoinflammatory,allergic diseases and cancer. These patients,who have impaired immune responses to pathogens,are at high risk for the deadly novel coronavirus(SARS-CoV-2)infectious disease(COVID-19).

Discussion: A-total of 46(F: 35,M:11)adult patients were included in the retrospective study covering the period from January 2020 to the present day,41 patients who met the CVID criteria,and 5 patients with hypogammaglobulinemia,followed in the immunology-outpatient-clinic-of-Başkent-University-Hospital.All patients were receiving IVIG treatment.There was consanguinity in 17.4% of the patients.The rate of comorbid diseases is 45.7% and the distribution is 4.3% DM,19.6% CVD,23.9% asthma,8.7% COPD,2.2% CKD,4.3% liver disease,6.5% cancer,10.9% leukemia lymphoma,13% rheumatic disease,6.5% were in the form of bulla disease.23.9% of the patients were smokers.Respiratory symptoms were present in 97.8%,gastrointestinal symptoms in 47.8%,and genitourinary symptoms in 34.8% of the patients.4 patients(8.7%)had cytopenia and 35 patients(76.1%)HSM-LAP. 32 patients HRCT involvement;32 patients(69.6%) were contact.25 patients(54.3%) had the disease, 20 patients had the disease once, 4 patients twice, and 1 patient a total of three times.2 patients died due to the disease.The rate and frequency of covid transmission was significantly higher in those with GIS symptoms (81.8%) than in those without (29.2%) $p<0.001$.The rate of covid transmission was significantly higher in those with GUS symptoms(75%) than in those without(43.3%) $p=0.040$.The incidence of covid was significantly higher in patients with HSM-LAP(62.9%) compared to those without (27.3%) $p=0.039$.It is more common in those with low IgA.The rate of covid transmission was found to be significantly higher in patients with undetectable IgM levels $p=0.010$

Keywords: immun deficiency, COVID-19, hypogamaglobulinemia, IVIG



PP-037

NFKB2 MUTATION, MUCOCUTANEOUS CANDIDIASIS AND HYPERPIGMENTATION, MORE SEVERE THAN COMMON VARIABLE IMMUNODEFICIENCY: A CASE REPORT

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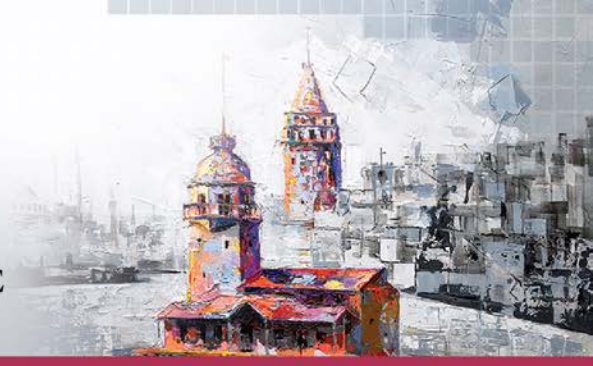
Introduction: In recent years, NFKB2 mutations in germline have been detected in patients with common variable immunodeficiency (CVID). Here, we present a case with NFKB2 mutation, manifesting mucocutaneous candidiasis, hyperpigmentation and more severe clinical form than CVID.

Case presentation: 17-year-old male patient. He had frequent recurrent throat infections with persistent fever and was hospitalized many times. The patient was diagnosed with CVID at the age of 9 years. Intravenous immunoglobulin (IVIG) replacement therapy was started. At the age of 13, dry skin and multiple large abscesses on his skin began to attract attention. In the follow-up, abscesses recurred at intervals. When he was 16 years old, the patient had severe pneumonia and bronchiectasis was seen on thorax CT. The course of the disease began to aggravate. Clinical exome sequence analysis was sent from the patient. 6 months after the pneumonia treatment, the patient presented with severe diarrhea of unknown cause. Unlike other times, the patient's whole body was hyperpigmented, there was a fungal infection on his fingers, toes, scalp and mouth. The patient was examined for mucocutaneous candidiasis and Addison's disease. Hypoparathyroidism and hypocalcemia were detected. Adrenal insufficiency was ruled out. In the follow-up of the patient, the cause of which could not be determined, diarrhea recurred 2 months later, autoimmune enteropathy was considered. Genetic analysis of the patient is in the NFKB2 gene; missense c.2557C>T (p.Arg853) variant was detected as heterozygous.

Conclusion: Heterozygous NFKB2 mutation causes clinical outcomes beyond humoral immunodeficiency.

Keywords: NFKB2 mutation, mucocutaneous candidiasis, hyperpigmentation, common variable immunodeficiency



PP-038

THE ALLERGIC DISORDERS IN PATIENTS WITH PRIMARY ANTIBODY DEFICIENCY COHORT FROM A TERTIARY REFERENCE CENTER

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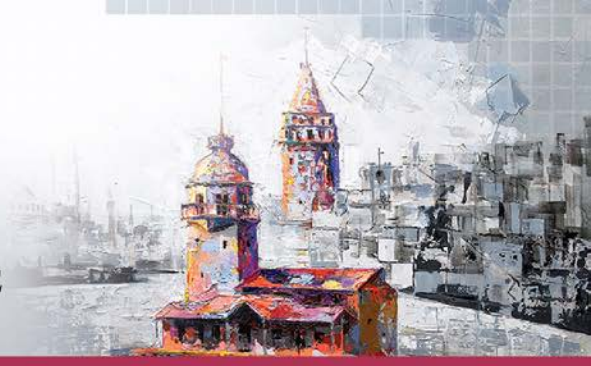
Primary antibody deficiencies (PADs) are the most common group of inborn error of immunity (IEI) presenting with susceptibility to infections, autoimmunity, allergy and lymphoproliferation. Allergic diseases are reported to be more common in those with selective IgA deficiency (sIgAD). There is little information known on the associations between various PADs and allergic diseases. This research examined at the prevalence of allergic disorders in patients with PAD in a tertiary reference center for IEI in Turkey.

Results: We collected data from 210 PAD patients (M/F:1.56) with a median age of 18(IQR:12.5-28.0,min:3.0-max:68) years. Median duration of follow up was 7.0(IQR:3.6-12.2,min:0.5-max:40.0) years. The distribution of diagnosis were CVID 40%(n=84), sIgAD 38.6%(n=81), agammaglobulinemia16.6% (XLA(n=31),AR agammaglobulinemia(n=4)),Hyper IgM Syndrome((AID) deficiency) 4.3%(n=9). Allergic disorders were detected in 22.9%(n=48) patients, 11 of 48 patients had at least two allergic disorders. The most common allergic disorders were asthma 15.2%(n=32) and allergic rhinitis 6.7%(n=14). The diagnosis in 30 of the 48 patients (62.5%) with allergic disorder was sIgAD, Allergic disorder prevalance was 6.6% in CVID patients, 1.4% in XLA. None of the patients with Hyper IgM syndrome and AR agammaglobulinemia had allergy.(p=0.001) 62(29.5%) patients were followed without any treatment for PADs.
The treatments used for allergic disorders included inhaled corticosteroids 17.6%(n=37), short-acting beta-2 agonist 7.6%(n=16), intranasal corticosteroids 6.7%(n=14), leukotriene receptor antagonists 6.7%(n=14). Omalizumab was used in 2 patients with asthma.

Conclusion: Allergic disorders are important componenets of the clinical presentation of PADs especially sIgAD and CVID. Patients with IEI should be screened for allergy symptoms and treated with appropriate medications.

Keywords: Primary antibody deficiencies, Allergic Disorders, selective Ig A deficiency



PP-039

EFFECTIVENESS OF OMALIZUMAB IN THE TREATMENT OF HYPER-IGE SYNDROME – CASE REPORT

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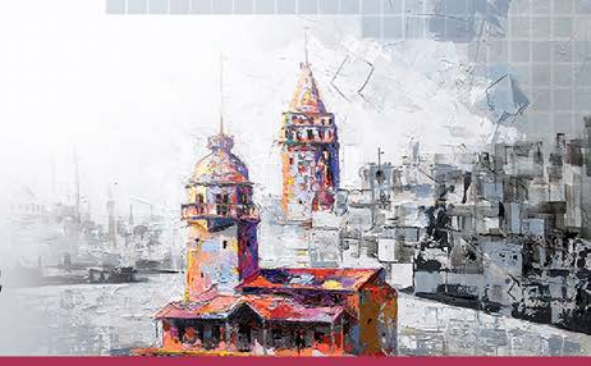
Background: Hyper IgE syndrome (HIES – Job Syndrome) is a rare multisystem primary immunodeficiency disorder, that has 1/million incidence. It is characterized by elevated serum IgE, atopic dermatitis, recurrent skin and lung infections, skeletal abnormalities, such as scoliosis, characteristic facial features, abnormalities in vessels, teeth, joints and brain with symptoms starting as eczematoid dermatitis that usually persists through childhood and adulthood. The treatment of HIES is mainly directed towards the symptoms, as well as prophylactic antibiotic. We wanted to assess the use of Omalizumab (a humanized recombinant monoclonal antibody against IgE which works by reducing the level of free IgE,thus inhibiting the binding of IgE to the receptors on the surface of the effector cells to reduce the inflammatory cells and inflammatory mediators). Case presentation: We present a case of a Jordanian 18 years old male diagnosed with Hyper IgE syndrome since infancy, with all of the manifestations. Omalizumab 150 mg was given s.c. every 2 weeks (Weight 52 kg) increased to 300 mg after drug became available by his medical insurance. There was marked reduction in the Eczema symptoms and Eosinophils count and his IgE level decreased from 21800 IU/mL in 2011 and 2039 IU/mL in 2019 to 764 IU/mL 2022.

Conclusion: This is the first case report from Jordan of Omalizumab use to treat a HIES case, which proved a valuable additional weapon in improving the lives of patients with HIES.

Keywords: Hyper IgE Syndrome, Job's syndrome, Omalizumab



PP-040

A COMBINED IMMUNODEFICIENCY WITH SEVERE INFECTIONS, INFLAMMATION, AND ALLERGY CAUSED BY A NOVEL ARPC1B GENE MUTATION IN TWO SIBLINGS OF THE TURKISH FAMILY

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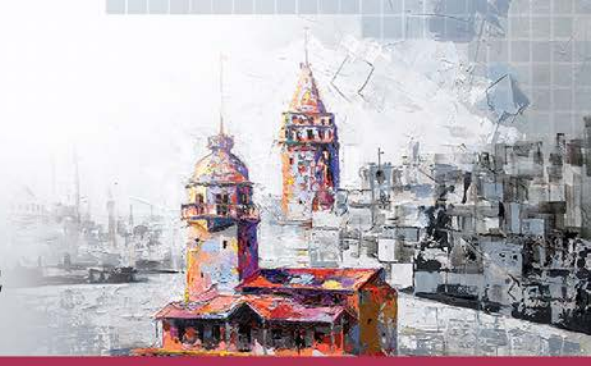
Background: A novel syndrome of autosomal recessive combined immunodeficiency (CID), allergy, and inflammation caused by mutations in the ARPC1B gene has been reported recently. Because of its recent discovery and extreme rarity, the exact mechanisms and the full spectrum of the severity of the disease remain unclear. OBJECTIVE: Here, we describe the clinic presentation of this rare disease in two siblings of a consanguineous family from Turkey with a novel homozygous synonymous pathogenic variant c.500+2T>C of the ARBC1B gene, as demonstrated by whole exome sequencing (WES) studies.

Case: The index patient is a male child, aged 12 years, presented with recurrent bronchiolitis, pneumonia and significant failure to thrive. With regard to his past medical history, he sufferred from gastrointestinal bleeding with trombocytopenia, as well as food allergy in infancy. He was diagnosed with inflammatory bowel disease and asthma at the age of 2 and 4, respectively. His immunologic work up showed elevated IgE and IgA levels, as well as normal levels of spesific antibodies to routine vaccine antigens. Immunophenotyping showed an increased number of CD19+ B cells, a reduced absolute count of CD3+CD4+ and CD3+CD8+ T cells. The younger male member of the family (3 years old), presented with similar clinical and immunological findings, which were highly indicative of autosomal recessive CID. WES of the proband and targeted genetic analysis of the younger child confirmed the final diagnosis.

Conclusions: A CID with severe infections, inflammation, and allergy caused by a novel ARPC1B gene mutation in two siblings were defined.

Keywords: combined immunodeficiency, allergy, ınflammation, severe infection, ARPC1B gene mutation



PP-041

CLINICAL AND IMMUNOLOGICAL CHARACTERISTICS OF PATIENTS WITH NFKB1 AND NFKB2 DEFICIENCY

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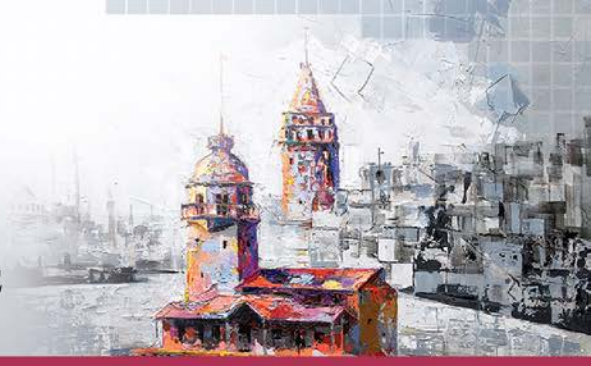
Background and Objectives: Nuclear factor-kB (NF-kB) is the master regulator of transcription factors that regulate genes involved in the immune response. NF-κB signaling through its NFKB1-dependent canonical and NFKB2-dependent noncanonical pathways plays distinctive roles in a diverse range of immune processes, including cell survival and proliferation, inflammation, and the adaptive immune response.

Patients and Methods: This research was conducted in a tertiary reference center for IEI for children and adults in Turkey, Hacettepe University Department of Pediatric Immunology and retrospectively evaluated the clinical, immunological and genetic characteristics of the patients with NFKB1 or NFKB2 mutations.

Results: We presented eight patients (NFKB1(4), NFKB2 (4) mutations) from six unrelated families. Half of the patients were male. The median age at the onset of symptoms was 39 years (min-max: 2 months-51 years). The median duration of follow-up was 6 years (min-max: 1month-15 years). Two of the patients were asymptomatic at the time they were included in the study. Detailed clinical characteristics and treatments are shown in Table 1 and Figure 1.

Conclusions: NFKB1 and NFKB2 haploinsufficiencies are one of the most common genetic causes in patients with CVID phenotype. Recurrent upper and lower respiratory tract infections, autoimmune diseases, lymphoproliferation are the most common clinical findings. More severe clinical findings with viral and opportunistic microorganisms, similar to combined immunodeficiencies has been defined in the literature. In addition to IVIG and immunomodulatory treatment, HSCT may be planned in case there is unresponsive to treatment and severe autoimmune and inflammatory complications.

Keywords: NF-kappaB pathway, common variable immune deficiency (CVID), hypogammaglobulinemia



PP-042

ALLERGIC DISEASES IN PATIENTS WITH COMBINED IMMUNODEFICIENCIES

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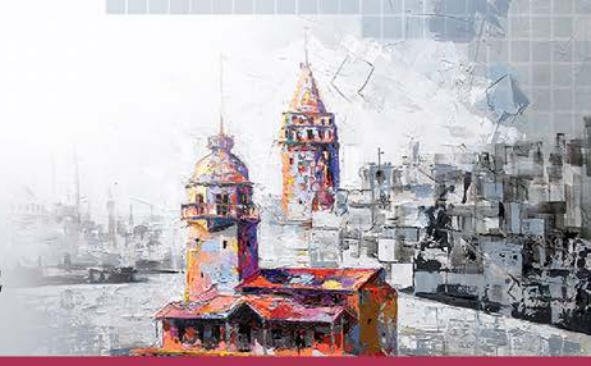
Background and Objectives: Inborns errors of immunity (IEI) are congenital disorders caused by genetic defects of the immune system which typically present with recurrent or severe infections but can also include allergic diseases. It is well established that there is a link between various IEI including Wiskott-Aldrich syndrome, hyper IgE syndrome and allergy diseases. The aim of this study is to evaluate the frequency of atopy and allergic disease in combined immunodeficiencies (CID). Patients and METHOD: We collected data from 744 patients with CID in a tertiary reference center for IEI in Turkey.

Results: The patients' median age was 13 (min:3.0-max:48) years and 64 % were male. 75.6 % of the individuals in this cohort had combined immunodeficiency, whereas 24 % had severe CID. Allergic disorders were detected in 6.7 % (n=50). The most common allergic disorders were asthma 60% (n=30), food allergy 26% (n=13) and atopic dermatitis 14%(n=7). Acute urticaria (1), allergic rhinitis (3), drug allergy (1), dust mite allergy (2), cat allergy (1), latex allergy(1), pollen allergy(2), anaphylaxis (1) were also present. Among the patients with allergic disease 4% (n=2) had severe CID, 96% (n=48) had CID (HIES (14), Ataxia Telangiectasia (4), Netherton Syndrome (3), WAS (2), Di George Syndrome (3), Nijmegen Breakage Syndrome (2), MALT 1 deficiency(1)). The treatments used for allergic disorders included inhaled corticosteroids (n=30), short-acting beta-2 agonists (n=10), intranasal corticosteroids (n=2), montelukast (n=1).

Conclusion: In conclusion, patients with CID who experience recurrent respiratory symptoms should be evaluated for allergies and asthma.

Keywords: Inborns errors of immunity, allergic diseases, combined immunodeficiencies



PP-043

INVESTIGATION OF PSYCHIATRIC COMORBIDITIES IN CHILDREN RECEIVING REGULAR IMMUNOGLOBULIN REPLACEMENT THERAPY DUE TO PRIMARY IMMUNODEFICIENCY AND EXAMINATION OF ACCOMPANYING INDIVIDUAL AND CLINICAL FACTORS

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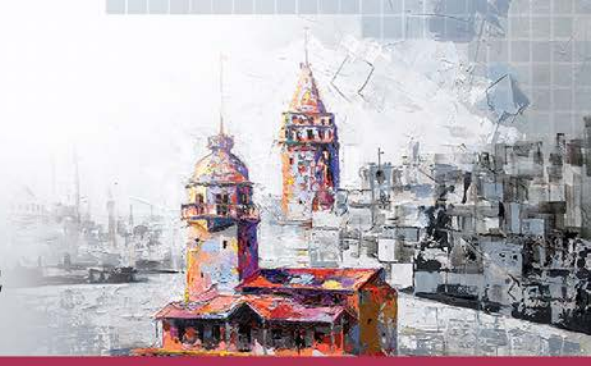
Objectives: Antibody deficiencies are the most common type of primary immunodeficiency (PID) and these patients should receive immunoglobulin replacement therapy (IGRT). There is limited data in the literature regarding the frequent occurrence of psychiatric problems in PID patients. This study aimed to evaluate the accompanying psychiatric comorbidities and associated clinical features.

Methods: Fifty patients aged 8-18 years who received IGRT were included in the study. Schedule for Affective Disorders and Schizophrenia for School-Age Children Present and Lifetime Version and Zarit Caregiver Burden Scale were used for psychiatric assessments. In addition, the relationship between psychiatric conditions and other individual/familial disease duration, severity, and drug use, which may be associated with factors that may affect the condition of the disease in PID patients, were investigated.

Results: Six of our patients receive subcutaneous immunoglobulin treatment (mean 9.2±2.1 years), 44 of them receive intravenous immunoglobulin treatment (mean 7.4±1.9 years). Anxiety disorders (32%), obsessive compulsive disorder (16%) and attention deficit hyperactivity disorder (8%) were the most common psychopathologies in our patients respectively. When the group receiving SCIG and the group receiving IVIG were compared, no significant difference was found, but there is a significant difference on family anxiety. While the burden perceived by the families regarding the disease was found to be related to the severity of PID and the age of the patient.

Conclusions: Psychiatric comorbid conditions are frequently seen in PID patients, and it is important for physicians to question the presence of emotional/behavioral symptoms as well as medical problems.

Keywords: immunglobuline, child, psychiatry, disorders, anxiety



PP-044

ACTIVATED PHOSPHOINOSITIDE 3-KINASE DELTA SYNDROME IN THE FRAME OF IMMUNE DYSREGULATION AND UNDER THE TITLE OF PREDOMINANTLY ANTIBODY DEFICIENCIES

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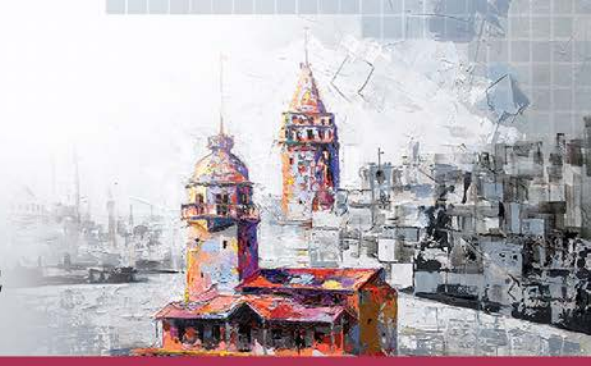
Background And Aims: Activated phosphoinositide 3-kinase delta syndrome is a combined primary immunodeficiency defined recently with heterogeneous clinical manifestations. Here in, we present the patients diagnosed in our hospital, a tertiary center in Turkey.

Methods: All of our patients were diagnosed by genetic tests (next-generation sequencing or/and whole exome sequencing and/or sanger sequencing) and functional studies (flow cytometric analysis of PIK3CD/PIK3R1 expression) were performed in three of our patients.

Results: The findings of 12 patients were detailed. The mean age of onset of complaints was 34.25 months and the mean age at diagnosis was 14.25 years. The most common infection was recurrent pneumonia and autoimmune/autoinflammatory findings/diseases were found in seven of the twelve patients. The most common finding was autoimmune hemolytic anemia. Lymphadenopathy was seen in seven patients, hepatoseplenomegaly in six patients, non-Hodgkin lymphoma in one patient. The rate of CD8+ effector memory T cell increased and switched memory B cells were low in 57.1 percent of the patients. Eleven patients (91.6%) are alive and are being followed up. One patient died of unknown etiology. Mutations were detected in the PIK3CD gene in nine patients and in the PIK3R1 gene in three patients and four of them are novel.

Conclusions: Even in the absence of CVID-like phenotype, PIK3CD-PIK3R1 gene analysis may be performed in patients with recurrent infections, autoimmunity-autoinflammation, lymphoproliferation, and increased T cell senescence and activation skewing toward effector cells. In order to contribute to the limited experience, we shared our patients in detail.

Keywords: Activated phosphoinositide 3-kinase delta syndrome, PIK3CD, PIK3R1



PP-045

UNDERDIAGNOSES OF ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS (ABPA) IN AN ACADEMIC HEALTH CENTER

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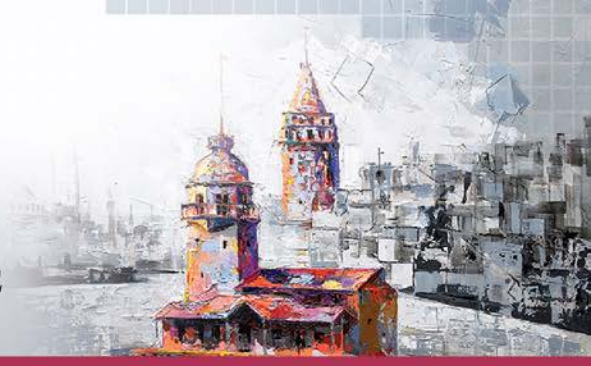
Allergic bronchopulmonary aspergillosis (APBA) complicates asthma and cystic fibrosis but the diagnosis is not consistently sought in clinical practice. Laboratory data in ABPA include an elevated IgE, specific IgE reactivity to Asp sp, elevated total eosinophil count (TEC), bronchiectasis (BE) or ground glass opacities (GGO) on CT scan, and obstructed spirometry. A query of anonymized data showed the number of patients with both elevated IgE (>1000) and elevated TEC was considerably greater than the number of patients with an ABPA diagnosis (B44.81). We hypothesized that APBA is underdiagnosed, and may be more prevalent than reported. We queried the electronic medical record (EMR) of UTMB Health System retrieving identifiable clinical information, under an IRB approved protocol. One query returned those patients with a diagnosis of ABPA (B44.81). A second query returned patients with IgE>1000, and 3) TEC>500, but did not have an ABPA diagnosis. We extracted additional data, including lung function, Asp-specific IgE titers, CT findings, and respiratory medications. The first query identified 42 patients whose diagnoses included B44.81, consistent with our anonymized data. The second query returned 473 patients with IgE>1000, and 1796 with TEC>500 who did NOT have a diagnosis of APBA. A total of 92 patients had both IgE>1000 and TEC>500, and of those, 41 had spirometry with an FEV1:FVC ratio<0.70, and were receiving multiple asthma controller medications. More than half of the 92 had GGOs, BE, or both. Less than 5 of these patients had measures of Asp-specific IgE. In an academic health center, the frequency of concomitantly elevated IgE, high TEC, airway obstruction, and GGO/BE without a diagnosis of ABPA is similar to the frequency of diagnosis of ABPA. These data suggest that some of these patients may have ABPA, but have not undergone confirmatory testing. A Formal diagnosis of ABPA could lead to targeted care

Keywords: ABPA, aspergillosis, A. fumugatus, asthma, respiratory disease, allergies



PP-046

MOLECULAR PROFILE OF SENSITIZATION TO POLLEN ALLERGENS IN CHILDREN AND ADULTS WITH ALLERGIC RHINITIS

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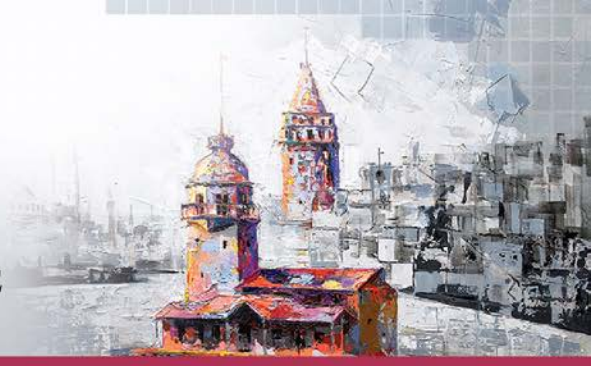
Background and Objectives: Allergic rhinitis (AR) is a growing public health, medical and economic problem worldwide. It is a disease of nasal mucosa that is mostly caused by immunoglobulin E (IgE)-mediated hypersensitivity responses, usually to inhalant allergens. Determining the molecular profile of sensitization is important for the diagnosis and prediction of allergen immunotherapy (AIT). AIT remains the only potentially curative therapy for AR, whereas pharmacotherapies treat symptoms and inflammation. The aim of the study was to determine the profile of sensitization to pollen allergens in children and adults with allergic rhinitis.

Materials-Methods: AR patients aged from 2 to 80 years, who were examined by molecular multiplex test ALEX2 were included the study.

Results: 404 patients, 29 (7.2 %) were <15 years of age, 375 were (92.8%) over 15 years of age, were examined. The most common grass pollen allergens were Phl p 1(23%), Lol p 1(22%), Cyn d 1(20%), tree pollen allergens were Cup a 1 (18%), Cry 1(12%) and Fra e 1 (8%), weed pollen allergens were Amb a 1(6%), Amb a (6%), Par j(4%) respectively.

Conclusions: The profiles of pollen allergens sensitization among patients with allergic rhinitis were dominated by the molecules of Phl p 1 in grass allergens, Cup a 1 in tree allergens and Amb a 1 in weed allergens.

Keywords: allergic rhinitis, molecular diagnosis, pollen



PP-047

CUPRESSUS ALLERGY: AN EMERGING AEROALLERGEN FOR EAST MEDITERRANEAN CHILDREN

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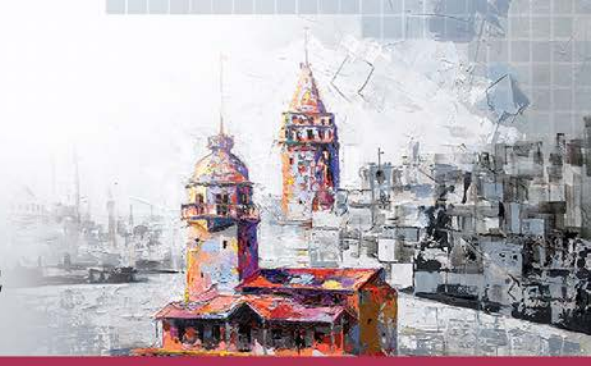
Background: Cupressus sempervirens is a tree native to the Mediterranean region. We aimed to investigate the frequency of sensitization/allergy to Cupressus arizonica (C.arizonica) pollen.

Methods: Patients aged 5-18 years, who underwent respiratory allergy screening in Turkey's largest referral center over a one-year period, were reviewed retrospectively for diagnostic studies of Cupressus allergy.

Results: Of 246 patients, 207 (67.6% male) with a median age of 11.7 (IQR 9.2-15) years were found aeroallergen sensitive and C.arizonica (32%) was the second most common sensitivity after grass pollen (83.6%). In the C.arizonica sensitive subgroup, only 3% (2/67) were monosensitive, and grass (77.6%), cat (38.8%), and weed (38.8%) were the most common co-sensitivities. Cup a 1 specific IgE (sIgE) was measured in 26 patients with C.arizonica sensitivity and all were found positive. Nasal allergen challenge (NAC) was performed on 44 of 67 patients with C.arizonica sensitivity, and 13 of 44 patients had a positive outcome (NAC+) at the highest two extract concentrations. The Cupressus wheal size and Cup a 1 sIgE level of the NAC+ subgroup were higher than the NAC- subgroup but reached significance only for the wheal size [6 (5-7.5) vs. 4.5 (4-6) p=0.004]. The NAC+ subgroup reported more frequent nasal discharge, congestion, and eye symptoms than the NAC- subgroup during the relevant pollen season.

Conclusion:C.arizonica sensitivity has increased, similar to northern Mediterranean data, and this was associated with the presence of allergy both clinically and laboratory. C.arizonica should be included in the aeroallergen screening panel of children from the Eastern Mediterranean.

Keywords: aeroallergen, children, Cupressus Arizonica, Cup a 1, nasal allergen challenge, respiratory



PP-048

PRENATAL EXPOSURE TO PARTICULATE MATTER PROMOTES CHILDHOOD ASTHMA VIA PLACENTAL DNA METHYLATION CHANGES

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Background and Objectives: Evidences indicating prenatal exposure to PM as a risk factor for development of asthma in children are growing. However, the mechanisms of prenatal PM exposure effecting on placenta is not clear. This study aims to evaluate whether prenatal PM exposure may alter placental DNA methylation, then develop childhood asthma in the offspring.

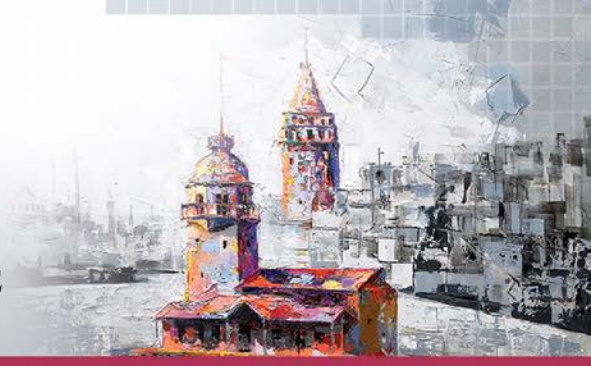
Materials-Methods: We stratified the subjects into four groups according to the level of prenatal PM exposure and diagnosis of asthma at age 6-10 years in the Cohort for Childhood Origin of Asthma and Allergic Diseases (COCOA) study, and then selected 10 subjects in each group. Genome-wide methylation profiling in placenta was analyzed by Illumina Infinium Methylation EPIC BeadChip and performed network analysis.

Results: Thirty six differentially methylated CpG sites in promoter regions were notable among groups (5 hypomethylated and 31 hypermethylated). Association study was evaluated between the methylation levels and clinical data of subjects, then 10 genes, related with fetal growth and development of immune system by literature search, were selected that are associated with bronchial hyperresponsiveness and high IgE levels. In addition, network analysis revealed the genes were connected with wnt signaling pathway and TGF-β, p53 and GABA receptor signaling pathway.

Conclusions: Epigenetic change in placenta with prenatal PM exposure may effect on the development of asthma in offspring at age 6-10 years.

Funding Sources: This work was supported by the Research Program funded Korea National Institute of Health (2020E670200, 2020E670201 and 2020E670202) and by the National Research Foundation of Korea (NRF-2021R1F1A1063759 and NRF-2022R1F1A1076174).

Keywords: particulate matter, prenatal exposure, asthma, DNA methylation



PP-049

MICROBIAL INDOOR AIR QUALITY IS ASSOCIATED WITH RESPIRATORY AND GENERAL HEALTH

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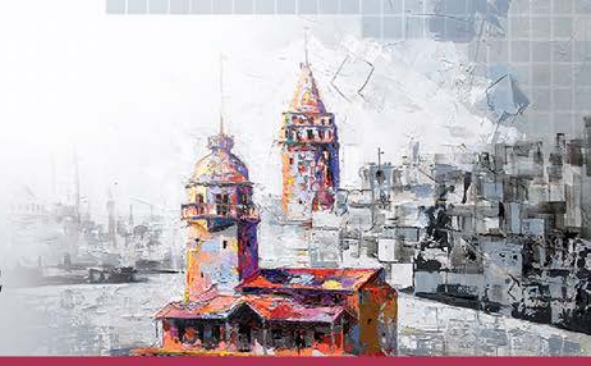
Background and Objectives: The higher airborne microbial concentration in indoor areas might be responsible for the adverse indoor air quality, which relates well with poor respiratory and general health effects in the form of the sick building syndrome. The current study was carried out in the Delhi Metropolis, India with the purpose of determining the seasonal quantitative evaluation of viable microbiological indoor air quality implicating human health.

Materials-Methods: Size-based seasonal bioaerosol measurement was conducted, cultured and identified by standard macro and microbiological methods, followed by biochemical testing and molecular techniques. Microorganisms. A questionnaire based health survey was also performed on residents of sampling houses.

Results: August and December had the highest (1654±876.87 CFU/m3) and lowest (738±443.59 CFU/m3) mean bacterial concentrations in dwellings, respectively. Similarly, August had the highest fungal concentration (1275±645.22 CFU/m3) and January had the lowest (776±462.46 CFU/m3). In all seasons, the respirable fractions of 2.1 and 1.1 provide more than 60% of total culturable bioaerosols in the case of fungi. The most common bacterial genera were Staphylococcus, Micrococcus, and Streptobacillus, whereas the most common fungal genera were Cladosporium, Aspergillus, Penicillium, and Alternaria. In additional analysis, the questionnaire survey indicated the headache (28%) and allergy (20%) were significant indoor air health concerns.

Conclusion: According to the findings, a larger respirable fungal proportion may permeate deeper into the lungs, causing a variety of health repercussions. This type of approach may serve as a foundation for assisting residents in taking preventative measures to avoid exposure to harmful bioaerosols.

Keywords: Bioaerosols Bacteria, Fungi, Human Health



PP-050

SENSITIZATION TO NOSOCOMIAL PNEUMOALLERGENIC FUNGAL SPORES IN ATOPIC PATIENTS OF WEST BENGAL, INDIA: A SERIOUS HOSPITAL ACQUIRED HEALTH HAZARD

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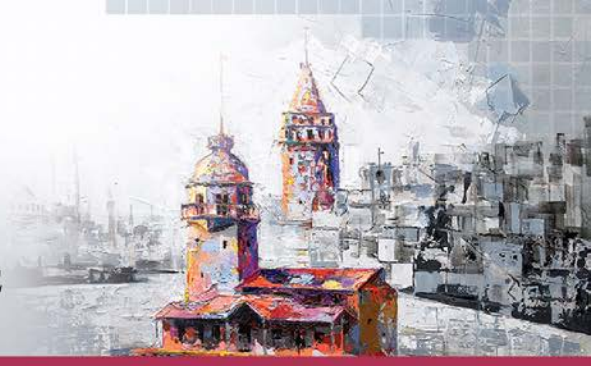
Introduction: Fungal spore and mycelia can be found in indoor and outdoor environments of all hospitals, may be transmitted through air, patients and air conditions. Invasive fungal infections are increasingly common in the nosocomial setting. About 150 individual fungal allergens different genera have been identified in the last 20 years but there is very little information on the hospital-acquired respiratory allergic disease of those patients who use to visit the OPD for treatment of different diseases other than allergic manifestation.

Objectives: This study intended to identify the novel IgE reactive proteins of nosocomial fungal allergens found in different wards of a Rural District Hospital of WB and investigate the in-vitro cross reactivity among these allergens by in-vitro immunoenzymatic biochemical methods.

Results: Petri plate exposure methods trapped a total of 20 fungal genera belonging to 33 species from different wards of the hospital. The most predominant air borne fungi have been identified are Aspergillus group, showed the highest (21.9%) prevalence of sensitization when tested by SPT on nosocomial infected atopic patients, followed by Alternaria alternate, Cladosporium cladosporioides, Curvularia lunata, Candida albicans, Fusarium oxysporum which have showed prominent sero-reactive proteins in western immunoblotting by using a panel of sera from immunotherapy free patients. ELISA inhibition has been used to identify degree of cross-reactivity among fungal allergens.

Conclusions: This investigation is reasonably alarming for asthmatic nosocomial hazards hospital environment and could be helpful for treatment of nosocomial allergic patients.

Keywords: Nosocomial fungal allergy, Petri plate exposure methods,Sero-reactive proteins, Immunoblotting, ELISA inhibition



PP-051

EFFECTS OF WILDFIRES IN AIR QUALITY AND RESPIRATORY ALLERGY

Cindy Elizabeth De Lira Quezada, Sandra Nora González Díaz, Rosalaura Virginia Villarreal Gonzalez, Natalhie Acuña Ortega, Carlos Macouzet Sánchez
Universidad Autonoma de Nuevo Leon, Hospital Universitario "Dr. José Eleuterio González" Regional Center of Allergy and Clinical Immunology

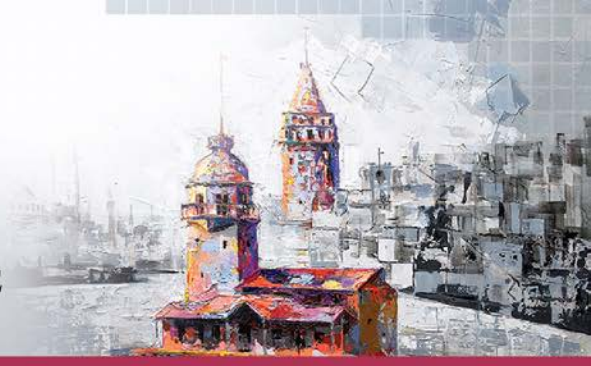
Background and Objectives: The exposure to forest fires has been associated with the reduction of lung function in asthmatic patients and represents an important health problem. The aim of the study was to determine the effects on pulmonary function and symptom control in patients with respiratory allergy during exposure to forest fires.

Materials-Methods: Observational, prospective study carried out in Monterrey, Mexico applying spirometry, asthma control test (ACT) and rhinitis control assessment test (RCAT) to subjects ≥ 6 years old with respiratory allergy, from March 13th to April 1st, 2021 and March 24th to April 5th, 2022 during a series of forest fires in the region, compared to a visit without exposure. Ash remains were observed by the Pollen Sense sensor located in our hospital and local pollution monitoring system for pollutant information.

Results: 55 subjects were included, the mean age was 24.34, 47.2% women and 52.7% men. 66% had allergic rhinitis and 34% had asthma and allergic rhinitis. The average RCAT in visits without vs with exposure was 25.26 vs 20.04 SD 7.11, p=0.00. ACT and FEV1 without vs with exposure to forest fires: mean of 92.1 vs 83.2, SD 13.61, p=0.00. Mean ACT scores without vs with exposure to wildfires: 22.1 vs 16.7 of 11.14, p=0.002. Particulate matter (PM 2.5,PM10) presented monthly mean of 33.3 ug/m3 and 93.75ug/m3.

Conclusions: A decrease in the RCAT, ACT and FEV1 scores was observed to decrease during exposure to forest fires and higher pollutant levels in our population with allergic respiratory diseases.

Keywords: air quality, forest fires,respiratory allergy



PP-052

SICK HOUSE SYNDROME: ITS ASSOCIATION WITH INDOOR ENVIRONMENT AND HOST FACTORS

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Regional Center of Allergy and Clinical Immunology, Autonomous University of Nuevo Leon, University Hospital "Dr. José Eleuterio González"

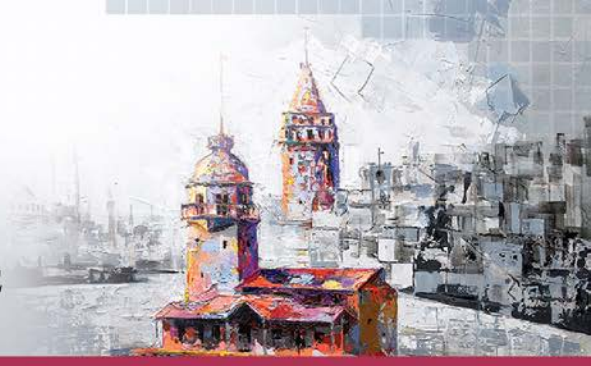
Background and Objectives: Sick house syndrome (SHS) is a set of symptoms caused by poor ventilation, humidity, lack of temperature control and biological contamination reported by inhabitants of new or renovated houses. The objective of the research was to determine the association between the symptoms of the SHS with indoor environment and personal factors of the inhabitants.

Materials-Methods: It was an observational, transversal and descriptive study that was performed from November 2021 to April 2022. It included subjects >18 years old who completed an online survey regarding syndrome (general symptoms, nasal, eye, oropharyngeal and skin symptoms) presented at home, housing information and personal history. SPSS version 24 was used for statistical analysis.

Results: The study included 402 surveys. 91% reported having at least one symptom, fatigue (74.1%), was the most prevalent. 49.5% of the symptoms occurred inside the house. Female gender was associated with headache ($p<0.001$), fatigue ($p=0.001$), nasal ($p=0.034$), and skin symptoms ($p=0.008$). Humidity was associated with nasal symptoms ($p=0.001$), eye symptoms ($p=0.001$), fatigue ($p=0.001$), headache ($p=0.003$), skin symptoms (0.001), and itchy scalp ($p=0.001$). The presence of cats was associated with eye-nasal symptoms ($p=0.028$). Passive smoking was associated with headache ($p=0.004$) and active smoking ($p=0.045$) and history of allergies ($p<0.001$), with nasal symptoms.

Conclusions: SHS was associated with female gender and history of atopy. Humidity is the most important intramural agent for the development of symptoms in the inhabitants of northeastern Mexico. Our results suggest that humidity control in homes could reduce the risk of developing SHS.

Keywords: environment, pollution, sick building syndrome, sick house syndrome



PP-053

AGE-RELATED SENSITIVITY TO GRASS MOLECULAR ALLERGENS

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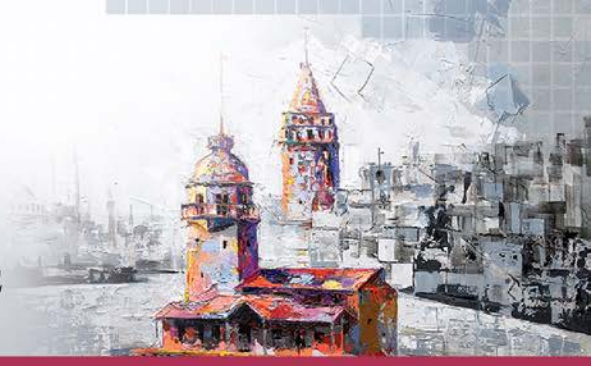
Background and Objectives: Grass pollen is an important seasonal allergy worldwide. To develop suitable strategies for grass pollen allergy treatment and prevention it is important to know the age-related sensitivity to Poaceae pollen.

Materials-Methods: Data from the multiplex allergy test Alex2 was collected from 20,333 patients in Ukraine. Age based differences in sensitization patterns was used assessing different age based statistical patterns of sensitivity to molecular components of grass at ages 1, 3, 6, 12, 18, 25, 36, 44 and 60 years old.

Results: Grass pollen sensitive individuals included 6170 patients or 30.34 % of the entire group. Sensitization to major grass allergens was seen from the first years of age. Patients aged 1 year (n=19) were sensitive to Phl p 1 most frequently followed by Cyn d 1 and Phl p 12 respectively. Similar patterns were noted at 3 years of age (n=156) with a rising role of Lol p 1. Phl p 1, Lol p 1 and Cyn d 1 were the most important allergens at 6 years old (n=351). This pattern remained almost unchanged at 12 year old (n=246), 18 years old (n=109), 25 years old (n=79), 36 years old (n=78), 44 years old (n=31) and 60 years old (n=14).

Conclusions: Sensitization to grass pollen was seen from the first years of age and is driven by the major allergen like Phl p 1. Lol p 1 and Cyn d 1 were also valuable indicating rising importance of these grasses in temperate climactic zones.

Keywords: grass pollen, multiplex allergy test, Poaceae pollen



PP-054

SUBLINGUAL IMMUNOTHERAPY IS SAFE AND EFFECTIVE TREATMENT FOR HOUSE DUST MITE SENSITIVE ALLERGIC RHINITIS

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Dept Of Pulmonology And Allergy Miot International Chennai India

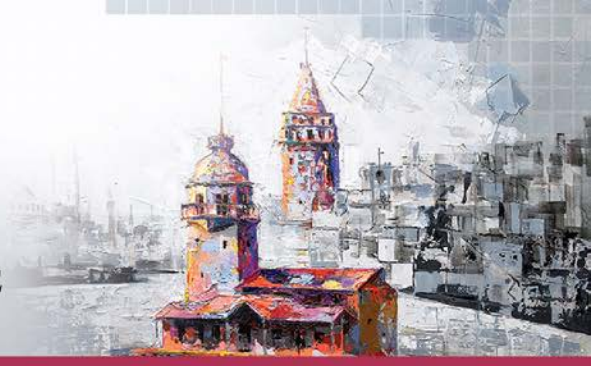
Allergic rhinitis is a most common public health issue throughout the world. Prevalence keeps increasing in view of more indoor and outdoor air pollution. Finding the proper solution make people free from allergic symptoms after identifying the offending allergen.

Method: 142 patients with clinical features of allergic rhinitis with positive skin reaction to D Farinae and D Pteronyssinus were divided into two groups. First group (80 patients) received Sublingual drops of standardized purified allergen extract preparation over the period of 3 to 5 yrs. Other group (62 patients) received placebo Symptom medication score assessed at the end of 3 to 5 years and repeat skin prick test done at the end of 3 years.

Results: Only 80 patients were completed study at the end of 3 years (51 patients in first group and 29 patients in other group) and 45 patients completed study at the end of 5 years..First group which received House Dust Mite extract showed significant improvement in symptom medication score at the end of 3 and 5 yrs. Repeat Skin Prick test showed minimal reduction in wheal diameter when compared to previous skin prick test in the first group. No significant side effects were found except for few local reactions.

Conclusions: Sublingual immunotherapy against House Dust Mite sensitive allergic rhinitis patients is effective and safe therapy even though adherence to the therapy is just about 35 to 60 % at the end of completion

Keywords: Sublingual immunotherapy, Skin Prick Test, Allergic Rhinitis



PP-055

THE PROGRESSION OF ALLERGY DISORDERS IS TERMED "ATOPIC MARCH." HAVING ONE ALLERGIC DISORDER INCREASES THE LIKELIHOOD OF ACQUIRING OTHERS. ASTHMA AND FOOD ALLERGIES OFTEN COEXIST. THERE ARE NO THRESHOLDS FOR SPECIFIC IGE (SIGE) ASSOCIATED

Waiswa Moses[1], Alliro Kevin[2], Kasango Noah[3], Namuli Norah[4], Ssebagala Gracious Denis[4]
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[2]Kampala Otlological And Allergy Centre
[3]Makerere University Lung Institute Ministry Of Health
[4]Kampala International University School Of Public Health

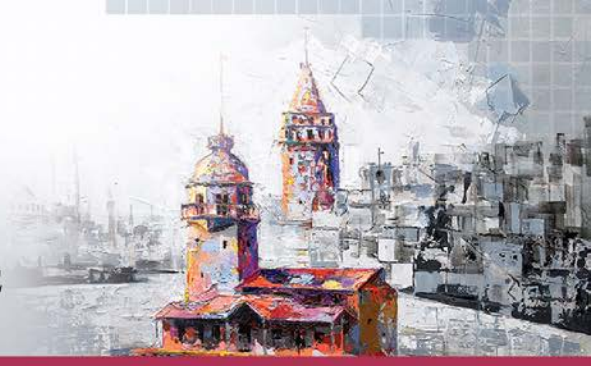
Background: The progression of allergy disorders is termed "atopic march." Having one allergic disorder increases the likelihood of acquiring others. Asthma and food allergies often coexist. There are no thresholds for specific IgE (sIgE) associated with the presence of clinical symptoms. Each allergen shows a particular trend with age.

Methods: Our analysis aim to identify food sensitization in children with asthma and evaluate its impact on asthma attacks and clinical control. As a part of a bigger study, 56 children (mean age 11.07 years (5.3–17.5), 38 boys, and 18 girls) with bronchial asthma were tested for total IgE and sIgE against food and inhalator allergens.

Results: In the studied population of children, sIgE against several food allergens was positive in the same patient. A significant correlation was found between the positive sIgE for milk and soy ($p < 0.0001$), for milk and egg yolk ($p = 0.01$), compared to milk and peanuts ($p = 0.004$), compared to egg yolk and fish ($p < 0.0001$), compared to egg yolk and casein ($p < 0.001$), and soy ($p < 0.0001$). The children who are positive for sIgE antibodies in cats, dogs, Cladosporium, Aspergillus, wormwood from aeroallergens and soy from food allergens have a higher risk of hospitalization for exacerbation of bronchial asthma. ($p < 0.05$).

Conclusion: Food sensitivity is associated with eczema, while mite sensitization is strongly associated with rhinitis and asthma. Food sensitization is not a risk factor for asthma exacerbation in children older than five years old.

Keywords: Asthma, Food Sensitization, Asthma Attacks, Food Allergies



PP-056

FOOD EXPOSURE EFFECT ON ASTHMA ATTACKS IN CHILDREN A COHORT STUDY ACCORDING TO AGE GROUP

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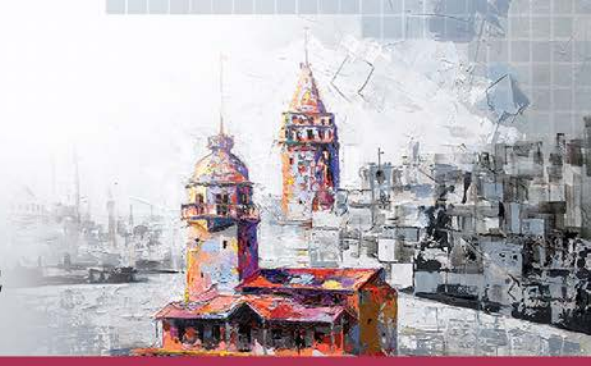
Background: The progression of allergy disorders is termed "atopic march." Having one allergic disorder increases the likelihood of acquiring others. Asthma and food allergies often coexist. There are no thresholds for specific IgE (sIgE) associated with the presence of clinical symptoms. Each allergen shows a particular trend with age.

Methods: Our analysis aim was to identify food sensitization in children with asthma and evaluate its impact on asthma attacks and clinical control. As a part of a bigger study, 56 children (mean age 11.07 years (5.3–17.5), 38 boys, and 18 girls) with bronchial asthma were tested for total IgE and sIgE against food and inhalator allergens.

Results: In the studied population of children, sIgE against several food allergens was positive in the same patient. A significant correlation was found between the positive sIgE for milk and soy ($p < 0.0001$), for milk and egg yolk ($p = 0.01$), compared to milk and peanuts ($p = 0.004$), compared to egg yolk and fish ($p < 0.0001$), compared to egg yolk and casein ($p < 0.001$), and soy ($p < 0.0001$). The children who are positive for sIgE antibodies in cats, dogs, Cladosporium, Aspergillus, wormwood from aeroallergens and soy from food allergens have a higher risk of hospitalization for exacerbation of bronchial asthma. ($p < 0.05$).

Conclusion: Food sensitivity is associated with eczema, while mite sensitization is strongly associated with rhinitis and asthma. Food sensitization is not a risk factor for asthma exacerbation in children older than five years old.

Keywords: Asthma, Food Sensitization, Asthma Attacks, Food Allergies



PP-057

ROLE OF THE SURGICAL BIRTH AS A RISK FACTOR IN THE FORMATION OF ATOPIC DERMATITIS IN CHILDREN

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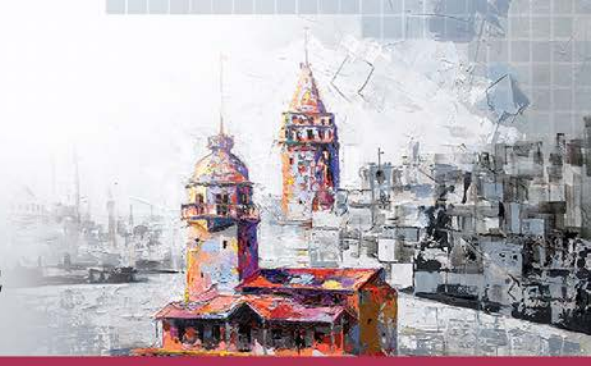
Effect of the caesarean section on the development of allergies has been widely studied. According to the "hygienic" theory, the reduction of antigen load by microbes leads to the development of allergies. There're 414 (gestational age 38-42 weeks) newborns involved in the study: 256 (67.3%) with atopic dermatitis were born surgically and 158 (32.7%) were born naturally. It proves the caesarean section has great importance in the development of atopy (pku =0,047). Based on our results, the incidence of severe atopic dermatitis in children was predominant among children born by caesarean section (pku =0,106). Although there is not a statistically significant difference, it is an advantage that the colonization of bacteria in the neonatal mucosa during the intranatal period is sharply delayed. Caesarean section is characterized by dysadaptation of the immune system in early postnatal ontogeny in children. According to our study, candidiasis of the oral mucosa (pku = 0.024), dyschesis (pku= 0.016), relapse (pku= 0.019), functional constipation (pku = 0.057), contact dermatitis (pku= 0.038), superficial sleep (pku= 0.055), and allergic rhinitis (pku= 0.06) were statistically significantly higher than in natural births. The fact that noisy breathing (pku= 0.001), which is characteristic of allergic diseases, is twice as common in children born by caesarean section indicates that these children have a disregulation of immune system cells and a certain period of adaptation. Thus, in children born by caesarean section, inadequate stimulation of TLR (Toll-like receptors) during initial contact with the mother's microbiota disrupts the differentiation of Th effector cells.

Keywords: atopic dermatitis, caesarean section, immune system



PP-058

SINGLE ALLERGEN-SPECIFIC IgE+ B CELL ANALYSIS IN COW'S MILK ALLERGIC CHILDREN DURING THE ORAL IMMUNOTHERAPY

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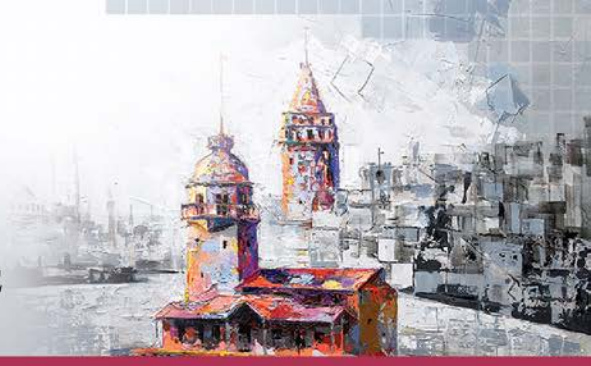
Background: For decades, the prevalence of allergic individuals suffering from IgE-mediated food allergies has been increasing. The mechanisms causing food allergy have been comprehensively investigated. In this context, B cells produce allergen-specific IgE antibody and markedly contribute to the development of IgE-mediated food allergy. Therefore, this study aims to investigate the role of allergen-specific IgE+ B cell from cow's milk allergic children during oral immunotherapy (OIT).

Methods: Immortalized allergen-specific B cells from allergic individuals were enriched by co-culturing with CD40L and IL-21. Total and specific IgE, sIgG subclass antibodies (IgG1, IgG2, IgG3, and IgG4) from culture supernatants were measured by ELISA. Subsequently, the single IgE+ B cells were identified and sorted in flow cytometry with the combination of different surface markers such as IgM, IgD, IgG1, IgG2, IgG3, and IgG4.

Results: The production of IgE, IgG1, and IgG4 from allergen-specific culture supernatants was significantly increased when compared with the non-specific pool. Using the candidates immortalized B cell pools with the highest IgE production, we sorted the single IgE+ B cell along with their other immunoglobulin subclasses (IgG1, IgG2, IgG3, and IgG4) B cells and further processed them single-cell PCR technique.

Conclusions: This study mainly characterizes single allergen-specific IgE+ B cells in allergic individuals. Interestingly, allergen-specific immortalized B cells secreted an increased amount of specific IgE, IgG1 and IgG4. The differentially expressed genes of single allergen-specific IgE+, IgG1+, IgG2+, IgG3+, and IgG4+ B cells need to be further investigated to uncover the immunological mechanisms that cause IgE-mediated food allergy.

Keywords: Single IgE+ B cells, food allergy, oral immunotherapy (OIT), immunoglobulin subclasses, differentially expressed genes (DEGs)



PP-059

SUCCESSFUL USE OF A SUBCUTANEOUS INJECTION PORT FOR MODIFIED CLUSTER VENOM IMMUNOTHERAPY

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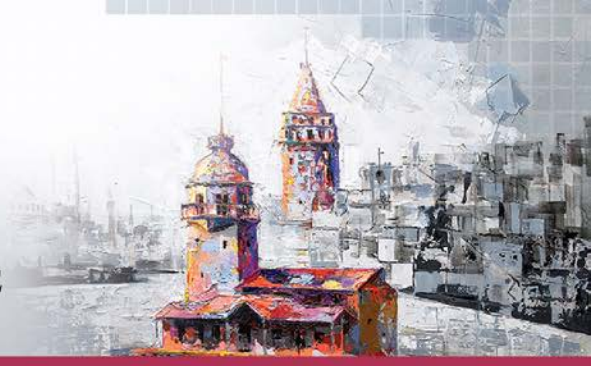
Background: Hymenoptera venom allergy is a life-threatening allergic reaction and the only effective treatment is venom immunotherapy (VIT).

Materials-Methods: We present a case of a 16-year-old girl who had been diagnosed with anaphylaxis after honeybee stings. Venom-specific IgE were 11.4 kU/L for Apis and 0.77 kU/L for Vespula. Component-based diagnostic tests revealed Api m1 phospholipase A2: 8.72 kU/L, Ves v5 common wasp: 0.28 kU/L, and Ves v1 phospholipase A1: 0.14 kU/L. Basal tryptase was 10.2 ug/L. ALK conventional VIT was started involving Apis mellifera. Anaphylaxis was noted in the third month of VIT. She received monthly omalizumab therapy for six months without VIT, after then VIT was restarted uneventfully in combination with omalizumab and was continued for six months. The patient subsequently developed anaphylaxis during VIT two months after omalizumab therapy was stopped. Her parents refused to consent to VIT combined with omalizumab due to their concerns about the potential long-term side effects of omalizumab. As an alternative, VIT desensitization was planned using a subcutaneous injection port which was placed on the arms. A 10-step desensitization protocol involving 30-minute intervals was prepared using venom extracts. She was stung by a honeybee 10 months after the initiation of VIT with a subcutaneous injection port and exhibited no local or systemic reaction.

Conclusions: This is the first case that describes successful VIT using a subcutaneous injection port for desensitization in modified cluster VIT in an adolescent with recurrent anaphylactic reactions during conventional VIT despite receipt of antihistamine and omalizumab therapy.

Keywords: Anaphylaxis, venom allergy, venom-specific immunotherapy, omalizumab, desensitization



PP-060

LOCAL SENSITIZATION PROFILES IN AN ALLERGIC PEDIATRIC POPULATION

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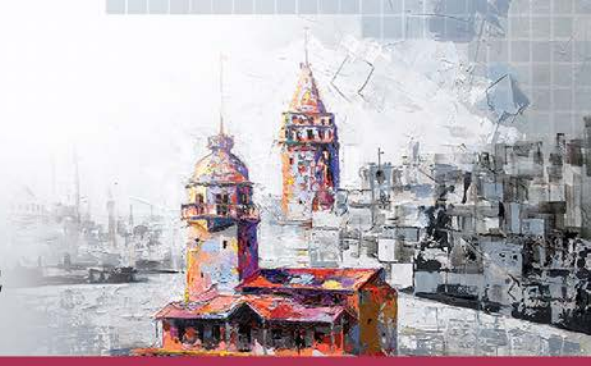
Background and Objectives: Component-resolved immunoglobulin E (IgE) tests have become more and more common in clinical allergy diagnostics. The guidelines for the treatment of allergic rhinitis recommend an early initiation of specific immunotherapy (SIT). Especially the specific IgE profile plays a key role for planning SIT. However, the serum diagnostic tests are routinely used invasive tests, especially for diagnosing children. Our primary objective in the child cohort is to establish the feasibility of nasal diagnostic test and to find out which specific IgE could be find only in nasal fluid.

Methods: Over 100 subjects, between 5 and 18 years old, sensitized to food and/or to aeroallergens were enrolled. Serum as well as nasal fluid were collected to perform ImmunoCAP and/or ISAC allergy diagnosis. Spearman correlations between serum and nasal tests were calculated. A ROC curve analysis were done for specific IgE tests against birch pollen, grass pollen, house dust mite and food allergens to validate and to set cut-off for the nasal test.

Results: Serum and nasal ISAC tests had similar specificity. Sensitivity of the nasal ISAC tests were high. The overall inter-test correlation were good and highest for specific IgE against PR-10 family proteins, grass pollen and house dust mite allergens. However, sensitization against food allergens are also detected in the nasal fluid.

Conclusions: Nasal specific IgE correlates to serum specific IgE. Nasal ISAC could be a valuable tool for molecular allergy diagnostic in patients where non-invasive sampling methods are preferred.

Keywords: IgE, allergy diagnosis, pollen, rhinitis



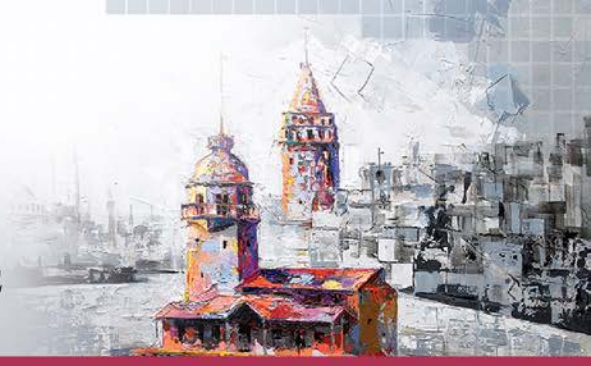
PP-061

SENSITIZATION TO FOOD ALLERGENS IN CHILDREN WITH ALLERGIC DISEASES IN AZERBAIJAN

Tahira Panahova
T.T.Panakhova

Purpose of the study: To evaluate the frequency of sensitization to food allergens in children with allergic diseases. The study included 220 patients who had symptoms of respiratory allergies. Of these, 69 had bronchial asthma and 151 had allergic rhinitis. The relative concentrations of IgE antibodies to various food allergens were studied. To allergens off25, f31, f35, f216, f244, IgE antibodies were detected with a moderate titer to tomatoes of 2.450 kU/l children with clinical symptoms of AR had a high titer to allergens of tomato 0.722±0.447 kU/l and cucumber 0.813±0.778 kU/l. IgE antibodies to fruits and sweet melons (f92, f343, f87), in children with AR to allergens of melon 0.655±0.605 kU/l, banana 0.558±0.373 kU/l, raspberry 1.170 kU/l. the level of titers of specific IgE to banana was 0.439±0.07 kU/l.Among the allergens of flour products and cereals f4, f11, f8, specific IgE were found in a diagnostically significant concentration buckwheat 0.410 kU/l In children with AR, antibodies to panels fx2 were detected - 0.429 ± 0.202 kU / l, fx5 - 0.464 ± 0.096 kU / l. In children with BA, a moderate titer of antibodies to the fx20 panel was detected - 1,000 kU/l. It has been established that the most significant food allergens in children with asthma are tomato, wheat, rye, barley, rice. In patients with AR, citrus fruits (tangerine), tomato, cucumber, raspberry, melon, and peas were significant foods.

Keywords: children,asthma,rhinitis,allergens



PP-062

FREQUENCY OF ALLERGIC DISEASES AMONG CHILDREN WITH JUVENILE IDIOPATHIC ARTHRITIS

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[3]Ankara City Hospital, Children Hospital, Division of Pediatrics, Ankara, Turkey.

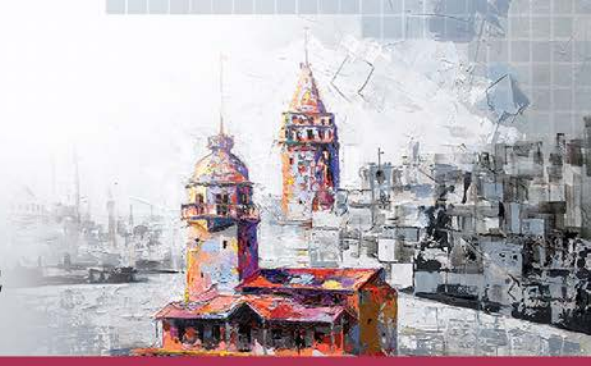
Background And Objective: The relationship between allergic disease and juvenile idiopathic arthritis (JIA) remains unclear. In this study, it was aimed to determine the frequency of allergic diseases in children with juvenile idiopathic arthritis.

Materials And Methods The study included children with JIA and a control group with no known autoimmune disease. The International Study of Asthma and Allergies in Childhood (ISAAC) questionnaire was used to assess symptoms of allergic diseases.

Results: The ISAAC questionnaire was administered to a group of 101 children with JIA and a control group of 99 children.The patients' median age was 12.64 (IQR:8.83-15.83) years for JIA group and 11.99 (IQR:6.65-14.90) years for control group (p:0.095). Seven (6.93%) patients with systemic, 14 (13.86%) patients with enthesitis-related arthritis,24 (23.76%) patients with polyarthritis and 54 (53.47%) patients with oligoarthritis subtype of JIA.Current wheezing (p:0.003), current allergic rhinitis (p:0.000), current rhinoconjunctivitis (p:0.006),currentatopic dermatitis (p:0.000) and current food allergy (0.005) symptoms were less common in patients with JIA.Also allergic rhinitis (0.000),wheezing symptoms (p:0.039), atopic dermatitis (p:0.000)in lifetime were less common in patients group with JIA.None of the seven patients followed up with a diagnosis of systemic JIA had allergic diseasein the past 12 months.

Conclusion: The fact that allergic disease symptoms are significantly less common in children with JIA may be a sign that Th2 pathway diseases are less common in Th1-dominant diseases.More studies are needed to evaluate allergic diseases in patients with JIA these opposing results.

Keywords: allergy, pediatrics, juvenile idiopathic arthritis



PP-063

ALLERGY OF PROSTHETC NAILS AND PERMANENT NAILS LACQUER:CONTACT DERMATITIS

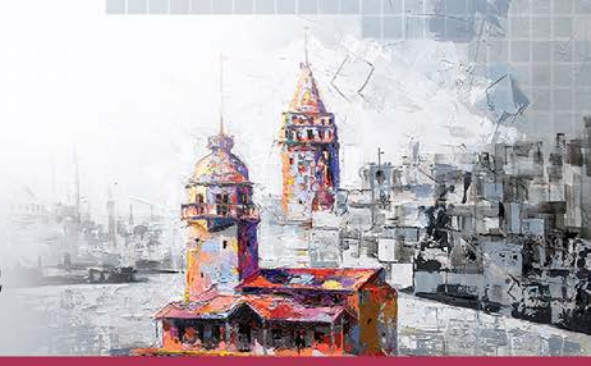
Özge Atik, Ali Burkan Akyıldız, Ismet Bulut
Health Sciences University, Süreyyapaşa Training and Research Hospital, Allergy and Immunology Clinic

Introduction: the frequency of allergic reactions of the specialists of this application is increasing after the contact of prosthetic nails and permanent nail polish, which are frequently used in the beauty industry today. These allergic reactions can be type 1 and type 4 allergic reactions such as asthma, urticaria, contact dermatitis after chemical contact. products in this case, we wanted to explain the contact dermatitis on the hands of permanent nail specialist patient

Case: A 39-year-old female patient, working as a permanent nail specialist for 5 years, applied to the our allergy outpatient clinic for peeling and bullous wounds on her hands after she changed her nail lacquer brand for the last 6 months.(picture 1)skin prick test of latex was negative.latex spesific ıge was negative. the patıent is recommended to brıng the previous and consequentıal naıl lacquer preparatıons.When reading the label of the new nail preparation, it was observed to contain methacrylat, palladium chloride, methylhydroquinon. patch test (dental patch series) containing these substances was attached to the patient's back. at 48 hours and 72 hours reading late,ethylene glycol dımethacrylate,1,4 butanediol dımethacrylate,metilhidroquinon,palladıum chloride were seen posıtıve. it is recommended not to use chemicals containing these substances

Conclusion: Various patch tests are used in the diagnosis of type 4 reactions in patients with contact dermatitis after chemical contact.We want to attend on this subject in this case, we have applied dental patch series in our case, instead of the most common cosmetic series, hairdresser patch, european patch test.

Keywords: contact dermatitis due to permanent nail lacquer,lacquer allergy,tip4 reactions,dental patch test lacquer



PP-064

UNEXPECTED REACTION WITH METFORMIN IN ROUTINE THERAPY

Derya Ünal[1], Kevser Onbaşı[2]
[1]Derya ÜNAL
[2]Kevser ONBAŞI

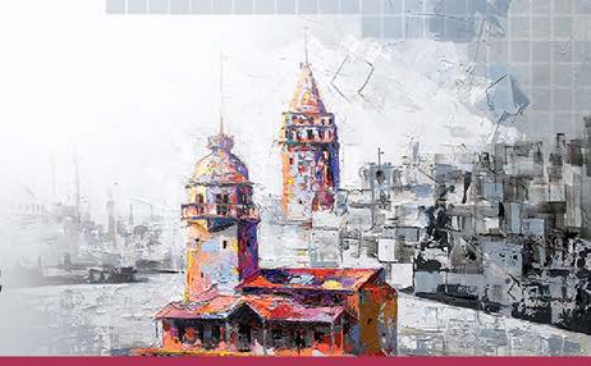
Background and Objectives: Metformin, which is frequently used in daily practice and used intermittently according to clinical and patient-based evaluations, is an indispensable drug for prediabetes and newly diagnosed diabetes patients. Although we observe that most patients take a break due to gastrointestinal side effects, anaphylaxis is not observed frequently. We wanted to share the process that we consider as anaphylaxis in our patient who used metformin for 1 year and 5 months and described shortness of breath, palpitations, chest tightness with the first dose after 1 month.

Materials-Methods: After the patient applied to the outpatient clinic with his complaint and his anamnesis was taken, the duration of the drugs he used for known diabetes, hypertension and hypothyroidism were retrospectively examined. It was observed that one of the two drugs that he stopped and started on the day of the complaint was metformin. It was planned for the patient to take nebivolol and metformin again and one by one in the following days under hospital conditions.

Results: It was thought that the patient, whose complaints of numbness in the tongue, hypotension, hypoxia, atypical chest pain, and burning sensation in the abdomen recur after metformin, was sensitized to metformin until today and the symptoms that developed after the paused period could be considered as anaphylaxis.

Conclusions: We think that sensitization should be evaluated not only as the first dose but also as the first period taken periodically in drug use.

Keywords: Anaphylaxis, metformin, prediabetes, type 2 diabetes



PP-065

A CASE OF ANAPHYLAXIS DUE TO GLATIRAMER ACETATE

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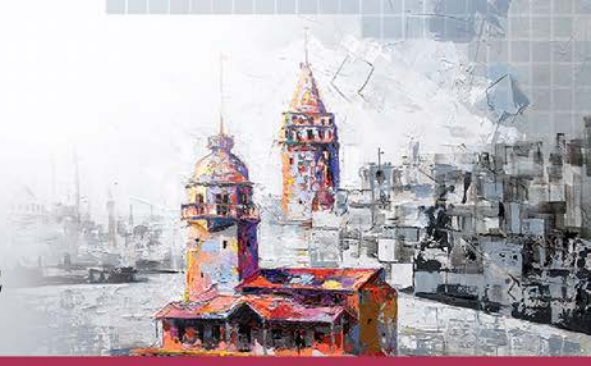
Glatiramer acetate (GA) (Copaxone) is an effective treatment used in the treatment of multiple sclerosis (MS). Local reactions due to GA and immediate post-injection systemic reactions (IPISR) have been defined as side effects. Anaphylaxis due to GA is rare and we present a case who developed anaphylaxis during testing with GA. A 40-year-old female patient has been followed up with the diagnosis of MS for 5 years. After using GA for 8 months the treatment was interrupted and GA was started 3 months ago. The patient who described itching in the scalp, itching, redness, swelling on body, palpitations, shortness of breath which started 15 minutes after the last 7 GA injections.All complaints regressed without treatment and she was referred to the allergy and immunology clinic in terms of possible drug allergy. A definite value for the initial prick test concentration has not been determined in the literature.Prick test starting with 1/10 concentration was found to be negative. 20 minutes after prick test at 1/1 concentration histamine diameter was measured 8x8 mm and a positivity accompanied by erythema and swelling with a diameter of 15x15 mm was detected at the test site. Urticaria-compatible lesions were detected in the neck region of the patient who had complaints of pressure in the chest, shortness of breath, cough. Respiratory system examination revealed diffuse rhonchi. The current picture was evaluated as anaphylaxis and anaphylaxis treatment protocol was applied to the patient. **Conclusion:**Skin prick tests should be done to differentiate between IPISR and anaphylaxis.

Keywords: Anaphylaxıs, Glatiramer acetate, skin prıck test



PP-066

COMPARISON OF TWO DIAGNOSTIC CRITERIA IN THE DIAGNOSIS OF ANAPHYLAXIS IN A TERTIARY ADULT ALLERGY CLINIC

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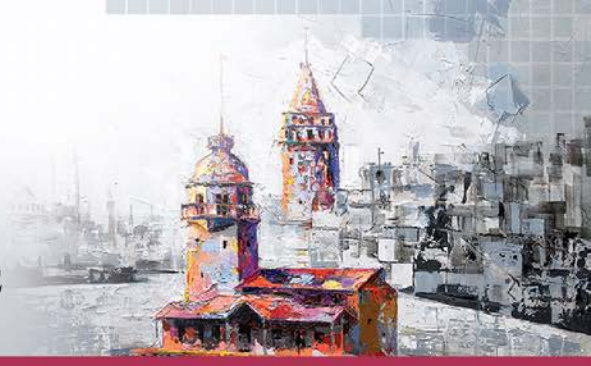
Background and objective: We aimed to compile the characteristics of anaphylaxis cases diagnosed in our clinic and to make a comparison between diagnostic criteria proposed by National Institute of Allergy and Infectious Diseases/Food Allergy and Anaphylaxis Network (NIAID/FAAN) and World Allergy Organisation (WAO).

Materials and Methods: Three-item diagnostic criteria recommended by NIAID/FAAN (2006) were used in the diagnosis of anaphylaxis. The clinical features of the cases, risk factors, etiologies, severity of anaphylaxis, treatment approach were determined. The same patients were also classified by WAO diagnostic criteria.

Results: A total of 204 patients (158F/46M, median age 45.2 years) were included. Drugs (65.2%), venom (9.8%) and food allergies (9.3%) were the top 3 etiologies. Among drug triggers, chemotherapeutics was the most common (17.7%), followed by antibiotics (15.3%) and non-steroidal anti-inflammatory drugs (14.2%). The patients were mostly diagnosed with the 2nd criterion (84.8%), followed by the 1st criterion (11.8%) and the 3rd criterion (3.4%) of the NIAID/FAAN diagnostic criteria. In terms of WAO diagnostic criteria, 82.8% of the patients were diagnosed with the 1st criterion, 14.3% with the 2nd criterion while 2.9% of the patients did not meet the WAO criteria. The severity of anaphylaxis was evaluated as grade-2, 3 and 4 in 30.9%, 64.2% and 4.9% of the patients respectively. Adrenaline was administered 31.9% of the patients. Adrenaline was administered more frequently to patients with angioedema and bronchospasm (p=0.04).

Conclusions: We believe that the results will contribute to the anaphylaxis practice in our country and will be groundwork for future studies.

Keywords: anaphylaxis, diagnostic criteria, drug allergy



PP-067

LEVEL OF KNOWLEDGE ABOUT ANAPHYLAXIS AND ITS MANAGEMENT AMONG DOCTORS

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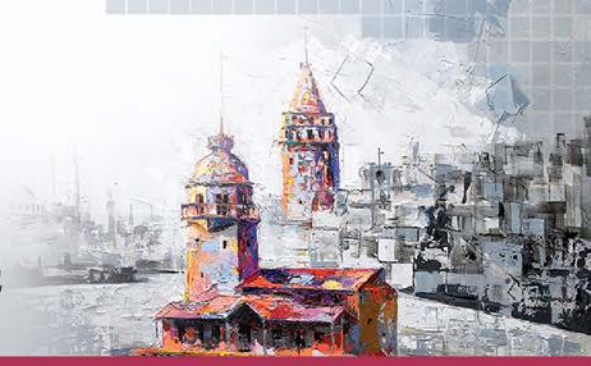
Objectives: This study was aim to assess the level of knowledge of anaphylaxis and its management at a tertiary care teaching hospital

Materials-Methods: A pretested structured questionnaire was administered to doctor, resident doctor and specialist doctor. The volantures were asked to answer the questionnaire, which included questions regarding anaphylaxis and its management.

Results: Of the eighty five participants, 8 participants are doctors, twenty six participants are resident doctors, and fifty one participants are specialists doctors. Seventy one participants stated that they had experienced anaphylaxis before. Nine of the participants stated that there was no training for anaphylaxis in medical school. Only 4 of the participants correctly answered the diagnostic criteria of anaphylaxis. Seventy two participants did not consider cardiovascular and gastrointestinal system symptoms and signs as anaphylaxis diagnostic criteria. Fİfty five participants selected intramuscular adrenaline, 4 participants selected intravenous adrenaline, 4 participants selected both intravenous and intramuscular adrenaline for first treatment of anaphilaxis. After anaphylaxis shock, sixty nine participants stated that the patient should be kept under observation for 24 hours.

Conclusion: Knowledge regarding anaphylaxis and its management is a basic requirement that every health care providers must acquire for the appropriate treatment of all patients. We show that there was no statistical relationship between professional experience and the diagnosis and treatment of anaphylaxis. We think that it is necessary to inform the doctors about anaphylaxis in certain periods

Keywords: anaphylaxis, doctor, knowledge



PP-068

CLINICAL FEATURES OF ANAPHYLAXIS IN CHILDREN

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[2]Department of Pediatric Immunology and Allergy, AIBU Izzet Baysal Training and Research Hospital, Bolu, Turkey

Background: Despite the considerable increase in anaphylaxis frequency, there are limited studies on clinical features of pediatric anaphylaxis in developing countries.

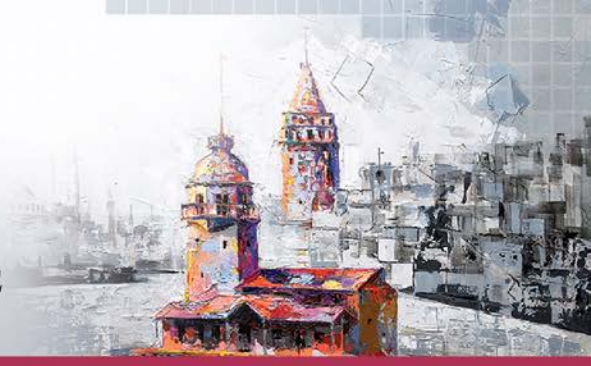
Objective: We aimed to analyze the demographic and clinical features of anaphylaxis in children in Turkey by comparing different age groups and triggers,

Materials-Methods: Medical records of 147 children diagnosed with anaphylaxis aged 0-18 years between 2010 and 2019 were retrospectively analyzed.

Results: The mean age at first anaphylaxis episode was 5.9±5.2 years with a male predominance (63.9%). 25.2% were infants and 52.4% were under 6 years of age at their first anaphylaxis episode. The overall leading cause of anaphylaxis was foods (44.2%), followed by drugs (28.6%) and bee-venom (22.4%). The patients with venom allergy had the highest rate of rapid onset of symptoms ($p < 0.001$). Gastrointestinal symptoms were observed significantly more in children with food induced anaphylaxis (FIA) and in infants, whereas cardiovascular symptoms were more frequently observed in children with drug-induced anaphylaxis and older children (> 6 years). 23.1% experienced recurrent anaphylaxis episodes. However, 47.6% were treated with epinephrine in emergency department, and only 27.2% were referred to an allergy specialist. FIA patients had the highest rate of allergic diseases and anaphylaxis recurrence, whereas had the lowest rate of epinephrine administration in emergency department and referral to an allergy specialist.

Conclusions: The need to improve anaphylaxis recognition and management in all children regardless of age and trigger is highlighted, underlining the higher vulnerability in infants and FIA patients.

Keywords: anaphylaxis, children, infants, food, triggers



PP-069

COVID-19 VACCINATION DOES NOT AFFECT THE COURSE OF MASTOCYTOSIS: A SINGLE CENTER REAL-LIFE EXPERIENCE

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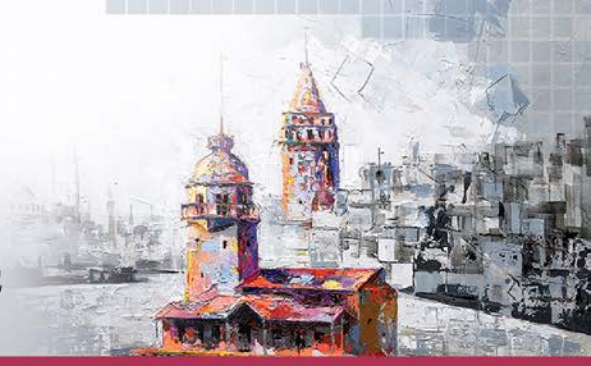
Objective: We aimed to evaluate the impact of COVID-19 vaccination on the disease course in patients with mastocytosis.

Method: A questionnaire on demographic features, the clinical course of mastocytosis, drug allergies, childhood vaccinations, COVID-19 vaccination status and its adverse effects, and history of anaphylaxis in 3 months before and after vaccination was generated and applied to the patients. Psychological status was assessed with the Depression, Anxiety, and Stress Scale (DASS-21).

Results: 49 (92.45%) out of 53 patients with mastocytosis were diagnosed as having indolent or advanced mastocytosis. Median age was 46,39 ±10,99 years and 56.6% were female. 79.2% had complete childhood vaccinations without any problem. 6 patients were not vaccinated because of fear of side effects and deterioration of their disease. There was no difference in terms of education status and DASS-21 scores between those who were or were not vaccinated. 70.2% experienced non-allergic adverse reactions including local reactions, myalgia, fever and arthralgia. Anaphylaxis was developed in 20 minutes after the first dose in only one patient. None of the vaccinated patients reported any difference in the frequency of anaphylaxis episodes between the three-month periods before and after the COVID-19 vaccinations. However, 3 patients described an increase in urticaria and flushing attacks after vaccination.

Conclusion: COVID-19 vaccination is safe in patients with mastocytosis in both the early and late periods. Patients should be well informed that COVID-19 vaccination does not deteriorate the disease course of mastocytosis or cause side effects different from those in normal population.

Keywords: mastocytosis, COVID-19 vaccination, urticaria



PP-070

A RARE REASON OF ANAPHYLAXIS: GRAPEFRUIT

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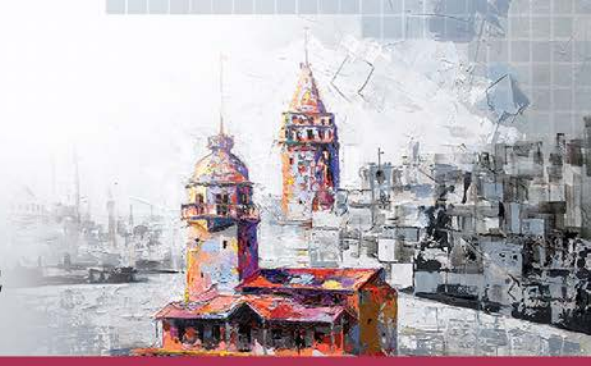
Case: A 14-year-old girl had a rash after eating grapefruit 3 years ago. The case was referred with a preliminary diagnosis of grapefruit allergy. She could consume other citrus fruits without any problem. She had no known allergic disease and there was no family history of allergic disease. Her physical examination was unremarkable. House dust mite, weeds, cat epithelium, dog epithelium, grasses and tree mix skin prick tests were performed for general allergy and food polen syndrome and found negative. A skin test with grapefruit was performed using the prick-to-prick method and it was also found to be negative. Histamine dihydrochloride (10mg/ml) and physiological saline were used as positive and negative controls, respectively. We performed an oral provocation test with grapefruit juice. The patient was given 1 ml, 10 ml, 25 ml and 114 ml of grapefruit juice, respectively. Itching around the mouth started about 5 minutes after the patient drank a total of 150 ml of grapefruit juice gradually. Redness and itching began in thepatient'sears, and urticaria was observed all over her body. Her whole body began to tremble, and it was observed that systolic blood pressure decreased by more than 30% compared to the measurement before the provocation. 0.5 mg adrenaline was administered to the patient. Corticosteroid and cetirizine were given. Vascular Access was opened and 10 cc/kg saline support was provided. The patient was discharged after 24 hours of follow-up with an adrenaline auto-injector. In conclusion,we present a rare case of anaphylaxis with grapefruit

Keywords: anaphylaxis,adrenaline, grapefruit



PP-071

CLINICAL MANIFESTATIONS IN ANAPHYLAXIS, COVID-19 VACCINATION, AND OTHER TRIGGERING AGENTS: A STUDY CARRIED OUT IN THE MEXICAN POPULATION

Jesús Eduardo Uc Rosado, Sandra Nora González Díaz, Rosalaura Virginia Villarreal González, Cindy Elizabeth De Lira Quezada, Alejandra Macias Weinmann, Carlos Macouzet Sanchez
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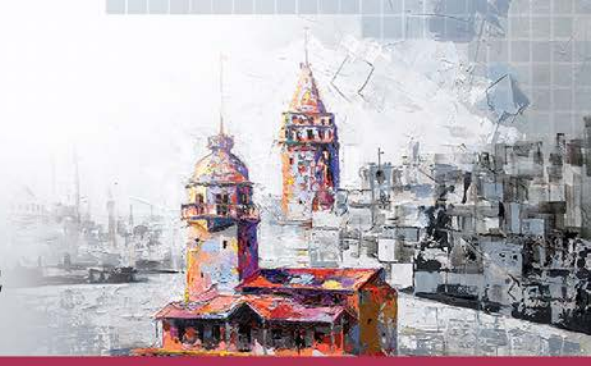
Background and Objectives: Anaphylaxis is an acute, life-threatening allergic reaction in which symptoms are rarely detected on time or recognized by the responsible staff based on clinical features. In this abstract, we present the clinical features of patients with a history of anaphylactic reactions to the components of the COVID-19 vaccine and other triggering factors.

Materials-Methods: A digital survey was carried out with self-report of the most common symptoms of anaphylaxis. The most common triggering factors were evaluated in anaphylaxis, also the use of drugs whose components are polyethyleneglycol and polysorbates. Subsequently, a follow-up was carried out to evaluate the experience with the application of the COVID-19 vaccine.

Results: This study enrolled 600 subjects over 18 years. The risk of stratification of anaphylaxis to the components of the COVID-19 vaccine was: high (1%), medium (11%), and mild (88%). 5 women were at high risk. 65 patients with a history of anaphylaxis to other triggers were obtained: food (32.9%), injected medications (27.2%), vaccines (13.9%), insects (15.8%), latex (10.1%), the most reported clinical features were cutaneous symptoms. In food anaphylaxis, symptoms associated with throat manifestations were more frequent. 76.9% of medium-risk patients received at least one dose of the COVID-19 vaccine without reporting severe adverse reactions, the remaining percentage lost follow-up. 530 participants were at mild risk.

Conclusions: Cutaneous manifestations are the most prevalent in reports of anaphylaxis, in food anaphylaxis the throat symptoms take first place, the risk of anaphylaxis to the components of the COVID-19 vaccine is low.

Keywords: anaphylaxis, COVID-19, vaccines, triggers.



PP-072

ANAPHYLAXIS WITH ITS CAUSES AND MANAGEMENT: ADULT ALLERGY CLINIC EXPERIENCE

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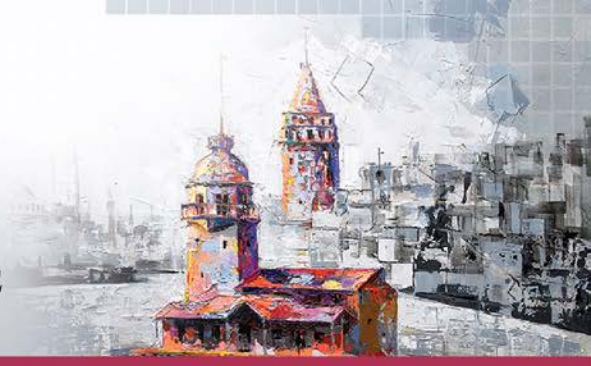
Introduction: Anaphylaxis is a life-threatening systemic reaction. Many allergens such as food, drugs, venom, latex, exercise can cause anaphylaxis. It is defined as idiopathic anaphylaxis when we cannot identify the cause. Recognizing anaphylaxis is crucial for both diagnosis and treatment.

Material, Method: Between January 2017 and June 2022. patients admitted our hospital were included in the study. Demographic data, anaphylaxis etiology, comorbidities, treatments, and -adrenaline autoinjector use were evaluated.

Results: Between January 2017 and June 2022, 158,864 patients applied to the Allergy and Immunology Clinic. The hospital registry system was reviewed retrospectively and it was seen that 366 patients were diagnosed with T78.2 anaphylaxis according to the ICD-10 coding system. The prevalence of anaphylaxis in patients admitted to the allergy clinic was calculated as 0.23%. The mean age of the patients was 45.54 ±17.83; 63.1% (n: 231) were women. In etiology, 41.8% (n: 153) were most common due to venom, followed by food 19.3% (n: 71), drug 15.3% (n: 56). While 91.8% (n: 337) of the patients applied due to anaphylaxis, adrenaline was administered to 16% (n: 44) of the patients in the emergency. Biphasic anaphylaxis was seen in 0.54% (n: 2) patients; adrenaline autoinjector was prescribed to 84.9% (n: 311) of the patients at discharge. No mortality due to anaphylaxis was observed.

Conclusion: Anaphylaxis is a systemic disease whose mortality can be reduced with correct diagnosis and correct management. All clinicians need to know and treat. A good investigation of the etiology is very important for the correct treatment.

Keywords: Anaphlaxis, adrenalin, idiopathic anaphylaxis, Biphasic anaphylaxis



PP-073

MANAGEMENT OF ANAPHYLAXIS IN KINDERGARTEN TEACHERS:COMPARISON BETWEEN FACE-TO-FACE AND DISTANCE EDUCATION

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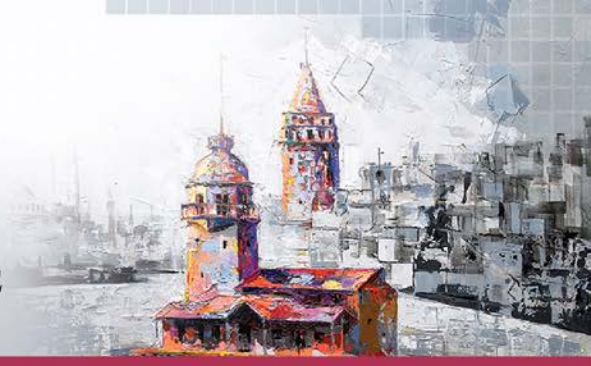
Introduction: Anaphylaxis is seen as an increasing health problem. It is known that 82% of anaphylaxis in children develops in school-age children. In addition, most deaths from anaphylaxis occur in schools. This study aimed to determine the awareness and knowledge levels of kindergarten teachers about anaphylaxis, measure the change in knowledge levels before and after education, and compare the effectiveness of face-to-face and distance education.

Method: Two hundred and sixty teachers in kindergartens were included. The participants were divided into two groups: the face-to-face and the distance training group. The questions were directed to the participants before the training, immediately after the training, and in the third and sixth months. Of the teachers who attended the training, 135 (51.9%) completed all four questionnaires, 62 (45.9%) received face-to-face training, and 73 (54.1%) remotely via live video connection.

Results: The results show a significant increase in the correct answers to the questionnaire questions in the diagnosis and treatment steps of anaphylaxis after face-to-face and distance education ($p < 0.01$). There was no statistical difference in the number of correct answers between the post-training and the third-month questionnaires. At six months, the number of correct answers decreased to the pre-training level.

Conclusion: In this study, it was concluded that the awareness of kindergarten teachers is insufficient and not well informed about anaphylaxis They can learn effective diagnosis and treatment methods with face-to-face and distance education. Remote live video is as effective as face-to-face education, the training periods should be repeated every six months.

Keywords: Anaphylaxis, anaphylaxis education; Epinephrine; kindergarten, distance education, face-to-face education, awareness



PP-074

RELATIONSHIP BETWEEN THE PREVALENCE OF SNPs IN TLR2-, TLR4-RECEPTOR GENES AND COLONIZATION OF LOCAL SKIN BIOTOPES BY STAPHYLOCOCCUS AUREUS IN PATIENTS WITH ATOPIC DERMATITIS

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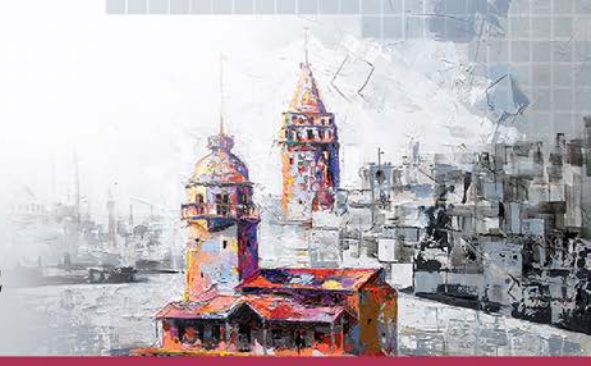
Background and objectives. Alteration of the skin microbiota is a predisposing factor of complications in atopic dermatitis (AD) patients. SNP of TLR2-receptor (Arg753→Gln, rs5743708) and TLR4-receptor (Asp299→Gly, rs4986790) genes were associated with an increased risk of staphylococcal infections of skin. We studied the correlation between the degree of bacterial skin infestation of local S. aureus biotopes and clinically significant SNPs in the TLR2-, TLR4-receptor genes in AD. Materials and Methods. Patients with AD (n=55). Bacteriological examination of skin. Determination of SNPs in TLR2-, TLR4-receptor genes were carried out by allele-specific PCR (Litech kit, Russia). Results. The level of microbial invasion of the skin by S. aureus in patients with polymorphic genotype GA (rs5743708) of the TLR2-receptor gene was 10-100 times higher. These patients with this polymorphic genotype had a characteristic feature: the index of S. aureus microbial infestation of the skin did not change depending on the stage of the disease and was over 130×103 CFU/cm2 of the affected skin. The detectable polymorphic genotype AG (rs4986790) of the TLR4-receptor gene had a higher degree of S. aureus microbial skin colonisation at 140±5.0 CFU/cm2 in patients with AD, regardless of age group. Conclusions. SNPs in TLR2- and TLR4-receptor genes contribute to the expansion of S. aureus into the skin of AD patients and pose a high risk of a complicated course of disease.

Keywords: SNPs, Toll-receptor, Atopic dermatitis, S. aureus



PP-075

IS THERE A CLINICAL SIGNIFICANCE OF VERY LOW SERUM IMMUNOGLOBULIN E LEVEL?

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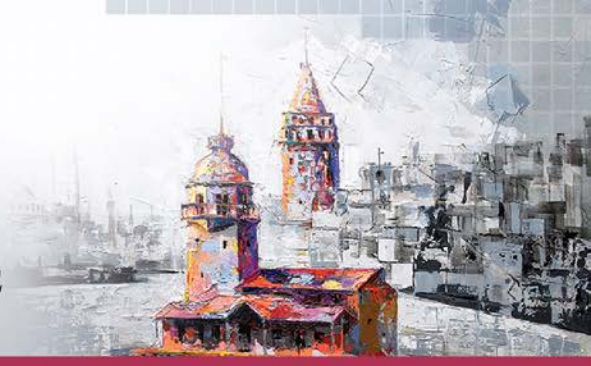
Purpose: High serum immunoglobulin (Ig) E levels are associated with allergies, parasitic infections, and some immune deficiencies; however, the potential effects and clinical implications of low IgE levels on the human immune system are not well-known. This study aims to determine the disorders accompanying very low IgE levels in children and adults.

Methods: The patients whose IgE levels were determined between January 2015 and September 2020 were analyzed, and the patients with an IgE level < 2 IU/mL were included in this study. Demographic data, immunoglobulin levels, autoantibody results, and the diagnoses of the patients were noted from the electronic recording system of the hospital.

Result: The IgE levels were measured in 34,809 patients (21,875 children, 12,934 adults), and 130 patients had IgE levels < 2 IU/mL. Fifty-seven patients were children (0.26%); 73 were adults (0.56%). There was a malignant disease in 34 (9 of them children) (26%), autoimmune diseases in 20 (3 of them children) (15.4%), and immunodeficiency in 17 (14 of them children) (13.1%) of the patients. The most common reasons were other diseases, immunodeficiency and malignancy in children, and malignancy, autoimmune disorders, and other diseases in the adults, in rank order. The IgE level did not show any correlation with the levels of other immunoglobulins.

Conclusion: Although rare, a low IgE level has been shown to accompany malignancies, autoimmune disorders, and immune deficiencies. Patients with very low IgE levels should be carefully monitored for systemic disorders.

Keywords: Adult, autoimmune diseases, child, immunoglobulin E, inborn error of immunity, neoplasms



PP-076

THE ROLE OF NOTCH SIGNALING PATHWAY (cd4+ cd25 + foxp3+) IN T REGULATORY CELL BALANCE IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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Background and Objectives: The Notch signaling pathway plays a crucial role during the development and homeostasis of the lung. This pathway also regulates T-cell development and maintenance in diseases. Studies suggest that there is a decrease in levels of T- regulatory (T-reg) cells in chronic obstructive pulmonary disease (COPD); however, the role of Notch signaling pathway in this is not clear. In the present study, we aimed to investigate the distribution and activity of the Notch receptor on T- regulatory (T-reg) cells from peripheral blood mononuclear cells (PBMCs) of nonsmokers, smokers, and COPD patients.

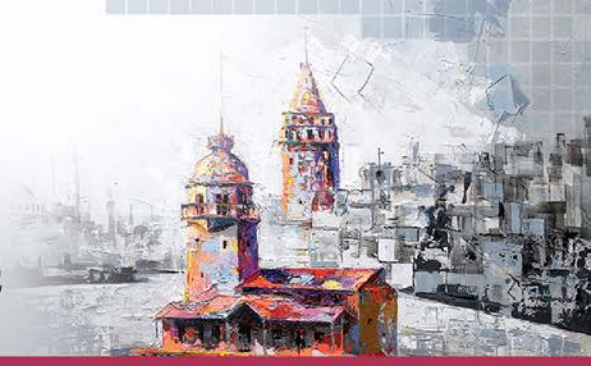
Materials-Methods: Peripheral blood was obtained from nonsmokers, smokers, and COPD patients (n=4 for each group) according to Global Initiative for COPD (GOLD) criteria, and PBMCs were isolated by centrifugation. The expression of Notch 1/2/3/4 receptors on T- reg cells was determined by flow cytometry.

Results: We demonstrated, Notch-1 (medians=13.05 vs 5.79; $p<0.01$), Notch-2 (medians=10.41 vs 4.83; $p<0.05$), Notch-3 (medians=10.17 vs 3.90; $p<0.01$) and Notch-4 (medians=16.10 vs 3.86; $p<0.01$) activity were significantly increased in patients with COPD as compared to non-smokers. However, there was no significant difference between COPDs and smokers.

Conclusions: Our findings suggest that an increase in Notch signaling activity on T reg cells may contribute to the Treg cell imbalance in the pathogenesis of COPD.

*This study was supported by Koç University Research Center for Translational Medicine (KUTTAM), Istanbul,Turkey

Keywords: COPD, Notch, Treg, inflammation



PP-077

SERUM TOTAL IgE AND SPECIFIC IgE VARY WITH AGE IN KOREAN

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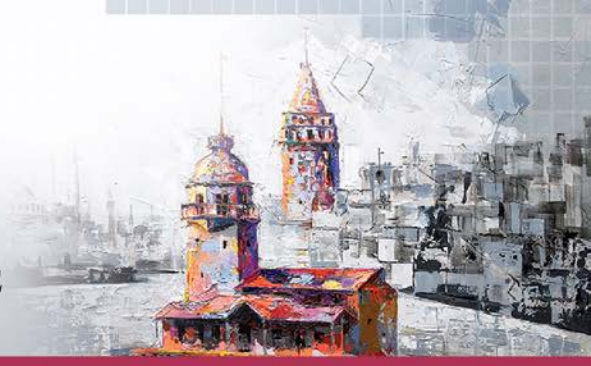
Background: Age is bound to bring about a variety of physical changes, which are no different in terms of immunity. Allergic diseases, one of the immune diseases, also show very different tendencies depending on age. Existing studies have shown that total IgE and specific IgE involved in allergic diseases also show changes with age. However, more research results are needed for better understanding due to the lack of clear conclusions. This study aims to investigate how total IgE and specific IgE change with age through the results of epidemiological studies on Koreans.

Methods: We obtained the data from the Korean National Health and Nutrition Examination conducted 2010 and 2019. We analyzed change of serum total IgE levels and specific IgE levels (D. farinae and dog dander) according to age.

Results: This study included 2,339 subject in 2010 and 2,395 subject in 2019 aged 10-80 years. The analysis of variance showed a significant difference ($P<0.01$) in the mean value of serum total IgE and specific IgE level among the different age groups. Total IgE showed the lowest mean value in their 40s, showing a U-shaped distribution as a whole. And, specific IgE to D. farina and dog decreaed with age. Also, ratio of sensitization to D. farina and dog also decreased with age from the 30s.

Conclusion: Total IgE and specific IgE levels showed different forms of distribution depending on age. In particular, specific IgE tended to decrease significantly from 30s.

Keywords: Total IgE, Specific IgE, Dermatophagoides farinae, Dog, Age



PP-079

ROLE OF HIGHER SOLUBLE FORM OF THE ALOE VERA GEL ON AIRWAY INFLAMMATION, IN VITRO

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[2]Bezmialem Vakif University/Faculty of Pharmacy/Turkey
[3]Bezmialem Vakif University/Department of Medical Services and Techniques/Turkey
[4]Istanbul University/Faculty of Pharmacy/Turkey

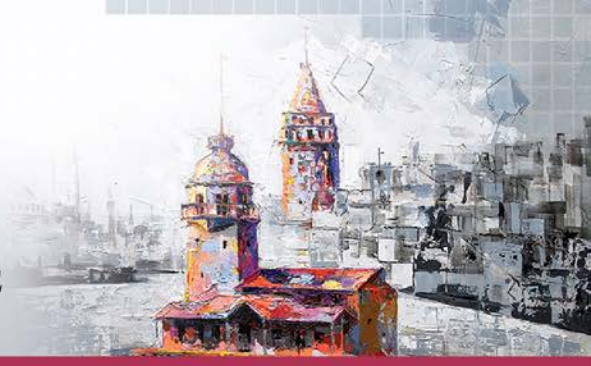
Background and Objectives: Disorders related to the airway inflammation contains many functional changes through several pathways. Medications and medicinal compounds have been reported to induce an inflammatory response. Among them, the feature of Aloe vera (AV) is highly unique depending on its immunomodulatory effects.Herein, we have demonstrated a treatment method for airway inflammation by using an optimal form of Aloe vera through Propylene glycol (PG) which is a commonly used moisture preservative.

Materials-Methods: In order to increase the solubility of AV, PG was used. Healthy primary small airway epithelial cells (HSAEC) and Human lung tumor epithelial cells (A549) were used. Cultivation process included LPS-induced treatment of two cells with/without AV and AV-PG performed respectively. mRNA expressions and cytokine release of the IL5, TNFα, IL6, and IFNγ were evaluated.

Results: Cytokines were elevated after AV administration. A549 cells showed an increased profile for TNFα, IL5, and IL6 when compared with HSAEC cells. Although, HSAEC cells also became more negatively affected when higher LPS induction was performed. Contrary to the pro-inflammatory cytokines, IFNγ showed promising changes when compared between two cells for AV and AV-PG treatments. HSAEC cells provided a higher IFNγ level than A549 cells without depending on the concentration of LPS induction and AV-only treatments.

Conclusions: This proposed form of Aloe vera enhanced the anti-inflammatory effect of Aloe vera and it is possible to prepare the inhalable from this version. By this, future in vivo studies on airway inflammation models will provide beneficial outcomes.

Keywords: Inflammation, Airway epithelial cells, Propylene glycol, Aloe vera, LPS



PP-080

INTERESTING DIAGNOSIS IN ISOLATED ANGIOEDEMA OF THE TONGUE:NERVUS HYPOGLOSSUS DAMAGE

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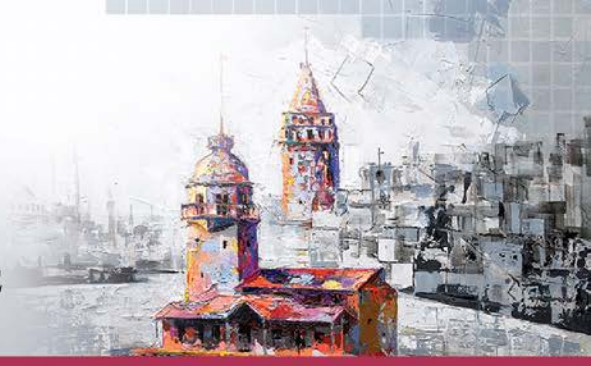
Introduction: Angioedema (AE) is a disease that usually manifests in the subcutaneous tissue and is characterized by transient, localized edema in the respiratory and gastrointestinal tract submucosal layer. Allergic AE is associated with urticaria. Angioedema can be acquired, especially in those with lymphoproliferative and malignant diseases at a later age, or in those who develop autoantibodies against C1 inhibitors In these cases, it is very important to take a detailed anamnesis. In this study, a patient with isolated asymmetric angioedema of the tongue was presented as having hypoglossus nerve damaged.

Case: A 50-year-old female patient applied to the allergy outpatient clinic because of persistent asymetric isolated angioedema in the posterior right part of the tongue that started 4 months ago. He did not describe a history of allergy. In his examinations, c4, c1 esterase inhibitor and function were found in the normal range. It was learned that he had a thyroid operation a month ago. The patient was consulted to an otolaryngologist, and a report was received that he had permanent angioedema due to n.hypoglossus damage after the thyroid operation.

Conclusion: While isolated angioedema patients are being examined for hereditary angioedema in allergy and immunology clinics, medications such as ace inhibitors, dpp-4 inhibitors, estrogen-containing oral contraceptives should also be questioned. In the differential diagnosis, diagnoses such as compression effect due to tumors, nerve damage due to previous operations should also be considered.

Keywords: angıoedema of tongue



PP-081

CORRELATION IN PRODUCTION OF ADIPONECTIN AND CYTOKINES IN OBESE PATIENTS WITH RHEUMATOID ARTHRITIS

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[2]Federal Scientific Research Center on Nutrition and Biothechnology, Moscow, Russia
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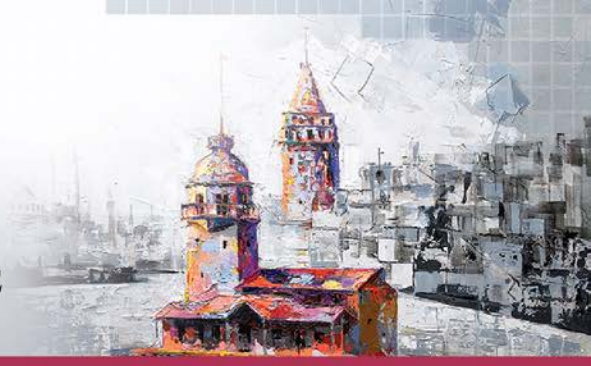
Background: The prevalence of patients with a combination of RA and obesity is high. This study assesses BMI versus serum concentrations of adiponectin, IL-6, TNF-α, IL-10 in RA with a normal BMI and with obesity. Materials: BMI and serum concentrations of adiponectin, IL-6, TNF-α, IL-10 in moderate and severe activity RA were assessed in patients with a normal BMI (n=26) and obese patients (n=15). 25 healthy individuals, randomized by sex and age with the study groups were controls. The sera concentrations of adiponectin, IL-6, TNF-α, IL-10 were assessed by ELISA method.

Results: Increased production of pro-inflammatory cytokines TNF-α and IL-6 occurred in both RA groups. The mean concentrations of TNF-α and IL-6 were 245.3 (8.3; 302.3) and 54.4 (18.4; 72.3) pg/ml, respectively. In obese RA serum concentrations of these cytokines exceeded that in the group with normal BMI by 1.8-2.4 fold ($p<0.05$). Anti-inflammatory cytokine IL-10 increased more significantly ($p<0.05$) in patients with normal BMI [227.2 (143.4; 282.3) pg/ml] compared to obese patients with RA [122.2 (89.3; 164. 3) pg/ml] and controls - 60.8 (24.3; 75.4) pg/ml. The serum concentration of adiponectin was higher in the group of patients with normal BMI [9.2 (6.3; 15.3) µg/mL] and decreased in the obese group [3.2 (2.3; 8.3) µg/mL] compared to controls [7.4 (4.4; 9.2) µg/ml].

Conclusions: The study demonstrated the heterogeneity of adiponectin concentrations in RA patients: low production in obesity and increased in patients with normal BMI. In RA patients with comorbid obesity, more pronounced pro-inflammatory cytokine production was observed.

Keywords: pro-inflammatory cytokines, obesity, rheumatoid arthritis



PP-082

ROLE OF IL-22 ON BRONCHIAL REMODELLING IN A MODEL OF NEUTROPHILIC ASTHMA

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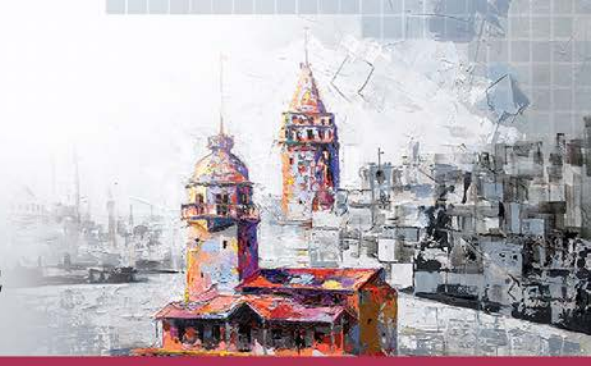
Background and Objectives: Severe allergic asthma is a chronic inflammatory disease of the airways. T2 low asthma is associated with bronchial remodelling, neutrophil recruitment in the lung, and Th17 cytokine production. Among Th17 cytokines, IL-22 is involved in neutrophil recruitment, tissue remodelling and is induced in response to infectious agents, some involved in the exacerbation of asthma. The aim of this study was to determine the role of IL-22 in a chronic experimental neutrophilic asthma model by using IL-22 deficient mice.

Materials-Methods: The role of IL-22 was investigated in a model of dog allergen-induced chronic asthma, using Wild-Type and IL22 deficient mice. Asthma parameters were evaluated including airway resistances, bronchoalveolar lavage (BAL) cell counts, lung cytokine expression, and bronchial remodelling (mucus production, collagen deposition and smooth muscle cell (SMC) thickness. Induced Bronchus associated lymphoid tissue (iBALT) was assessed by immunostaining against T cells, B cells and follicular dendritic cells (FdC).

Results: Dog-sensitized/challenged IL22 deficient mice exhibited decreased total cell and neutrophil BAL recruitment, abolished airway hyperresponsiveness compared with wild-type mice. The number of iBALT was also decreased together with loss of FdC. However, there was no modification in lung cytokine expression. In contrast, a strong decrease in the parameters associated with bronchial remodelling was observed including collagen deposition, mucus production, and SMC thickness.

Conclusions: These results suggest that therapies targeting IL-22 may be of interest in neutrophilic T2 low asthma with strong bronchial remodelling.

Keywords: T2 low asthma, IL-22; neutrophil, remodelling



PP-083

THERAPEUTIC EFFECT OF LACTIC ACID BACTERIA ACCORDING TO SPECIES IN THE DIFFERENT TYPES OF AIRWAY INFLAMMATION

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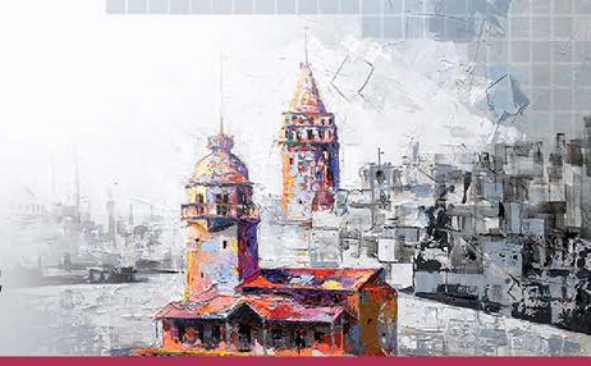
Background and Objectives: Recently, immune-regulatory and therapeutic role of probiotics was reported in many studies, however their role in airway inflammation has not been fully elucidated. In this study, we examined and investigated the immune-regulatory properties of lactic acid bacteria strains in the mouse model.

Materials-Methods: To evaluate the effect that according to species of lactic acid bacteria, two different types of airway inflammation were induced by intranasal stimulation of ovalbumin (OVA) after sensitization of OVA with alum or dsRNA. Four kinds of lactic acid probiotics (PG1, PG2, PG3, and PG4, $1x10^9$ CFU/mouse) were delivered intragastrically from the start to the end of OVA stimulation. Airway inflammation and immunological parameters were evaluated 24 hours after last OVA stimulation.

Results: In the alum model, PG1 and PG2 administration induced decrease of neutrophil and eosinophil infiltration. PG3 and PG4 groups also showed down-regulation of airway inflammation, without statistical significance. Cytokine production, in the case of, PG1, PG2, and PG3 administration induced decrease of IL-4, IL-5, IL-13, IL-17, and eotaxin. Otherwise, we observed that PG3 and PG4 administration decreased airway inflammation via suppressing the macrophage infiltration in the animal model using dsRNA. In addition, PG3 and PG4 groups showed decreased OVA specific IgG2c, IP-10, and MCP-1. Administration of PG4 induced elevation of IL-4 and IL-13.

Conclusions: Our study showed that potential therapeutic effect of lactic acid probiotics could be affected by the type of airway inflammation. Further studies with this approaches may improve the understanding on airway inflammation and its management.

Keywords: airway, inflammation, lactic acid, probiotics



PP-084

THE ASSOCIATION BETWEEN DOMESTIC HARD WATER AND ECZEMA IN ADULTS

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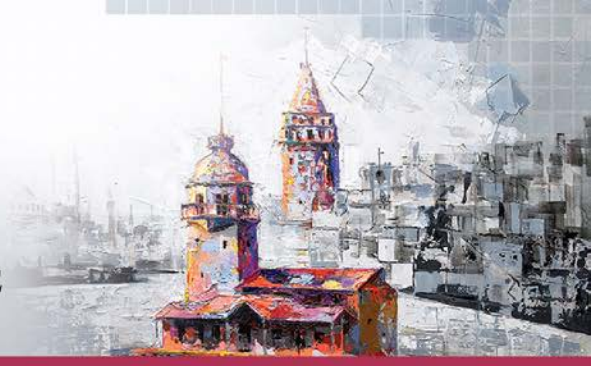
Background and Objectives: Eczema is a chronic inflammatory skin disease. Domestic water with high mineral content (hard water) is a risk factor for eczema in children, but this association has not been evaluated in adults. We aimed to assess this association in a large cohort of middle-aged adults.

Materials-Methods: We used data from the UK Biobank study collected in 2006-2010 (baseline) and 2013-2014 (follow-up). Eczema prevalence at baseline and follow-up and incidence were determined from questionnaires and interviews. Domestic hard water information was obtained in 2005 and 2013 from the local water supply companies as calcium carbonate ($CaCO_3$) concentrations. We fitted multilevel logistic regression models with random intercepts for postcode areas to examine the effect of domestic hard water on eczema outcomes and we measured components of variance.

Results: 306,531 participants nested across 7642 postcodes were included in the baseline analysis and 31,036 participants nested across 3695 postcodes were included in follow-up analysis. The odds of eczema at baseline increased (OR: 1.02 95%CI 1.01-1.04) per 50 mg/L of $CaCO_3$ increase. Exposure to domestic hard water (>200 mg/L of $CaCO_3$) was associated with increased odds of prevalent eczema at baseline (OR: 1.13 95%CI 1.04-1.22). No association was observed with the incident eczema or eczema at follow-up. The intraclass correlation coefficient for postcode was 1.6% (95%CI:0.7-3.4).

Conclusions: Increasing levels of domestic hard water, as measured by $CaCO_3$ concentrations, were associated with an increased prevalence of eczema in adults. Reducing hard water exposure may reduce the burden of eczema in adults.

Keywords: adults, hard water, eczema, atopic dermatitis



PP-085

ASSOCIATION OF DERMATITIS NEGLECTA WITH ATOPIC DERMATITIS- THE TIP OF AN UNWASHED ICEBERG!

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Introduction: Dermatosis neglecta (DN), or unwashed dermatosis, is characterized by the accumulation of dirt, sweat, sebum, and keratotic debris secondary to a lack of cleanliness.

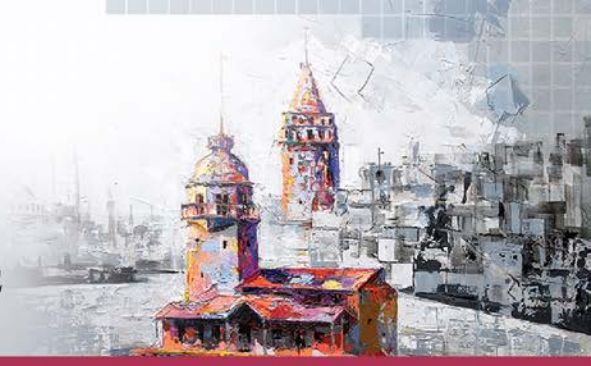
Aims and objectives: We conducted an observational study to identify the clinical features and prevalence of DN in patients with atopic dermatitis.

Materials and methods: Study subjects included cases of AD (modified Hanifin and Rajka criteria) under 18 years. The prevalence and clinical patterns of DN were noted in the study subjects. For the confirmation of diagnosis, 70% isopropyl alcohol swab or soap-water swab test was performed.

Results: fifty-six cases of DN with AD were observed. The prevalence of DN in AD cases was 12.8%, which was significantly higher than the overall prevalence of DN at the same center (2.6%) (p-value-0.01). The most common patterns were peri-oral, peri-ocular, and flexural DN, followed by peri-areolar and generalized. In 38.7% of cases, there was a history of the application of alternative herbal medication for alleviating the symptoms of AD prior to the development of DN, while at least 33.1% of cases had resorted to bathing ≤2 times a week and 4 had an underlying neurological deficit with restricted mobility.Steroid phobia was present in 21.6%.Three cases were opium addicts and 2 had major depressive disorder.

Conclusion: DN is a significant co-morbidity associated with AD which often goes unnoticed.Each patient and caregiver must be provided with comprehensive and integrated care to overcome the virtual bridge between established therapies for AD and cases with a strong fear of western medicine.

Keywords: Dermatitis neglecta, atopic dermatitis, Duncan's dirty dermatosis



PP-086

MOLECULAR PROFILE OF SENSITIZATION TO HOUSE DUST MITE ALLERGENS IN CHILDREN AND ADULTS WITH ATOPIC DERMATITIS

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[5]Okan University/ Pediatric Allergy and Immunology/ Istanbul, Turkey

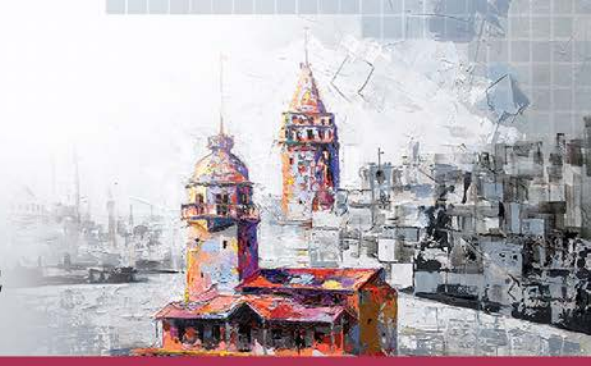
Background and Objectives: House dust mites produce aeroallergens that can cause hypersensitivity particularly in atopic individuals those with atopic dermatitis (AD), allergic rhinitis (AR), and allergic asthma (AA). House dust mites produce the most relevant airborne allergens for AD. There are many potential allergens related to house dust mites, the most sensitising of which are Der p1/Der f1 and Der p2/Der f2. Polysensitisation is common in AD. The aim of the study was to determine the profile of sensitization to house dust mite allergens in children and adults with AD.

Materials-Methods: AD patients aged from 0 to 80 years, who were examined by molecular multiplex test ALEX2 were included the study.

Results: 233 patients' data were analysed. Most of patients were under six-of-age (n:159,68%). The most common allergens were Der f 2 (15%), Der p 2 (15%), Der p 1 (14%), Der f 1 (13%), Der p 23 (10%). While the most common allergens under the age of 12 were Der f 1,2 and Der p1,2, the most common allergen was Der p 23 in patients between the ages of 18-30.

Conclusions: The profiles of house dust mite allergens sensitization among patients with atopic dermatitis were dominated by the molecules of Der f 2, Der p 2, Der p 1, Der f 1 allergens, respectively.

Keywords: atopic dermatitis, molecular diagnosis, house dust mite



PP-087

ASSOCIATIONS OF FOOD SENSITIZATION WITH ATOPIC DERMATITIS SEVERITY AND THE EPIDERMAL LAYER IMPAIRMENT IN VIETNAMESE CHILDREN

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BACKGROUND AND OBJECTIVE: Atopic dermatitis (AD) is one of the most prevalent allergic diseases in children under 5 years old, associated with food sensitization (FS). The damaged epidermal barrier in AD patients could induce FS. This study evaluated the association of FS with the impairment of epidermal layer and AD severity in Vietnamese children.

Materials-Methods: We recruited 90 children (12-60 months) diagnosed with AD at the Allergy and Clinical Immunology Clinic, University Medical Center at Ho Chi Minh City. AD severity was assessed using the SCORAD score. Serum-specific IgE antibodies against 31 food allergens (FAs) were measured by Immunoblotting using EUROLINE Atopy "Venezuela" kit. Transepidermal water loss (TEWL) and stratum corneum hydration (SCH) levels were measured in lesional and non-lesional skins using the GPSkin Barrier Pro® device.

Results: Mean SCORAD score of the study subjects was 31.7 ± 17.4. In lesional skins, TEWL levels in patients sensitized to > 10 FAs (27.6 ± 8.7) were higher than those in patients sensitized to 1-4 (20 ± 8.5) and 5-10 FAs (19 ± 7.3) ($p<0.05$). 88.9% of subjects were sensitized to at least one tested FAs. The most common sensitized FAs were cow's milk (61.1%) and egg white (48.9%). AD children that were sensitized to > 10 FAs had significantly higher mean SCORAD score (52.8 ± 14.2) compared to all other groups ($p<0.05$).

Conclusions: The majority of Vietnamese children with AD were sensitized to FAs. FS was associated with AD severity and the epidermal layer impairment in children.

Keywords: Atopic dermatitis, food sensitization, TEWL, SCH

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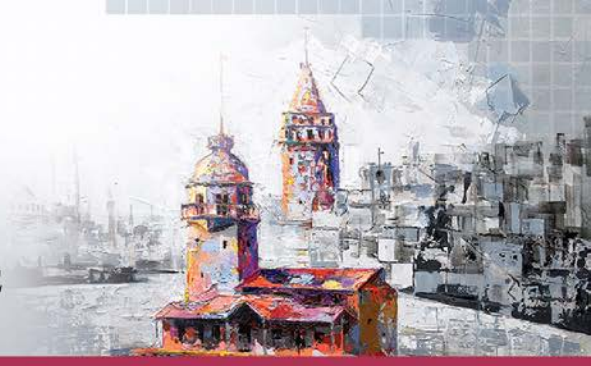

PP-088

DUPILUMAB DEMONSTRATES IMPROVEMENTS IN BIOMARKER LEVELS ACROSS RACIAL SUBGROUPS IN PEDIATRIC PATIENTS WITH MODERATE-TO-SEVERE ATOPIC DERMATITIS

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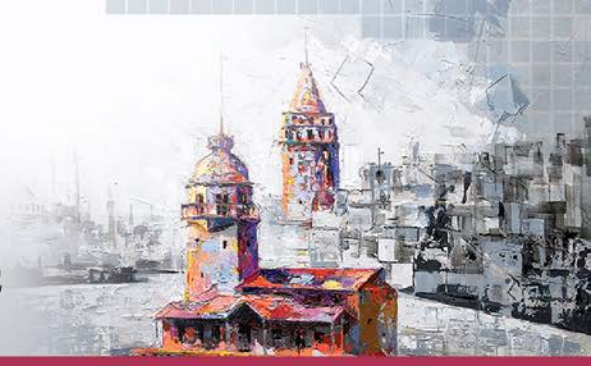
Background And Objective: Most clinical atopic dermatitis (AD) studies enroll a higher proportion of White patients, despite clinical presentation and susceptibility variation across racial subgroups. To assess the effect of dupilumab treatment on biomarker levels across racial subgroups in pediatric populations.

Materials-Methods: This analysis includes data from patients with moderate-to-severe AD who participated in a randomized, placebo-controlled, phase 3 study: LIBERTY AD PRESCHOOL (6 months to 5 years; NCT03346434 part B); dupilumab 200/300mg every 4 weeks (q4w) +TCS (topical corticosteroid; n=83) or placebo +TCS (n=79). LIBERTY AD PEDS (6–11 years; NCT03345914); pooled dupilumab +TCS (100/200mg q2w +TCS [n=122]; 300mg q4w +TCS [n=120]) or placebo + TCS (n=120). LIBERTY AD ADOL (12–17 years; NCT03054428); pooled dupilumab (200/300mg q2w [n=82]; 300mg q4w [n=83]) or placebo (n=85). Data are assessed in each racial subgroup: White (dupilumab: n=341, placebo: n=175), Black or African American (dupilumab: n=69, placebo: n=53) and Asian (dupilumab: n=40, placebo: n=26).

Results: Mean percent change in thymus and activation-regulated chemokine (TARC), lactate dehydrogenase (LDH) and eosinophil counts were assessed at Week 16 with significant ($p<0.0001$) changes between dupilumab and placebo noted in TARC in the Asian racial subgroup and LDH in all racial subgroups. The proportion of patients with treatment emergent adverse events were generally similar across all racial subgroups.

Conclusions: Dupilumab treatment demonstrates reductions in biomarker levels across observed racial subgroups in pediatric patients with moderate to severe atopic dermatitis. Overall safety was consistent with the known dupilumab safety profile.

Keywords: atopic dermatitis, biomarkers, race, pediatric



PP-089

THE RELATIONSHIP BETWEEN QUALITY OF LIFE IN CHILDREN WITH ATOPIC DERMATITIS AND ANXIETY IN THE MOTHER

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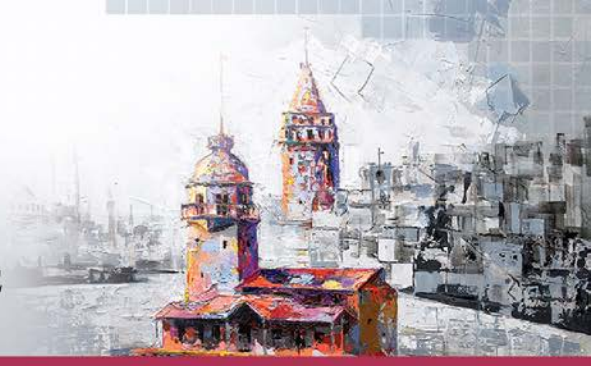
Background: Atopic Dermatitis (AD) as with many other chronic diseases, the quality of life and mood of patients and their families are adversely affected.

Method: Subjects aged younger than 16 years who were diagnosed with atopic dermatitis their mothers were enrolled in this study. Age, sex, additional disease, food allergy, food elimination, age at diagnosis of AD were recorded for children enrolled as well as the familial history of allergy and psychiatric diseases. Moreover, maternal age, education status, additional diseases were recorded at the beginning of the study. At the time of admission, SCORAD scores were recorded as well as the AD specific quality of life of children using The Infants' Dermatitis Quality of Life Index if aged younger than four or Children's Dermatology Life Quality Index if aged above four. Maternal anxiety and depression symptoms were evaluated by State-Trait Anxiety Scales and Beck Depression Scale questionnaires.

Results: We enrolled 46 subjects (50% girls) with atopic dermatitis; 39 of which were four years and younger. Mean age (SD) of the subjects was 32 months while that of the mothers was 30 (6) years. Among all children, 41.3% had food allergies and 34.8% adhered to the elimination diet. Mean (SD) SCORAD value was 39.5 (13.0). Mean (SD) total IDQL score was 1.6(1.1) while that of total CDLQI 5.5(4.3).

Conclusion: The preliminary results of this study failed to show significant relationship between atopic dermatitis severity and QoL with maternal anxiety and depression symptoms.

Keywords: atopic dermatitis,maternal anxiety and depression,quality of life in children



PP-090

ASSESSMENT OF SUBCLINICAL ATHEROSCLEROSIS IN CHILDREN WITH ATOPIC DERMATITIS

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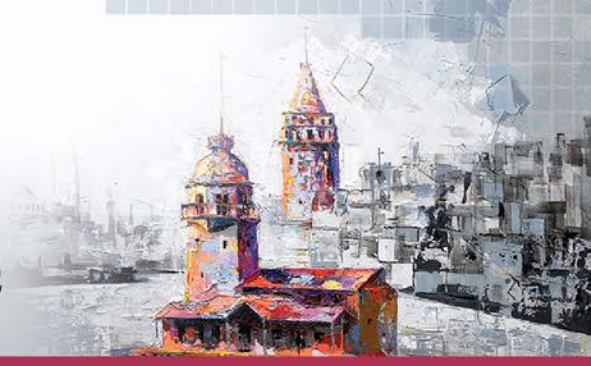
Background And Objective: The aim of this study is to investigate the presence of subclinical atherosclerosis in pediatric patients with atopic dermatitits(AD) and to determine the associated risk factors.

Materials-Methods: 59 patients who were referred to our department in a 6-month-period and diagnosed with AD and 53 healthy-controls with similar age and gender ratios were included in the study. Subclinical atherosclerosisis parameters (carotid intima media thickness (CIMT), distensibility, stiffness, and strain) were measured with a conventional echocardiography. The patients' age, SCORAD index and duration of the symptoms were recorded. Serum total immunoglobulin E (tIgE), C-reactive protein (CRP), blood lipid profile, and complete blood count measurements were measured. Spearman's correlation analyses were employed to estimate correlations between subclinical atherosclerosis parameters, duration of symptoms and laboratory results of patients with AD.

Results: Patients' median age were 51(IQR:10-103) months and 59.3% were male. AD patients had higher CIMT (1.60±0.35 vs. 1.30±0.50 mm) and lower distensibility (0.006±0.009 vs. 0.01±0.008) and strain (0.10±0.14 vs. 0.19±0.14) compared to healthy controls ($p<0.01$ for all), but there was no significant difference in stiffness (10.16±21.75 vs. 8.99±12.66). A significant correlation was found between CIMT and disease duration, age, and SCORAD ($p<0.01$, $p<0.01$, and $p<0.05$, respectively). No correlation was found between subclinical atherosclerosis parameters and other laboratory parameters.

Conclusions: This study pointed out that pediatric AD patients may have subclinical atherosclerosis. Upon their evaluation of subclinical atherosclerosis, CIMT was found to be the most important marker in terms of positive correlation with symptom duration, age, and the disease severity.

Keywords: atopic dermatitis, child, subclinic atherosclerosis, conventional echocardiography



PP-091

EVALUATION OF THE POSSIBLE EFFECTS OF BMKN-2, ANTI-MICROBIAL PEPTIDE FROM SCORPION VENOM, ON ATOPIC DERMATITIS RELATED STAPHYLOCOCCUS AUREUS INFECTION USING A CELL CULTURE MODEL

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Background and Objectives: Disruption of the skin barrier integrity in atopic dermatitis(AD) sets the stage for *S. aureus* colonization. This situation further increases the severity of AD. Antibiotics used in the treatment of infection causes antibiotic resistance over time. In this study, it was aimed to determine the preventive and therapeutic effect of BmKn-2 an antimicrobial peptide(AMP) obtained from scorpion venom, against *S.aureus* infection, seen in AD.

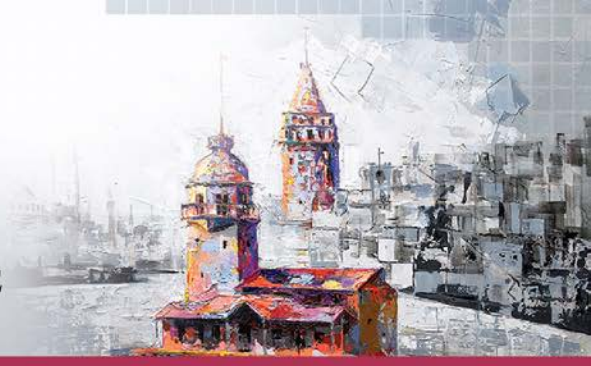
Materials **Methods:** BmKn-2 doses that are lethal for *S.aureus* but not toxic to keratinocyte cells were determined by MTT and Minimum Inhibition Concentration experiments. AD model was created by stimulating keratinocytes with IL-4 and IL-13. After that cells were infected with *S.aureus* and later incubated with determined doses of BmKn-2. After incubation, in order to determine the effect of BmKn-2 on extracellular and intracellular *S. aureus*, supernatant and cell lysates were cultured on LB agars, respectively. To determine the preventive effect, cells with atopic dermatitis model were first treated with BmKn-2 and then infected with *S.aureus*.

Results: As a result of our study, it was observed that when BmKn-2 was applied at a concentration of 10 µg/ml, the amount of extracellular *S.aureus* decreased by 94.4% and intracellular by 20%. When BmKn-2 was applied at a concentration of 20 µg/ml, it was observed that the amount of extracellular aureus decreased by 99.9% and intracellular by 54%.

Conclusions: Our results support that BmKn-2 may be an alternative treatment in AD as it suppresses *S. aureus* infection by acting with a mechanism that does not cause antibiotic resistance.

Keywords: Atopic Dermatitis, Anti-microbial peptide, Keratinocytes, Scorpion venom, Staphylococcus aureus

This study was supported by Hacettepe University Scientific Research Projects Coordination Unit with the project number 19332



PP-092

CHARACTERISTICS OF THE PATIENTS WITH ASTHMA-RHINITIS MULTIMORBIDITY

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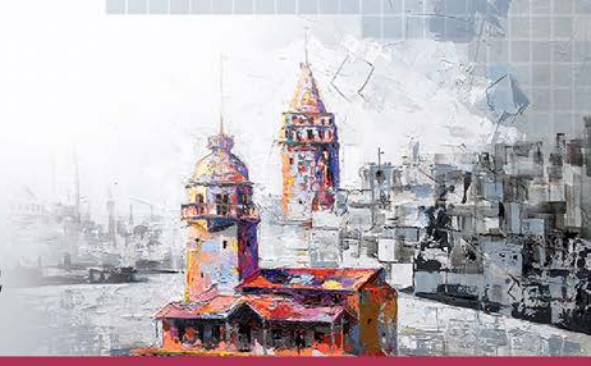
Background and Objectives: The coexistence of asthma and allergic rhinitis (AR) is common. According to the allergic sensitization pattern, clinical features of the patients with asthma-rhinitis multimorbidity may change. Our aim was to determine the frequency, type and characteristics of the patients with asthma-rhinitis multimorbidity.

Materials-Methods: Patients followed-up with a diagnosis of asthma between 2015 and 2020 in our clinic were included in the study. Sociodemographic and clinical characteristics of the patients, rhinitis symptoms, atopy status were recorded from the patient files.

Results: Asthma-rhinitis multimorbidity was seen in 138 (113F/25M) out of 405 asthmatics with the mean age of 45.51±13.56 years. The rate of concomitant AR was 25.9%, and the rate of non-allergic rhinitis (NAR) was 8.1%. Gastroesophageal reflux disease was more common in those with NAR than in those with AR (39.4%,18.1%, respectively, p=0.01). Of 105 asthmatic patients accompanied by AR, 41 (39.09%) were monosensitized, 64 (60.95%) were polysensitized. House dust mite (HDM) was found to be the most common responsible allergen in monosensitized patients. Sensitization to two allergens was the most common pattern among polysensitized patients, and HDM and mold association was the most frequent. Patients with monosensitized AR had more severe asthma and higher rate of NSAID sensitivity than polysensitized patients (p=0.03, p=0.04, respectively). There was no difference in the control level, frequency of eosinophilia and other comorbidities.

Conclusions: Our patients with asthma-rhinitis multimorbidity were mostly polysensitized. The most responsible allergen for the sensitization was HDM, regardless of whether the patient was monosensitized or polysensitized.

Keywords: asthma, allergic rhinitis, nonallergic rhinitis, polysensitization, asthma-rhinitis multimorbidity, house dust mite



PP-093

THE PROFILE OF SEVERE ASTHMATICS: RESULTS FROM A SPECIALIZED ASTHMA CLINIC

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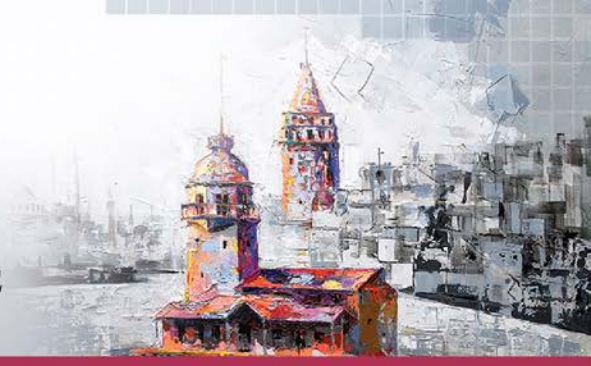
Background and Objectives: Determining the appropriate endotype for individualized treatment is extremely important to provide control in patients with severe asthma.

Materials-Methods: This was cross-sectional observational study. Clinical and laboratory parameters of patients with severe asthma followed up in our specialized asthma outpatient clinic were recorded. Skin tests, blood eosinophil counts, age at the onset of asthma and body mass index were used in endotyping.

Results: Overall 201 severe asthma patients (149F/52M) with the median disease duration of 15(min-max:1-49) years and with the median age of asthma onset of 32 (min-max:10-62) years were analyzed. Overweight and obese patients were in the majority (31.8%, 41.8%, respectively). Most patients had controlled asthma and the median Asthma Control Test score at the last visit was 23. Biologic therapies were applied to 73.1%(n:147) of the patients. Half of the study group were allergic(49.3%) and three quarter of them were eosinophilic(72.1%). Allergic patients had earlier onset and had more controlled disease than nonallergic ones. Eosinophilic patients were younger and less obese than non-eosinophilic asthma patients. While patients with eosinophilic granulomatosis with polyangiitis were mostly had nonallergic-eosinophilic (NAE) asthma, allergic broncho-pulmonary aspergillosis patients and patients with bronchiectasis mostly had allergic-eosinophilic (AE) asthma. Patients with non-steroidal anti-inflammatory drugs-exacerbated respiratory disease, nasal polyposis/chronic sinusitis had either AE or NAE endotype. Obese asthma patients and late onset asthmatics had more uncontrolled disease than normal weight subjects and early onset patients.

Conclusions: Severe asthma harbors different features and individualized therapy with accurate endotyping is crucial to gain control.

Keywords: Severe asthma, asthma endotypes, allergy, eosinophilia, asthma onset, obesity



PP-094

PERIPHERAL BLOOD T CELL IMBALANCES ARE ASSOCIATED WITH AIRWAY HYPERRESPONSIVENESS IN ASTHMA

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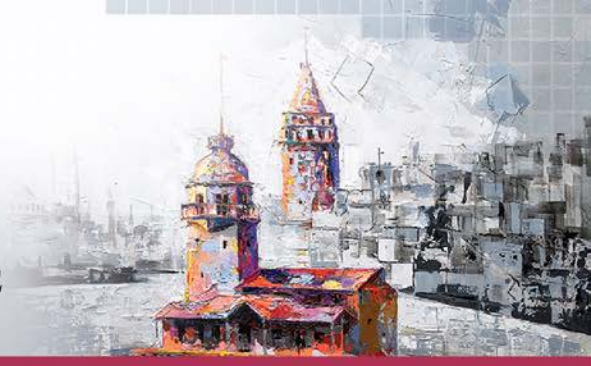
Background and Objectives: Airway hyperresponsiveness (AHR) is an essential etiological factor in asthma. The Th1/Th2 imbalance and regulatory T (Treg) cells play an important role in the pathogenesis of asthma. There are few reports on the relationship between these T cell imbalances and quantitatively measured AHR. We investigated the association between AHR and the imbalances of Th1, Th2, and Treg in patients with asthma.

Methods: The mRNA expression of T-box 21 (T-bet), GATA binding protein 3 (GATA-3), and forkhead box P3 (FOXP3), which were respectively master transcription factors for Th1, Th2, and Treg, were detected by real-time PCR in peripheral blood T cells of 41 asthma patients. The response threshold (Dmin) as the quantitative value of AHR was measured using dose-related curves of the airway responses to methacholine by Astograph (CHEST M.I.). The relationship between T cell balances and Dmin was evaluated using correlation analysis. Based on previous reports, AHR was defined as Dmin less than 10 units.

Results: 32 (78%) patients had AHR. The mRNA level of FOXP3 was significantly higher, and T-bet/GATA-3 ratio was lower in patients with AHR. Dmin correlated with relative expression levels of T-bet/GATA-3 and GATA-3/FOXP3 ratio (rho = 0.39, p = 0.013; rho = 0.36, p = 0.020, respectively), but not with type 2 biomarkers such as FeNO and blood eosinophil count. The AUC of T-bet/GATA-3 and FOXP3 using ROC analysis to identify AHR was 0.767 and 0.785, respectively.

Conclusions: Th1/Th2 balance and Treg differentiation levels are related to the degree of AHR.

Keywords: Asthma, Airway hyperresponsiveness, Inflammation, mRNA



PP-095

COMPARISON OF CLINICAL OUTCOMES OF PATIENTS WITH NERD RECEIVING ASPIRIN DESENSITIZATION AND/OR BIOLOGICAL TREATMENT

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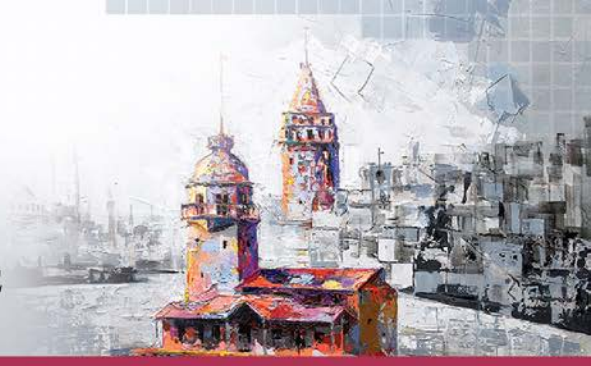
Background: NSAID-exacerbated respiratory disease (NERD) patients experience exacerbation of respiratory symptoms after ingestion of NSAIDs. NERD patients frequently have recurrent nasal polyposis, severe rhinosinusitis and asthma. A new therapeutic option has emerged in NERD patients with the introduction of biological treatments. The aim of this study was to evaluate quality of life, the sinonasal and respiratory outcomes of NERD patients treated with aspirin desensitization (AD) or biologicals.

Methods: A total of 61 NERD patients who were followed up at a tertiary care allergy clinic and who received AD, mepolizumab or omalizumab treatments for at least 6 months were retrospectively evaluated. Sinonasal outcome test (SNOT-22), asthma control test (ACT), short form-36 (SF-36), blood eosinophil count, number of sinus surgeries, and asthma or rhinitis attacks requiring oral corticosteroids were evaluated.

Result: The median age of 61 NERD patients was 46.6 (range, 20-70) years, and 36 (59%) of them were female. Although there was a higher baseline serum eosinophil count and a significant decrease in blood eosinophil counts in patients with mepolizumab compared to patients with AD after the treatments, respectively $p=0.009$ and $p<0.001$, other clinical features of the patients were similar. No statistically significant difference in SNOT-22, ACT, SF-36, the numbers of nasal polipectomy, and the number of asthma or rhinitis attack requiring oral corticosteroids were observed between patients receiving AD and mepolizumab, respectively $p=0.12$, $p=0.73$, $p=0.58$, $p=0.17$, $p=1.00$.

Conclusion: Despite the significant effect of mepolizumab on serum baseline eosinophil count, AD and mepolizumab treatments were found to be of comparable efficacy.

Keywords: Aspirin desensitizastion, biologicals, NERD, NSAID allergy



PP-096

NICKEL SENSITIVITY IN ASTHMA PATIENTS

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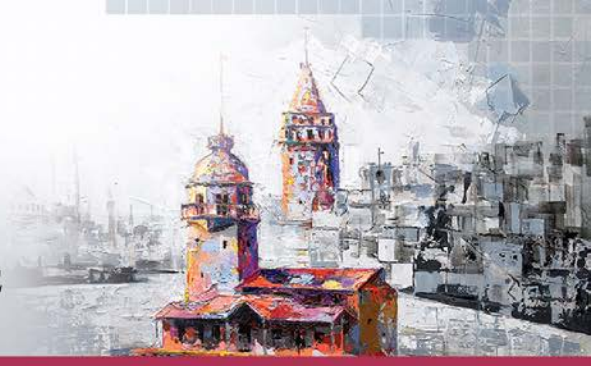
Nickel sulphate frequently causes allergic contact dermatitis; less known effects are nasal inflammation (rhinitis) and bronchial asthma. In this study, we aimed to find if there is a relationship between asthma and nickel sensitivity. Asthmatic patient, non-asthmatic atopic, and healthy control groups were patch tested with nickel sulphate. Nickel sensitivity was more prevalent in the asthmatic patient group compared to the non-asthmatic atopic and healthy control groups.

Keywords: Asthma, nickel, patch test



PP-097

PREVENTIVE EFFECT OF EXTRACELLULAR VESICLES FROM C.GLUTAMICUM ON THE LIPOPOLYSACCHARIDE-INDUCED AIRWAY INFLAMMATION

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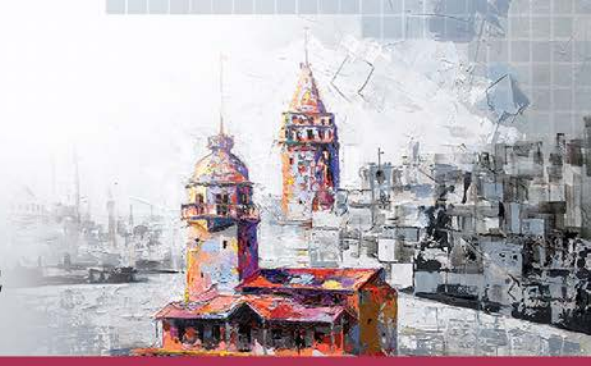
Background: The composition of airway microbiota may have influence on the development of airway inflammation in asthma. Our previous study indicates abundance of Corynebacterium in the upper airway of non-asthmatic subjects compared to adult asthmatics. We investigated if the extracelluar vesicles(EV) from C. glutamicum have a protective effect on lipopolysaccharide(LPS)-induced airway inflammation.

Methods: The effect of EV collected from C. glutamicum culture was tested in vitro in THP-1 cells and BEAS-2B cells stimulated with LPS. The signaling pathway in the THP-1 cells was evaluated using cell signaling phospho Ab array. The EV from C. glutamicum was pretreated via intranasal route in the C57BL/6 mice before LPS challenge and their protective effect on LPS-induced airway inflammation was evaluated in vivo.

Results: The production of pro-inflammatory cytokines induced by LPS was significantly suppressed by EV from C. glutamicum in THP-1 cells. EV from C. glutamicum did not induce anti-inflammatory cytokines such as IL-10 and TGF-β in the THP-1 cells. Phosphorylation of IκB-α and cyclin D1 were reduced in the cell signaling phospho Ab array. The intranasal pre-conditioning treatment of EV from C. glutamicum reduced inflammatory cell counts and cytokine productions of IL-1β, IL-6, IL-13, CXCL1, and TNF-α in the BAL fluid of low dose LPS(0.1ug)-treated mice.

Conclusion: Our data showed a protective effect of EV from C. glutamicum in the LPS-induced airway inflammation. The beneficial role and therapeutic potential of EV from C. glutamicum in the asthma treatment needs to be investigated in the future.

Keywords: asthma, Corynebacterium, extracellular vesicle, lipopolysaccharide



PP-098

ASSOCIATION OF FAT MASS INDEX CHANGE WITH THE DEVELOPMENT OF AIRWAY HYPERRESPONSIVENESS IN HEALTHY INDIVIDUALS

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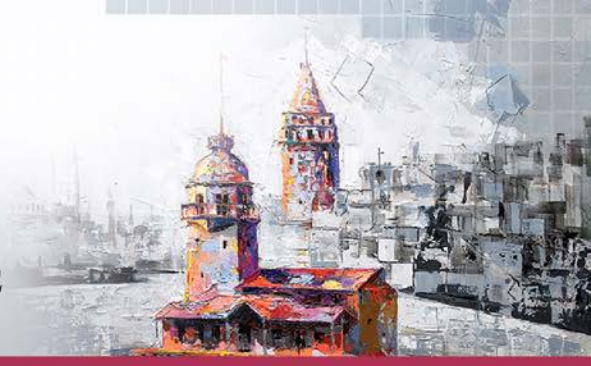
Background and Objectives: Airway hyperresponsiveness (AHR) is a major asthma feature and is known to be associated with obesity, which is defined by body mass index (BMI). However, body mass is composed of fat mass (FM) and muscle mass (MM), and a longitudinal study focused on FM changes over time is needed to confirm the causal relationship between obesity and AHR.

Materials-Methods: A long-term longitudinal study was conducted using data from the Seoul National University Hospital Gangnam Center, including healthy individuals with two methacholine bronchial provocation tests in a follow-up period (between the first and second tests) over 3 years. They had bioelectrical impedance analysis (BIA) at every health checkup, which provided FM index (FMI; FM normalized for height) and MM index (MMI; MM normalized for height).

Results: A total of 283 individuals (61 women and 267 men) were included. The mean number of BIA measurements was 6.96 and the follow-up period was 6.69 years. Among them, 13 individuals showed a positive conversion of AHR. Multivariate analysis showed that an increase in FMI change rate ([kg/m^2]/year) was significantly associated with the risk of AHR development (OR = 1.114x10^4, 95% CI: 1.192-1.551x10^8, P = 0.037) after adjustment for age, sex, smoking, FEV1 predicted, while MMI change rate was not.

Conclusions: A rapid gain of FM over time is a risk factor for developing AHR in healthy individuals. A prospective study to assess the role of FM reduction in preventing AHR development in obese healthy individuals needs to be followed.

Keywords: asthma, airway hyperresponsiveness, body composition, fat mass, muscle mass, obesity



PP-099

COMPARISON OF CLINICAL REMISSION BETWEEN MEPOLIZUMAB AND BENRALIZUMAB IN SEVERE EOSINOPHILIC ASTHMA IN REAL-WORLD CLINICAL PRACTICE

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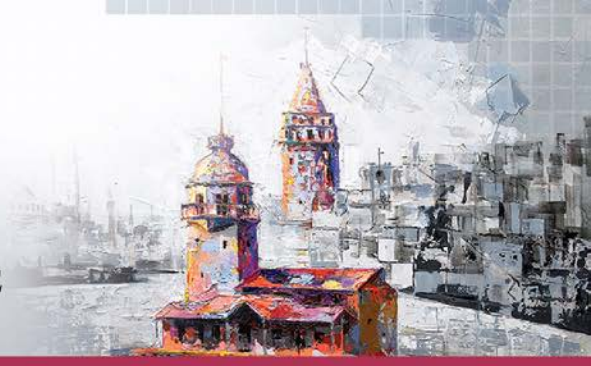
Rationale: Mepolizumab and benralizumab are biologics approved for severe eosinophilic asthma. The difference in treatment efficacy and clinical remission of these antibodies remains unclear. This study aimed to compare the clinical efficacy and remission of mepolizumab and benralizumab in severe asthma in clinical practice.

Methods: We conducted a retrospective cohort study in patients with severe eosinophilic asthma who received these antibodies between 2016 and 2021. We compared the changes in asthma control test (ACT), Asthma Control Questionnaire-5 (ACQ-5), lung function, oral corticosteroids (OCS), and exacerbations at 4, 8, 24, and 48 weeks after initiation of these antibodies. Individual remission components were zero exacerbations, zero OCS use, ACQ-5 < 1.5 or ACT ≥ 20, and pre-bronchodilator FEV1 increase ≥ 100 mL after 12 months. Clinical remission was defined as achieving all four of these components.

Results: Both 29 patients were newly started on mepolizumab or benralizumab. In patients with mepolizumab, 76% had no exacerbations, 69% had no OCS, 80% had an ACQ-5 < 1.5 or ACT ≥ 20, and 28% had a FEV1 increase ≥ 100 mL after 12 months. In patients with benralizumab, 66% had no exacerbations, 62% had no OCS, 80% had an ACQ-5 < 1.5 or ACT ≥ 20, and 45% had a FEV1 increase ≥ 100 mL after 12 months. 21% treated with mepolizumab and 24% treated with benralizumab achieved clinical remission.

Conclusions: Both mepolizumab and benralizumab were highly effective in severe asthma, with no clinically relevant differences in outcomes and clinical remission rates after 12 months.

Keywords: Mepolizumab, Benralizumab, Clinical remission



PP-100

PNEUMOCOCCAL VACCINATION IS A CHALLENGE OF PEDIATRIC ALLERGISTS IN COVID-19 PANDEMIC

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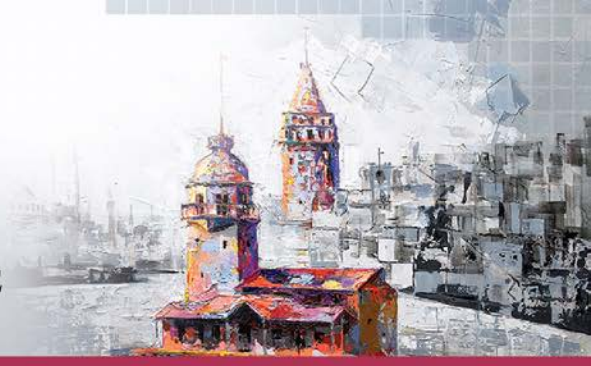
Background And Objective: Increased risk of invasive pneumococcal disease (IPD) was reported in children with asthma before introduction of pneumococcal vaccines (PV), however the evidence is limited after PV entered routine immunization schedule. We aimed to investigate whether pediatric allergists (PA) recommend additional PV (aPV) to asthmatic children and if so are there any asthma specific risk factors they consider. We also wanted to determine any changes in their recommendations during COVID-19 pandemic.

Materials-Methods: An online filled questionnaire consisting of 14 questions (demographic:5, IPD and asthma: 2, aPV:3, COVID-19: 4) was e-mailed to all members of Academy of Pediatric Allergy and Asthma in Türkiye.

Results: The questionnaire was e-mailed to 220 members. The response rate was 56.3% and 60.5% of PA recommended aPV. The most frequent asthma specific factors for aPV were severe asthma (70.2%), long term oral corticosteroid use (65.3%) and frequent exacerbations / hospitalizations (62.9%). COVID-19 pandemic increased the rate of questions asked to PA about aPV for asthmatic children compared to previous periods (75.8 vs 33.9%) ($p<0.001$) and %27 of PA changed their recommendations in favor of aPV during pandemic.

Conclusions: Recommendation of aPV by PA for asthmatic children is not infrequent. Severe asthma and related factors seem to be the leading reasons to recommend aPV for asthmatic children. The aPV recommendation by PA is increased during COVID-19 pandemic

Keywords: Asthma, child, pneumococcal vaccination, COVID-19



PP-101

IMPACT OF SARS-COV-2 AND BURDEN OF COMMUNITY ACQUIRED PNEUMONIA (CAP) IN HOSPITALIZED CHILDREN, A TERTIARY CARE CENTER EXPERIENCE, BANGLADESH

Nabila Akand[1], Probir Kumar Sarkar[1], Samir Kumar Saha[2], Md. Jahangir Alam[3]
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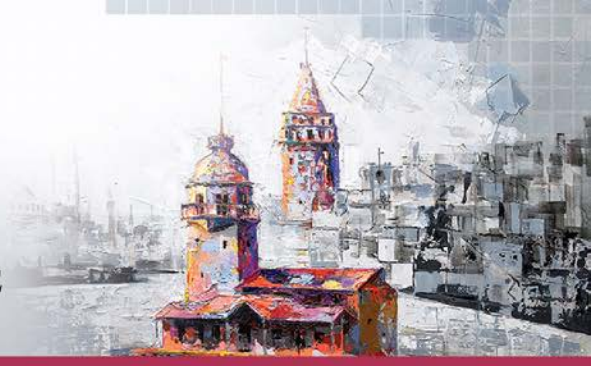
Background and objectives: The COVID-19 preventive measures such as social distancing, cough etiquette and lockdown strategies were associated with a significant decrease in pediatric infectious diseases including non-COVID CAP in children following the COVID-19 outbreaks, notably during high COVID transmission period. This study aimed to assess the impact of the COVID-19 pandemic on non-COVID-19 CAP in children.

Methods: We conducted a retrospective analysis of all patients (age ≤18 years) presenting with CAP from April 2019 to March 2021 in Bangladesh Shishu Hospital & Institute. We compared the patients admitted with non-COVID CAP between April 2020 to March 2021 and April 2019 to March 2020.

Results: The number of hospitalized patients with non-COVID CAP was significantly lower in 2020-2021 (2240 cases) than that in 2019-2020 (3604 cases), a decline of cases by -43.9% in 2020-2021. During 2019-2020 more non-COVID CAP cases were hospitalized, April-June 29.3% and July-September 22.65% in contrast to decreasing cases during, April-June 9.78% and July-September 10.54% in 2020-2021. Whereas hospitalization of child with non-COVID CAP cases increased during October-December 24.6% and January-March 55.63% in 2020-2021 during the low transmission status of COVID 19 in the country. On the other hand, lower number of cases were detected during October-December 18.3% and January-March 29.31% of 2019-2020.

Conclusions: The number of children with non-COVID CAP during 2020-2021 was lower than the same period in 2019-2020. The role of SARS-COV-2 and preventive measures for COVID-19 helped in reducing child CAP cases.

Keywords: CAP, SARS-COV-2, child



PP-102

OBESITY IS A RISK FACTOR FOR DECREASE IN LUNG FUNCTION AFTER COVID-19 INFECTION IN CHILDREN WITH ASTHMA

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Background and Objectives: It is not clear whether asthma is a risk for severe SARS-CoV-2 infection in the pediatric population. We aimed to investigate the course and the consequences of SARS-CoV-2 infection among children with asthma and determine the risk factors for the decline in lung function tests

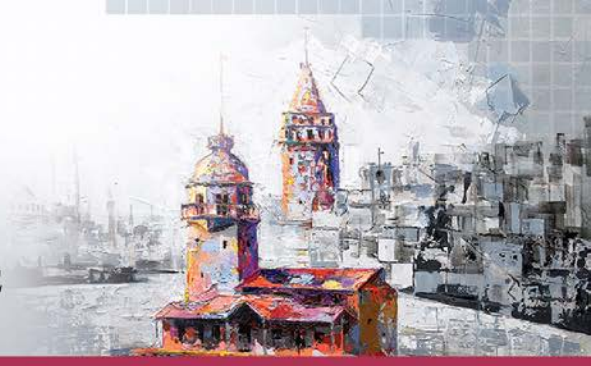
Materials-Methods: Asthmatic children COVID-19 were compared with a random control group of asthmatic patients without COVID-19. The clinical course and the effect on lung function tests of COVID-19 among children with asthma were also evaluated.

Results: 189 patients who had COVID-19, and 792 who did not were included in the study. Fever, fatigue, and cough were the most frequent symptoms during COVID-19. Regarding the severity of COVID-19, 163 patients (87.6%) had a mild clinical condition, 13 (7%) had moderate disease, one (0.5%) had severe disease and two had (1.1%) critically ill disease

Two patients were diagnosed with multisystem inflammatory syndrome in children (MIS-C). Lung function tests of the patients before and after COVID-19 infection were analyzed; no significant differences were found in FEV1, FVC and FEV1/FVC while FEF25-75% values were significantly lower after the COVID-19 infection. Obesity and having a family history of atopy were found to be the independent risk factors for ≥25% decrease in FEF25-75 after COVID-19 infection.

Conclusions: COVID-19 infection leads to dysfunction of the small airways in asthmatic children and obesity is an independent risk factor for ≥25% decrease in FEF25-75. The long-term effects of COVID-19 infectionon small airways require close monitoring in children with asthma.

Keywords: Asthma, Covid-19, MIS-C, small airway disease, obesity



PP-103

SKIN LESIONS REVEALING COVID-19 AMONG HEALTHCARE WORKERS IN TUNISIA

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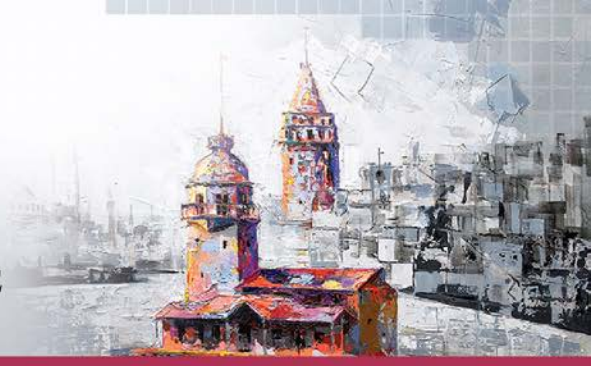
Background and Objectives: The incidence of cutaneous manifestations related to COVID-19 has progressively increased, in parallel with the spread of the global SARS-CoV-2 over time, as the COVID-19 pandemic progressed. The aim of this study was to evaluate the quality of life of heathcare workers among which skin lesions revealed COVID-19 infection.

Materials-Methods: A cross-sectional study was conducted among healthcare personnel of a public hospital in the central region of Tunisia. One hundred and nine cases of COVID-19 infection were included. Quality of life was assessed using the The 12-item Short-Form Health Survey.

Results: In this population, the prevalence of skin lesions revealing a COVID-19 infection was 6% with a mean age of 35.2±2.5 years and a female predominance (71%). Seventy two hours after skin lesion appearence, the most prevalent symptoms were cough (71%), loss of taste/smell (71%), and fever/chills (57%). Only one person was hospitalized. Concerning quality of life, patients with skin lesions had a physical Component Summary (PCS-12) score of 15±2 (recommended as a cut-off to determine a physical condition) and Mental Component Summary (MCS-12) score of 24±2 (may be indicative of clinical depression).

Conclusions: Understanding the dermatologic lesions associated with COVID-19 could be useful to establish a personalized care plan.

Keywords: Covid-19, Skin lesion, Healthcare workers



PP-104

IS SHORT-TERM PROPHYLAXIS NECESSARY BEFORE SARS CoV-2 VACCINATIONS IN HEREDITARY ANGIOEDEMA PATIENTS?

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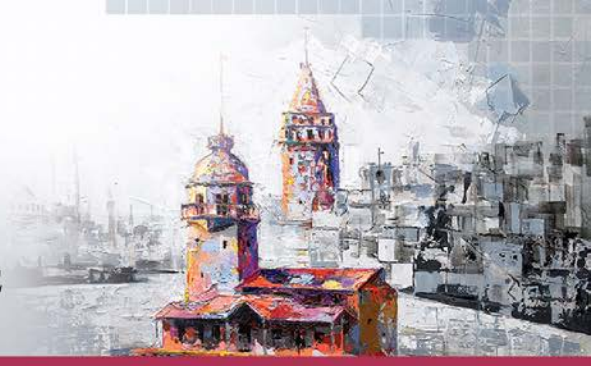
Background: Hereditary angioedema (HAE) patients may experience recurrent attacks of cutaneous or submucosal angioedema that may be frequent and severe; short term prophylaxis is administered before risky procedures to prevent attacks. It is currently unknown if vaccination against SARS CoV2 virus is a risk factor for an attack.

Methods: Demographic characteristics, SARS CoV2 vaccination status, acute side effects after vaccination, and the change in the frequency of angioedema attacks in the long term were questioned in a total 23 adult HAE patients.

Result: A total of 39 Pfizer-BioNTech and 33 Sinovac vaccines were administered to 23 patients. There was no acute, life-threatening reactions after vaccinations. After vaccinations, the number of attacks increased within one month in four patients (17%). In one of them, urticaria was observed two days after each of the 2 Sinovac vaccinations, and the frequency of angioedema attacks increased from once a month to once a week. Another patient, who received four doses of Sinovac vaccine received C1 esterase inhibitor prophylaxis before all vaccinations, because he has been having attacks twice a week, accompanied by uvula and tongue edema. There was no change in the frequency and severity of attacks after vaccinations.

Conclusion: Although there was no acute reactions observed in our study population, the reasons for an increase in HAE attack frequency after vaccination in 17% of the cases needs to be clarified. More studies are needed to understand which patients may need short-term prophylaxis before vaccination.

Keywords: Hereditary angioedema, SARS CoV2 vaccination, prophylaxis



PP-105

REAL-LIFE DATA OF ALLERGY AND IMMUNOLOGY DISEASES CLINIC DURING THE COVID-19 PANDEMIC PERIOD; ANKARA CITY HOSPITAL EXPERIENCE

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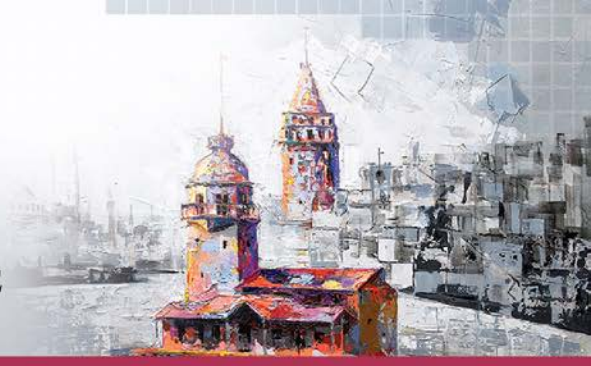
Background And Objective: The COVID-19 pandemic is an important public health problem affects the whole world. We aim to evaluate the effects of COVID-19 pandemic on our Allergy and Immunology service management and clinical tests.

Materials-Method: The patients over the age of 18 who applied to the Adult Immunology and Allergy Diseases Clinic of Ankara City Hospital between March 11, 2020, and December 31, 2021, during the COVID-19 pandemic period were included. We performed a Pearson Correlation test to analyse the relation of Covid-19 pandemic intensity with our outpatient admission and tests regarding skin prick test, skin patch test, immunotherapy/ biological agent treatment / intravenous Immunoglobulin treatment, drug provocation test, drug desensitization, pulmonary function test.

Results: In this Period COVID-19 Polymerase Chain Reaction positivity were detected in 87259 patients in Ankara City Hospital. COVID-19 positivity patient number and it's correlation with outpatient and clinical test numbers are: n=9011, p=0.831 for outpatient admission; n=4479, P=0.965 for prick test; n=789, p=0.806 for skin patch test; n=45, p=0.520 for desenstitization treatment; n=1064, p=0.960 for drug provocation test; n=209, p=0.657 for intradermal test; n=37, p=0.437 for intravenous Immunoglobulin treatment; n=123, p=0.312 for pulmonary function test, n=1287, p=0.849 for subcutan therapy of immunotherapy/biological agent treatment. There is no correlation with COVID-19 pandemic intensity and our outpatient admission and clinical tests.

Conclusions: Although the COVID-19 pandemic is extensive worldwide and in our country, we continued to maintain our outpatient service and clinical tests in our Allergy and Immunology Clinic.

Keywords: COVID-19, outpatient admission, clinical tests



PP-106

EVALUATION OF ATTITUDES AND BEHAVIORS OF ASTHMATIC ADOLESCENTS AND THEIR PARENTS REGARDING COVID-19 VACCINE

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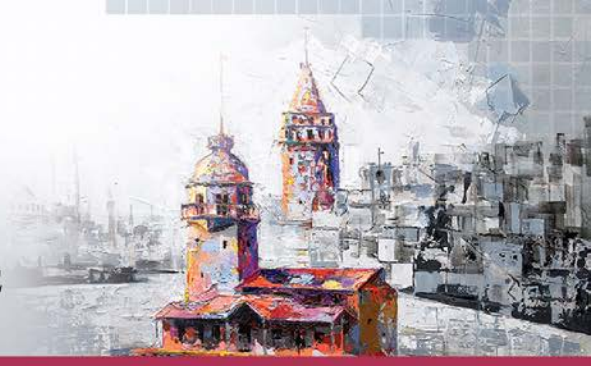
Background: The aim of this study is to evaluate the attitudes and behaviors of asthmatic adolescents and their parents regarding COVID-19 vaccine and asthma.

Materials-Methods: Asthmatic adolescents (>12 years-of-age) who have not yet been vaccinated against COVID-19 and their parents were asked to answer the related-questionnaires.

Results: The answers of 212 asthmatic-adolescents (47.2%male) and their parents (73.6%mothers) were evaluated. 78.3% of adolescents were atopic and 80.2% had controlled-asthma. 81.6% of asthmatic adolescents wanted to have COVID-19-vaccine and the parents who were vaccinated were significantly effective in the vaccination decision of their kids (p=0,007). There was a significant relationship between vaccine preferences of adolescents and their parents (p<0.01). The most common reasons for hesitation about being vaccinated were the risk of developing allergic-reaction(23.1%) and having allergic disease (20.8%) in adolescents who wanted to be vaccinated; long-term possible side-effects(58.9%) and distrust in the pharmaceutical-industry(53.8%) in those who did not want to be vaccinated, respectively. There was no significant relationship between hesitations and the preferred vaccine(p>0.05). The most common reasons for parents' hesitation about vaccination were negative comments shared in the-media(39.7%) and allergic side-effects(37.5%) in parents who wanted to have their kid to-get-vaccinated, and the risk of developing long-term(77.7%) and short-term(58.3%) side-effects in parents who did not want their kid to-get-vaccinated,respectively.

Conclusion: In our study, asthmatic-adolescents and their-parents were highly compliant with the precautions during COVID-19-pandemics and were willing to get-vaccinated. However, the safety of the vaccine, its possible side -effects, and negative-comments about the vaccine could lead to vaccine hesitation.

Keywords: Asthma, Adolescents, Parents, COVID-19,Vaccine, Attitudes



PP-107

POST COVID-19 IN PEDIATRIC PATIENTS

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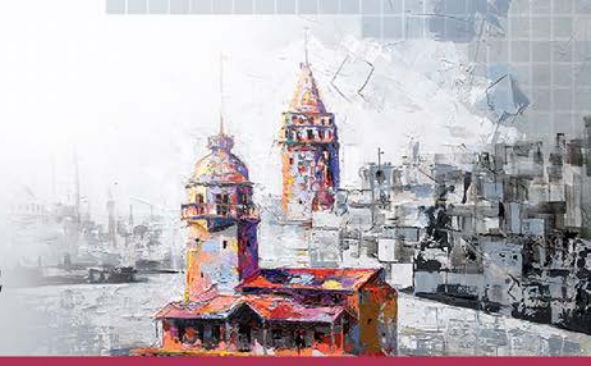
Introduction: The COVID-19 pandemic has infected millions of people and the number of patients who have been exposed to postcovid implications are increased. Postcovid changes are more investigated in adults, although information is scarce in pediatric patients.

Research subjects: 259 pediatric patients (age: 10 months - 18 years) recovered from Covid-19 and had a negative PCR test were examined. All patients underwent X-ray examinations. Patients (46%) recovered from severe or moderate covid pneumonia and had non-respiratory symptoms upon arrival at the clinic: weakness, mild fatigue, drowsiness.Patients (28%) recovered from covid infection and had respiratory symptoms (26%) with a fever upon entry to the hospital. SPSS 12.0 software.

Results: Patients, whose had (69.9%) the severe Covid pneumonia and postcovid respiratory symptoms (cough 78.4%) were enhanced vascular imaging at the medial site with a bronchial wall thickening of the lumen (57%) called “donut” sign. The 37% of patients were increased the peripheral pneumatization and hypovascularization and/or decreased in pneumatization in the lower fields.in the cardiovascular system were onserved in 48.6% of patients. Unlike other types of viral infections, the changes continue in the postcovid period. Severe course of the disease does not always mean detection of postcovid syndrome and vice versa. However, in case of mild disease the possibility development of various degrees of polyorgan damage was 26.9%.

Conclusion: The radiological changes are manifested during 4th week from recovery and may last for a longer period of time, however the radiological changes do not always indicator a severity of the disease.

Keywords: Children, COVID-19, Cough, Shortness of breath during exercise, respiratory failure, Radiological study.



PP-108

ALLERGY PREVENTION OF CLEANING AND DISINFECTION WORK DURING THE COVID-19 PANDEMIC

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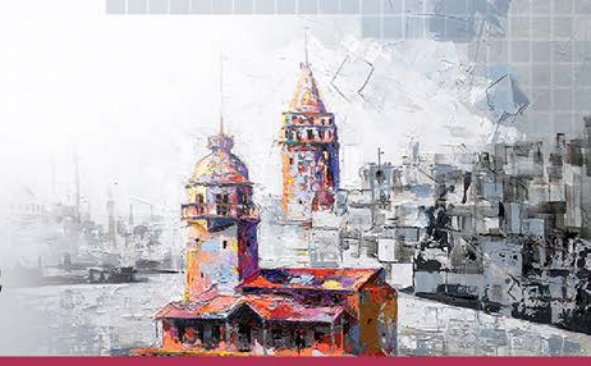
Background and Objectives: The objective of this study was to assess measures established in a public hospital to prevent allergic risk associated with cleaning and disinfection work in a public hospital during the COVID-19 pandemic.

Materials-Methods: This is a cross-sectional comparative and interventional study of exposure to chemical risks related to cleaning and disinfection products in a public hospital located in central Tunisia during the years 2018 and 2020 (marked by the COVID-19 pandemic). The chemical risk assessment was performed using the simplified assessment methodology integrated into the SEIRICH software (Expertise Level 3, Version 3.2. 0).

Results: During 2020, the SEIRICH software identified nine labelled chemical agents. Comparison of cleaning and disinfection product inventories in 2018 and 2020 showed consistency of products used and an increase in quantities used during the COVID-19 pandemic. The increase was of 35.5% liquid soap, 95.2% hydro-alcoholic gel, 80.84% the detergent and disinfectant of Sols and Surfaces, 610% the pre-disinfectant product of medical devices, 118% the disinfectant product of medical devices, 18.18% the disinfectant wipes and 297% the product viricidal disinfectant of surfaces. All these products were allergic and irritant to eyes, lung and skin. Preventive actions consist of changing the allergic liquid soap. Healthcare workers were asked to wear gloves, protective glasses and masks where using these products. We also set up training cycles and ajust the use of hydroalcoholic gels.

Conclusions: This study found an increased allergic risk associated with the use of cleaning and disinfection products during the COVID-19 pandemic.

Keywords: allergy, prevention, healthcare, COVID-19



PP-109

EVALUATION OF PERIOPERATIVE HYPERSENSITIVITY REACTIONS IN CHILDREN

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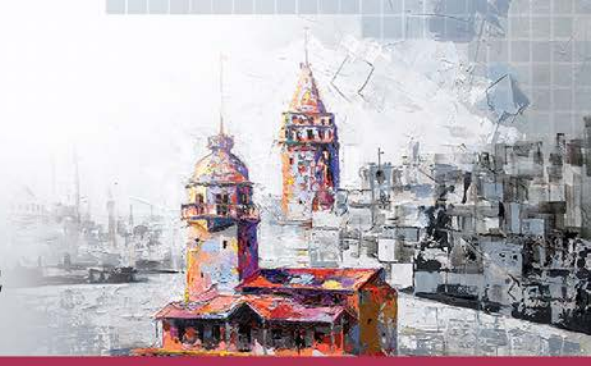
Background: Perioperative anaphylaxis is a potentially life-threatening systemic allergic reaction, developing acutely during the operation. Causes of perioperative anaphylaxis are neuromuscular blocking agents(NMBA), antibiotics, latex, hypnotic induction agents, chlorhexidine, opioids, and colloids. In one study, the most common cause of perioperative anaphylaxis was latex in 2 years and younger and NMBAs in adolescents.

Method: 24 patients were evaluted with suspicion of hypersensitivity reactions during or after surgery. The serum tryptase level was sent at the time of the reaction, 2 hours after, and any time after 24 hours. 4-6 weeks later, skin prick test(SPT) with suspicious drugs was performed.

Results: Suspected perioperative allergic reactions were evaluated according to the modified Ring and Messmer scale. 15 of the patients had urticaria (Grade 1), 5 of the patients had tachycardia and/or urticaria (Grade 2), 2 of the patients had urticaria, hypotension and/or bronchospasm(Grade 3) and 1 of the patients had respiratory arrest (Grade 4). Tryptase level was found to be compatible with anaphylaxis in only one patient. This patients had urticaria, hypotension, bronchospasm after cefazolin infusion. Intradermal test with cefazolin was positive. SPT was performed in 14 patients. Skin prick test revealed had rokuronium positivity in one, chlorhexidine positivity in two and latex positivity in two patients. Cutaneous latex challenge tests were negative in both patients.

Conclusion: Recognition of risk factors for perioperative hypersensitivity reactions is important in preventing perioperative anaphylaxis. The patient should be informed of the perioperative events and about referral for allergy investigation.

Keywords: perioperative anaphylaxis, allergy, children, neuromuscular blocking agents



PP-110

TREATMENT AND MANAGEMENT OF THE DRUG HYPERSENSITIVITY REACTIONS (DHRS) DEVELOPED AGAINST ANTI-TUBERCULOSIS TREATMENT

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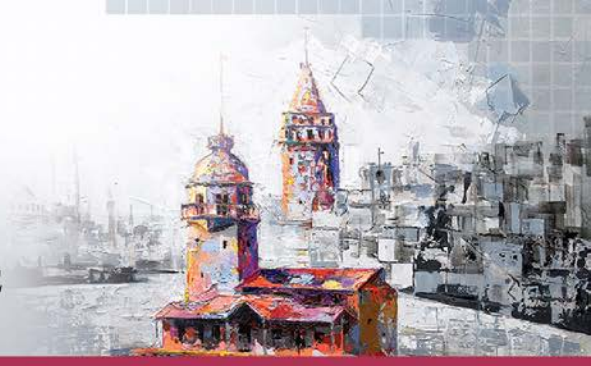
Introduction: Prevalence of the patients developing a hypersensitivity reaction against anti-tuberculosis treatment is yet unknown. This study aimed to investigate the prevalence of drug allergy against anti-tuberculosis treatment and the management of such a problem.

Method: This is a Case-Control study. All patients hospitalized in the Tuberculosis inpatient service between 01.02.2015 and 01.05.2021 were included in the Case group. The demographic characteristics, diagnostic indicator, type of hypersensitivity reaction, duration of the manifestation and its treatment were evaluated.

Results: 2677 patient files were reviewed. The prevalence of drug allergy in inpatients was calculated 7.8%. Chi-square test results applied in the allergy group revealed that the risk of developing a hypersensitivity reaction is statistically significantly higher in female patients ($p<0.001$), Turkish citizen patients (p:0.004), in new cases (p:0.017), in the group not diagnosed bacteriologically (histopathologically, clinically and radiologically) (p:0.006). The success of the treatment was higher in the group that developed a hypersensitivity reaction compared to the control group. 63.5% (94) of the patients examined developed Type I hypersensitivity reactions while 36.7% (53) of the patients examined developed Type IV hypersensitivity reactions. Pyrazinamide was determined as the drug inducing the hypersensitivity reaction in 25 (48.1%) patients. As a result, even patients who developed Type I or Type IV reactions were able to complete their antituberculous drug regimens with successful desensitization.

Conclusion: We believe that the compliance of the patients to the anti-tuberculosis treatment has been improved at the end of appropriate management of hypersensitivity reactions and the treatment results in success.

Keywords: Drug Allergy, Tuberculosis, Pyrazinamide



PP-111

A RARE CUTANEOUS DRUG REACTION: SDRIFE CASE REPORT

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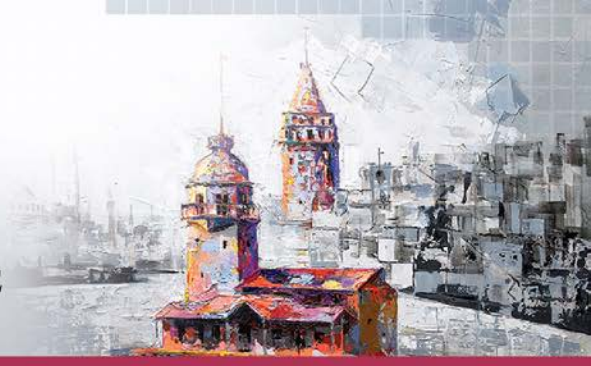
Introduction: β-lactams,especially penicillins,can cause various allergic reactions.In this case,we presented symmetric drug-related intertrigious and flexural exanthema (SDRIFE) disease,which is a rare form of penicillin-related systemic contact dermatitis,that must be keep in mind in the differential diagnosis.

Case: A-65-year-old-male patient was admitted to outpatient clinic due to increased blue-purple pigmentation on the posterior face of the neck,both axilla and inguinal regions, hip and forearm flexural surfaces.The patient had hypertension and was taking a drug containing ARB+hydrochlorothiazide.He stated that he took amoxicillin eight months ago for an upper respiratory tract infection and he had similar reactions within 20 days which decreased with steroid ointment.Three months ago, the patient was given antibiotics containing flucloxacillin and redness,itching and dark discoloration occurred in certain parts of the body. There was no systemic symptom. SDRIFE was considered because of the involvement sites and symmetrical involvement in patient who took penicillin group antibiotics twice with a five-month interval and subsequently had similar reactions.DAP test and skin patch test was negative.The skin punch biopsy result was reported as Baboon Syndrome (SDRIFE).Topical steroid and antihistamine treatment was started

Discussion: SDRIFE is characterized clinically by marked erytema of the gluteal/perianal area and/or V-shaped erythema of the inguinal/perigenital area, symmetric involvement of at least one other intertriginous or flexural area,and the absence of systemic signs or symptoms.It should be considered that the drug may play a role in the etiology of the patient presenting with erythematous eruption located in the flexural regions.It should be ensured that the patient discontinues the drug and does not reuse.

Keywords: SDRIFE, drug hypersensitivity, topical steroids, antihistamin



PP-112

MANAGEMENT OF HYPERSENSITIVITY REACTIONS WITH RABBIT- ANTI-THYMOCYTE GLOBULIN IN PEDIATRIC HEMATOPOETIC STEM CELL TRANSPLANTATION PATIENTS

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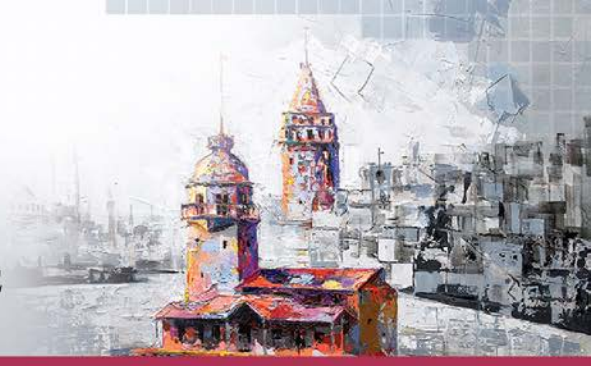
Background: Antithymocyte-globulin (ATG) has been used for decades successfully to prevent GVHD before hematopoetic stem cell transplantation (HSCT). However sometimes hypersensitivity reactions limit its use. We aimed to evaluate reactions experienced during rabbit-ATG use among children and successful desensitization protocol.

Method: The medical records of pediatric patients who were given rabbit ATG treatment at Ankara City Hospital Hematopoetic Stem Cell Transplantation Unit between August 2019 and December 2021 were reviewed retrospectively. Diagnosis of the patients, age at the time of HSCT, gender, whether a hypersensitivity reaction to ATG was observed and management were evaluated. Characteristics of the reaction and presence of hypersensitivity reaction to other drugs were noted. If performed desensitization protocols were evaluated retrospectively.

Results: We evaluted 81 patients. 66,6% (n=54) of them were male. Mean age of the patients were 8,78± 5,48 years. Hypersensitivity to ATG was seen in 7 (8,6%) patients. None of these 7 patients had allergic reactions to other drugs before. 4 (4,9%) of them had anaphylaxis, 1 (1,2%) had disseminated urticaria, 1 (1,2%) had mild urticaria. Intradermal test was detected positive in 1 (1,2%) patient. ATG was given with desensitization protocole to 5 patients without any local or systemic reactions. Successfull desensitization protocole consisted of 12 or 16 steps due to patients' reaction severity.

Conclusion: This is the first and most comprehensive study to investigate rabbit-ATG hypersensitivity. A successful desensitization protocole with rabbit-ATG is firstly presented. Desensitization must be performed with experienced team very carefully in the absence of alternative drug.

Keywords: rabbit-ATG, hypersensitivity, desensitization



PP-113

CROSS-REACTIVITY BETWEEN COX-2 INHIBITORS IN PATIENTS WITH CROSS-REACTIVE HYPERSENSITIVITY TO NSAIDs

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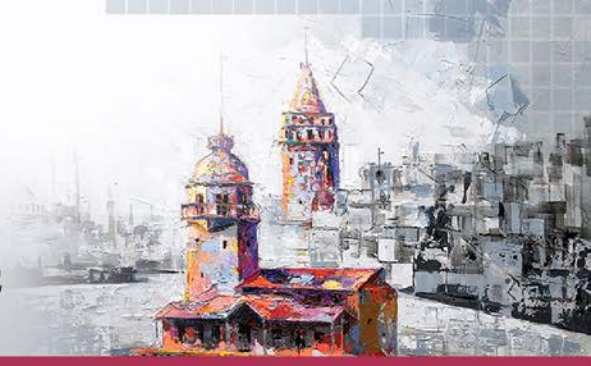
Background and Objectives: The safety of cyclooxygenase (COX)-2 inhibitors has been tested in patients who had cross-reactive hypersensitivity reactions (HSRs) to nonsteroidal anti-inflammatory drugs (NSAIDs). However, these studies have been mainly done before the current classification of NSAID hypersensitivity and cross-reaction between COX-2 inhibitors has been rarely reported. We aimed to assess tolerability of COX-2 inhibitors and to evaluate the cross-reactivity between them in cross-reactive phenotype of NSAID hypersensitivity.

Material-Methods: The diagnosis was based on clinical features, reliable history of HSRs to at least two chemically different NSAIDs, and/or positive provocation tests with implicated NSAIDs in 151 patients. Single-blind, oral challenge with 1/4 and 3/4 divided doses of placebo, nimesulide, meloxicam, and celecoxib, as COX-2 inhibitors, was performed.

Results: The most common cross-reactive phenotype was NSAID-induced urticaria/angioedema (56.3%). Positive reactions to meloxicam, nimesulide, and celecoxib challenges were observed in 23/140 (16.4%), 7/33 (21.2%), and none of six patients, respectively. Overall, 24 patients were tested with two and one was tested with three COX-2 inhibitors. Six (31.6%) of 19 patients with meloxicam intolerance reacted to nimesulide provocation. All positive reactions to COX-2 challenges were incompatible with the phenotypes of the subgroup. More severe symptoms to COX-2 inhibitors were observed in the NERD.

Conclusion: Nimesulide, meloxicam, and celecoxib appeared safe alternatives in cross-reactive phenotypes of NSAID hypersensitivity. Although celecoxib has the most favorable tolerability, cross-reactivity among COX-2 inhibitors seems to be possible.

Keywords: asthma, cross-reactivity, cyclooxygenase, intolerance, nonsteroidal drug hypersensitivity



PP-114

THE PREVALENCE AND FEATURES OF SYSTEMIC HYPERSENSITIVITY REACTIONS TO DRUG SKIN PRICK TESTS

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Background: Skin tests with drugs by skin prick and intradermal test are considered as relatively safe methods for evaluating allergic reactions to drugs. However, it may cause systemic reactions. It has not been reported on the systemic hypersensitivity reactions during skin tests with drugs in Korea.

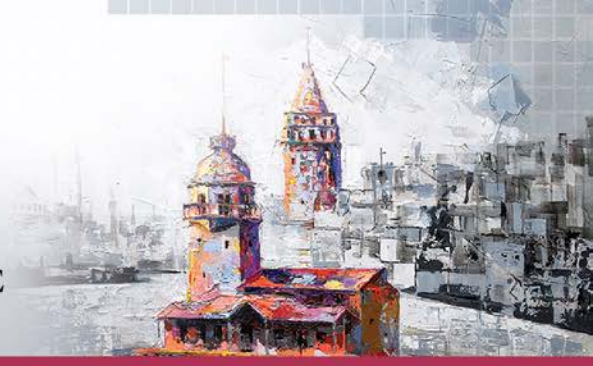
Objective: We evaluated the systemic hypersensitivity reactions during skin tests with drugs at a university hospital in Korea.

Methods: All the medical records of skin tests with drugs and responses were retrospectively analyzed from the healthcare information system in Seoul National University Bundang Hospital (December 2003 ~ May 2022).

Results: A total of 588 patients (49±2 years old, male: female = 1: 2.7) underwent drug skin tests. 226 (38.4%) showed positive response to skin tests with drugs. Among them, total of 19 patients (8.4%) had systemic hypersensitivity reactions (42±1 years old, male: female = 1: 2.1). The most frequent culprit drug that induced systemic hypersensitivity was antibiotics (ampicillin (4), cephalosporin (3), quinolone (1), antiprotozoal agent (1) followed by NSAIDs (4), H2 blockers (3), contrast media for CT (2), and sedative (1). Most symptoms were improved without any treatment, but 3 patients (0.8% of total cases, 2.0% among positive responders to skin tests with drugs) were treated with epinephrine, methylprednisolone, and chlorpheniramine.

Conclusions: This study shows that skin tests with various drugs may cause severe systemic hypersensitivity reactions which needs close monitoring. Physicians and medical staffs should be aware of possible systemic hypersensitivity reactions during skin tests with drugs.

Keywords: drug, skin test, systemic hypersensitivity



PP-115

CAN MACROLIDES BE USED WITHOUT TESTING AS AN ALTERNATIVE ANTIBIOTIC IN PATIENTS WITH A HISTORY OF IMMEDIATE-TYPE HYPERSENSITIVITY TO PENICILLINS?

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Background: Penicillin hypersensitivity is one of the most common cause of drug allergy and drug-induced anaphylaxis in medical records and causes social and economic burden.

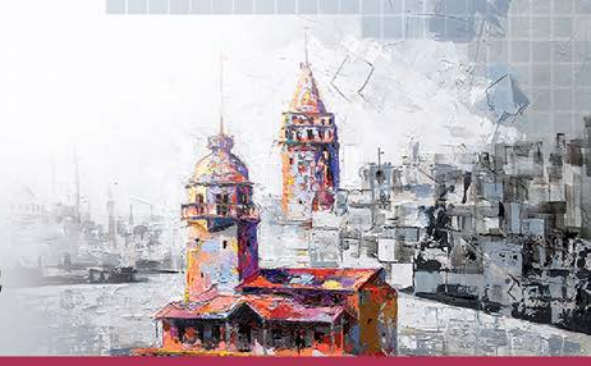
Objective: Since the rate of clarithromycin hypersensitivity is low in the general population., we aimed to investigate whether clarithromycin can be used in patients with penicillin allergy without a provocation test.

Methods: The medical records of 186 patients who were referred to our clinic between 2015 and 2021 with a history of penicillin allergy were evaluated retrospectively. Patients having a history of at least 2 immediate type hypersensitivity reaction with penicillin group antibiotics, or having a history of immediate type hypersensitivity with penicillins and diagnosed by positive penicillinV/G specific IgE and/or penicillin skin test included in the study. Skin Test for penicillin is performed in accordance with the manufacturer's instructions. Specific IgE levels against phenoxymethylpenicillin (penV), benzylpenicillin (penG), were measured using The Phadia CAP System FEIA method. Oral drug provocation test with clarithromycine were performed in all patients.

Results: The data of 64 patients diagnosed with penicillin allergy and underwent clarithromycin oral provocation test were analyzed. Oral provocation test with clarithromycin was positive in only 2 of 64 (%3) and these 2 patients had a history of multiple drug hypersensitivity, and one had suspected of mastocytosis because also had food and venom allergies

Conclusion: We suggest that clarithromycin can be given without an oral provocation test, when an alternative antibiotic is desired in patients with penicillin allergy and without multidrug hypersensitivity.

Keywords: macrolide, penicillin, clarithromycine, hypersensitivity,



PP-116

PIRFENIDONE DESENSITIZATION FOR URTICARIAL HYPERSENSITIVITY REACTION: A CASE REPORT

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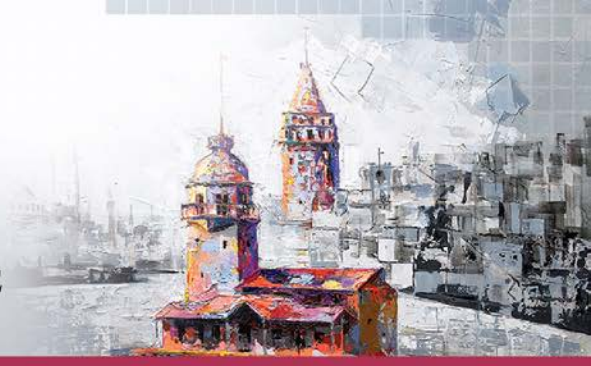
Background: Idiopathic pulmonary fibrosis is a chronic, fibrotic, progressive, and fatal lung disease. Pirfenidone, which is an antifibrotic and anti-inflammatory agent with FDA (Food and Drug Administration)-approval, reduces decline in lung function in idiopathic pulmonary fibrosis patients. Pirfenidone has a favorable benefit-risk profile. Skin reactions that occur allergic in nature (urticarial) are uncommon. To date, there has been no desensitization case due to hypersensitivity reaction with pirfenidone. Here we describe a case of a patient who developed urticaria on pirfenidone and successfully underwent a desensitization.

Case: A 71 years old man, diagnosed with IPF, was admitted for therapy continuation with pirfenidone. He had previously used pirfenidone for three months but he discontinued because of weight loss side effect. It was planned to continue with the pirfenidone treatment in the patient who could not use nintedanib due to severe diarrhea side effects. Diffuse urticaria developed 30 minutes after taking the first dose of restarted pirfenidone. It was decided that treatment with pirfenidone should be continued as it was considered the best therapeutic option. Therefore, pirfenidone was started on the patient with a 9-step desensitization protocol. It was possible to gradually increase the maximum dose that the patient should take.

Conclusion: Hypersensitivity reactions to pirfenidone are rare. The 9-step desensitization protocol with pirfenidone was well tolerated on the patient with urticarial hypersensitivity reaction to pirfenidone.

Keywords: Pirfenidone, drug hypersensitivity, urticaria, drug desensitization, idiopathic pulmonary fibrosis



PP-117

RAPID DESENSITIZATION WITH CEFIXIME IN A PATIENT WITH WITH MULTIPLE DRUG ALLERGY SYNDROME

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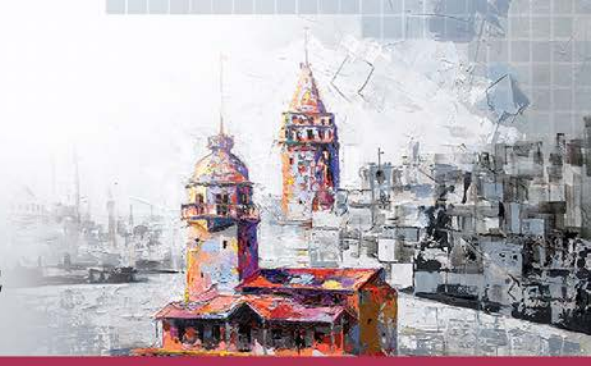
Background: Multiple Drug Allergy Syndrome (MDAS) describes patients with hypersensitivity reactions to two or more drug classes.

Case: A 5-year-old female patient with the diagnosis of recurrent urinary tract infections (UTI) was consulted to our allergy department because of two episodes of urticaria with cefuroxime axetil and amikacin, and an anaphylactic reaction with nitrofurantoin. She was not allergic to any drug, including cefuroxime-axetil and amoxicillin-clavulanate (AX-CL), until 4 months ago. Other personal and family history was unremarkable. In light of commonly used antibiotics for the treatment of UTI, we evaluated the possible existence of allergy to AX-CL. Skin tests were negative for penicillin G and ampicillin, as well as oral provocation challenges (OPC) with phenoxymethylpenicillin, and ampicilin. Then, we performed OPC with amoxicillin. The patient developed anaphylaxis 2 hours and 40 minutes after the last OPC step. Her symptoms regressed within 10 minutes with appropriate treatment, however reccurred 5 hours later. Treatment was again applied with the diagnosis of biphasic anaphylaxis. Four weeks later, *Escherichia coli* was grown in the urine culture which was sensitive to amikacin, gentamicin, and cefixime. Because of cross-reactivity between cefuroxime and cefixime rapid desensitization with cefixime was started, beginning with 0.1 mg until the daily dose was achieved.

Conclusion: Antibiotic desensitization is a treatment option for patients with antibiotic induced hypersensitivity reactions when no other alternative exists for treatment of severe bacterial infections. In our patient with MDAS, cefixime treatment has been continued for 10 days without any reactions to cefixime following successful desensitization.

Keywords: Desensitization, Multiple Drug Allergy Syndrome, Anaphylaxis



PP-118

HYPERSENSITIVITY REACTIONS TO CHEMOTHERAPY AND MONOCLONAL ANTIBODIES: 336 CASES OF DESENSITIZATION IN MEXICO

Rosalaura Virginia Villarreal González[1], Sandra Nora González Díaz[1], Oscar Vidal Gutiérrez[2], Cindy Elizabeth De Lira Quezada[1], María De Lourdes Garza Rodríguez[2], Diana Cristina Pérez Ibave[2]
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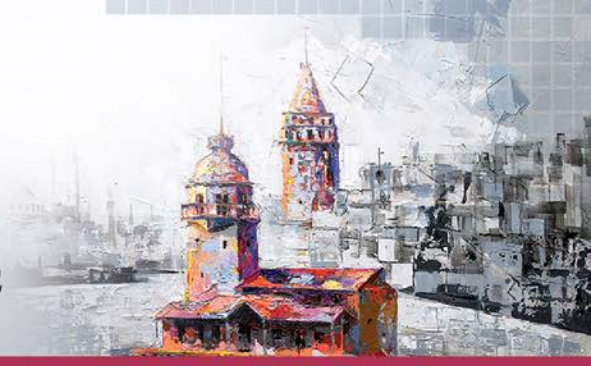
Background and Objectives: In recent decades, the incidence of cancer worldwide has been increasing, inversely proportional to new therapeutic lines such as chemotherapy (CT) and monoclonal antibodies (mAbs), but also hypersensitivity reactions (HSR) to these drugs. Desensitization is a safe and effective tool to maintain patients on first-line therapy. PURPOSE: identify the phenotypes, endotypes and biomarkers of HSR to chemotherapeutic agents and mAbs and their safety through desensitization.

Materials-Methods: Original, descriptive, longitudinal, ambispective and analytical study approved by the Bioethics Committee AL21-0005. Patients >18 years old with cancer who developed HSR to CT/mAbs in August 2017–April 2022.

Results: 336 desensitizations in 93 patients, mean age 45.9 years, 79.6% female, 43% atopy, 52.7% metastasis. Most frequent diagnosis of breast and ovarian cancer 23.6% and 21.5% respectively. HSR occurred in taxanes in the 1-2 cycle, with chest pain and low back pain most frequent symptoms, while in platinums it occurred after the 5th cycle with urticaria and dyspnea. Atypical symptoms of HSR were more frequent in mAbs. Positive skin tests in 63.2% Carboplatin. Desensitization protocol of 3 bags (initial dose 1:100) in mild-moderate anaphylaxis, while 4 bags (initial dose 1:1,000) in severe anaphylaxis. During desensitization 86% of the patients did not present HSR with a success rate of 99.4%.

Conclusions: Desensitization is safe in patients with HSR to CT and mAbs who require first-line treatment. Currently there is an area of opportunity as allergists to position to provide a better prognosis and quality of life to hemato-oncology patients.

Keywords: Chemotherapy, desensitization, hypersensitivity reactions, monoclonal antibodies.



PP-119

INCIDENCE AND TYPES OF DELAYED-TYPE HYPERSENSITIVITY REACTIONS TO NEW GENERATION CANCER DRUGS

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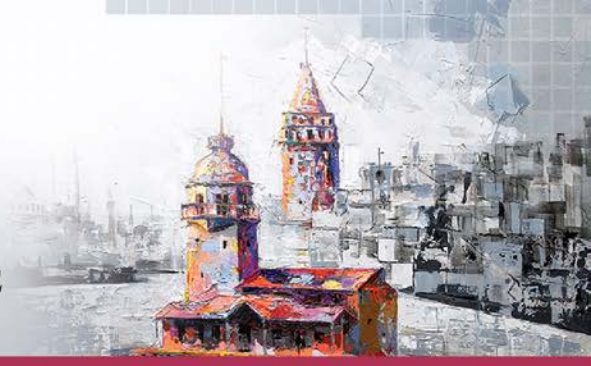
Introduction: Experience with cutaneous side effects of targeted drugs and immunotherapy in cancer treatment is still limited. In this study we aimed to investigate the frequency and types of cutaneous delayed type hypersensitivity reactions(ADR) with targeted drugs and immunotherapies.

Material-Method: A prospective clinical trial (Ethics-committee-approval-no:Ege21-8.4/36). All type of cancer patients treated with immunotherapy, monoclonal antibody, or tyrosine kinase inhibitors between 2021 and 2022 years in Ege University included consequtively into the study with their consents.

Results: Cutaneous adverse events developed in 22 of 123 patients who received targeted drug therapies during 6 months(17.8%). Five of these adverse events presenting as a maculopapular exanthema (MPE) in 5 patients (4%) were compatible with a delayed-type ADR (Picture1-5). ADR severity grades were as: Grade1 in1-patient (0,8%), Grade2 in 3-patients (2,4%) and Grade3 in 1-patient (0,8%). No life-threatening rash was observed.The treatment was interrupted only in 1-patient with Grade 3 rash. Two patients with MPE were succesfully desensitized and were able to take the culprit drugs after reactions.

Conclusion: In our first 6-month results, the incidence of cutaneous delayed-type ADR due to new generation cancer drugs was found to be 4%.The immunological pathogenesis of delayed-type ADRs due to these new cancer therapeutics needs to be clarified with further in-vivo/in-vitro studies. Drug desensitization may also take part in the management of some type of delayed type reactions with those new generation drugs.

Keywords: Delayed-type Drug hypersensitivity, Cancer, Targeted therapy, Cancer Immunotherapy, Tyrosine kinase Inhıbıtors



PP-120

SUCCESSFUL DESENSITIZATION TO ABIRATERONE – A CHALLENGE IN PATIENTS WITH HYPERSENSITIVITY AND PROSTATE CANCER

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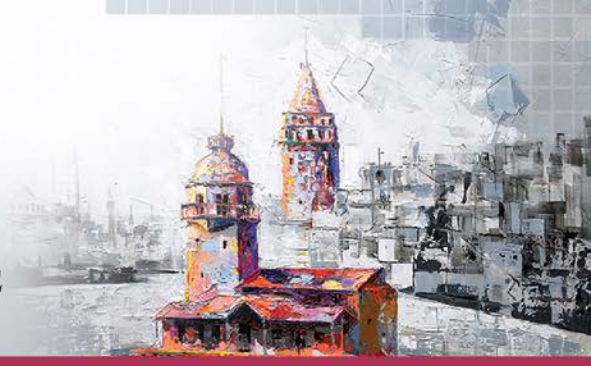
Background and Objectives: Abiraterone is an androgen inhibitor that improves survival in patients with metastatic castration-resistant prostate cancer. We report a successful desensitization to abiraterone.

Case: An 83-year-old male with high blood pressure, stage IV prostate cancer with liver and lung metastases, refused chemotherapy and was started with abiraterone 500 mg + prednisone 5 mg BID; 7 days later, he presented disseminated dermatosis and pruritus, skin prick tests with abiraterone were performed with negative results. The following oral desensitization protocol was developed: day 1 – premedication 1 hour prior with cetirizine 20 mg and IV hydrocortisone 60 mg following 125 mg of abiraterone diluted in 125 ml of saline solution 0.9%, day 2 and 3 – 125 mg, day 4 – 250 mg, day 5 and 6 – 250 mg, day 7 – 500 mg, from day 2 each dose was accompanied by prednisone 15 mg every 12 hours and cetirizine 20 mg. After 7 days of desensitization, the patient tolerated the total dose without adverse reactions and continued his treatment.

Conclusions: Allergic reactions to anticancer drugs are a relevant problem in allergy care, desensitization protocols are useful when the particular drug is the only first-choice option.

Keywords: abiraterone, desensitization, prostate cancer.



PP-121

RISK FACTORS FOR DRUG ALLERGIES IN PEDIATRIC PALLIATIVE CARE PATIENTS

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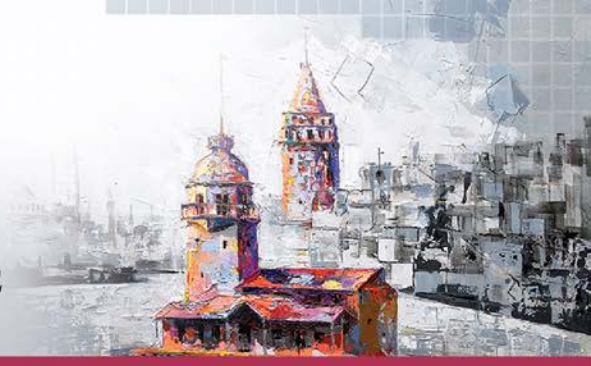
Introduction: Palliative care patients constitute a vulnerable population for drug allergies due to the complexity of their care and treatment.

Methods: This retrospective study aimed to identify drug allergies in pediatric palliative care unit, assess risk factors and identify specific medications most commonly involved. Patients medical records were reviewed to identify drug allergies and determine factors that affect its predictability.

Results: Total of the 281 patients who were hospitalized in our pediatric palliative care unit for a period of 3.5 years, 26 had probably and definitive drug allergy (9.2%). In the comparison, age was significantly higher in patients with drug allergies (9.8±4.2 vs 6.2±4.7; $p<0.05$), whereas, gender was similar compared to the controls. Also, recurrent hospitalization, lenght of stay in hospital and number of drug usage were significantly more likely in patients with drug allergy ($p<0.05$). Antimicrobials (57.7%) were the most common causative agents.

Conclusion: Drug allergies are commonly occured in palliative care patients and frequently affect on their morbidity and mortality. Identification of risk factors may provide predicting and preventing of drug allergies in the complex palliative care patient.

Keywords: Drug allergy, drug hypersensivity, pallative care, pediatric



PP-122

A CASE OF ALLERGY WITH CROSS-REACTIVITY TO PROTON PUMP INHIBITORS: WHAT SHOULD WE GIVE THE PATIENT?

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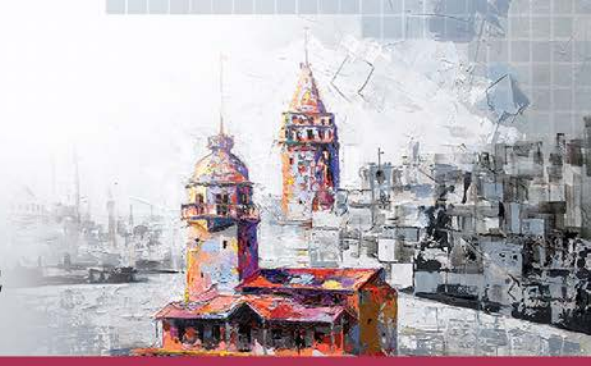
Introduction: Cross-reactivity between PPIs is a challenging issue that remains controversial. For this purpose, we planned to present the patient with multiple PPI allergy.

Case: A 40-year-old female patient drank the drug with active ingredient esomeprazole, which was prescribed from an external center in January 2022. 2 hours after taking the drug, itching and redness developed all over the body. No additional complaints such as angioedema, shortness of breath and difficulty in swallowing occurred. After the symptomatic treatment applied in the emergency department, the patient's complaints regressed. Esomeprazole was banned for the patient who was consulted with us for drug allergy and rabeprazole skin tests were performed for alternative medicine. Skin prick test was positive with rabeprazole. Although skin tests were found to be negative with lansoprazole; oral provocation test was positive. In the following days, pantoprazole and omeprazole skin prick tests were also positive. Skin tests with famotidine and then oral provocation test were performed for the patient who was found to be allergic to the whole PPI group. These tests were negative. In this way, a safe alternative that the patient can use was found.

Conclusion: Our case was presented because sensitivity was detected in the entire PPI group. Cross-reactivity should always be kept in mind in such patients, and skin tests / drug provocation tests should be completed before an alternative drug is recommended.

Keywords: proton pump inhibitors, drug allergy, cross-reactivity



PP-123

DRESS SYNDROME DUE TO SULPHASALAZINE USE İN A PATIENT WITH PSORIATIC ARTHRITIS

Özge Atik, Seçil Taşyürek, Fatma Merve Tepetam, Ali Burkan Akyıldız
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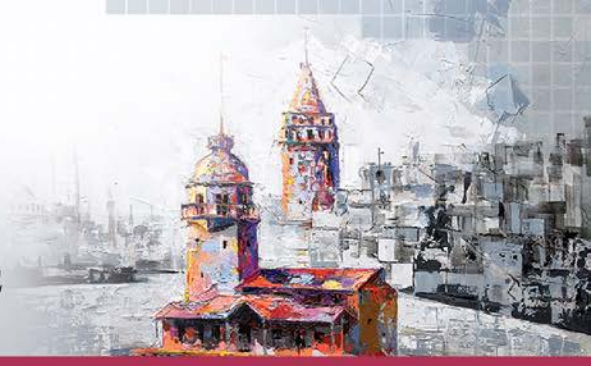
Introduction: Dress syndrome(Drug Rash with Eosinophilia and Systemic Symptoms) is a severe systemic symptom, triggered by drugs, accompanied by cutaneous, hematological and solid organ involvements. In this poster, we wanted to present a case of dress syndrome in a patient who developed rash and fever after sulphasalazine use.

Case: A 44-year-old female patient had been using sulphalazine at a dose of 3*1 for 10 days due to the diagnosis of psoriatic arthritis. On the 10th day of the treatment, she was referred to our allergy and immunology clinic from the emergency clinic due to fever (39C), facial edema and redness in the body. On physical examination, facial erythroderma, facial and periorbital edema were observed, axillary and inguinal lymph nodes were palpable, and fever was 39 degrees.

In the blood tests performed, liver and renal function tests were normal, leukocytosis (wbc: 26,3), lymphocytosis (lym: 12,7) and eosinophilia (eos: 2300) were present in the hemogram. The patient was referred to the dermatology clinic for hospitalization, considering the dress syndrome. The patient was hospitalized in the dermatology clinic and systemic corticosteroid treatment was started.

Conclusion: In patients with rash on the body, the drugs used in terms of drug reactions should be questioned, systemic examination should be performed, and dress syndrome, one of the late drug reactions, should be considered. Early recognition of dress syndrome is very important because of the need for systemic approaches in its treatment and high mortality rates

Keywords: dress syndrome due to sulphasalazine,tip4 drug reactions,



PP-124

ANAPHYLAXIS DEVELOPING IN A PATIENT USING BOTH CEPHALOSPORIN AND PARACETAMOL TOGETHER

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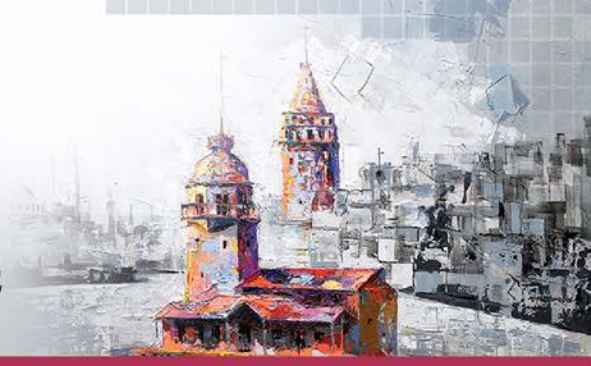
Background: Anaphylaxis is a severe and life-threatening systemic hypersensitivity reaction. IgE-mediated anaphylaxis is considered the classic and most frequent mechanism.Two of the leading agents that cause anaphylaxis are beta-lactam antibiotics (including cephalosporins) and nonsteroidal anti-inflammatory drugs (NSAIDs). However, it is rare for both of them to develop anaphylaxis.

Method: A 26-year-old female patient who developed a hypersensitivity reaction after simultaneous administration of perenteral ceftriaxone and paracetamol 10 days ago applied to our immunology and allergy outpatient clinic for evaluation.

Results: In the patient's history, complaints of shortness of breath, flushing, bruising and fainting developed 15 minutes after the application. The patient's complaints were relieved in 2 hours with anaphylaxis treatment, which required adrenaline administration in the emergency department. The patient did not have any known allergic or other additional disease. Basal tryptase level was measured as 9.24 ng/mL. Whole blood examination was normal. Since our patient's history suggested a potential IgE-mediated mechanism, skin testing (skin prick and intradermal testing read at 15 to 20 minutes) was considered for drugs. Histamine was used as a positive control and saline was used as a negative control. Paracetamol diluted commercial preparation (10 mg/mL) 1/100 intradermal test (IDT) was considered positive. Afterwards, penicillin skin tests and amoxicillin drug challenge were negative. Then, the ceftriaxone 1/100 IDT test was detected as positive.

Conclusion: Keeping in mind that drugs used at the same time can cause anaphylaxis, it is vital to carry out an allergic assessment and in this context, to plan the tests separately.

Keywords: cephalosporins,anaphylaxis,paracetamol,intradermal testing,IgE-mediated mechanism



PP-125

ALLERGY TO WAX USED IN EPILATION

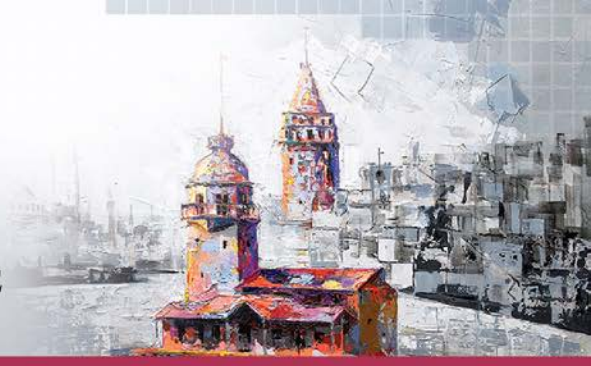
Özge Atik, Ali Burkan Akyıldız, Fatma Merve Tepetam, Ismet Bulut
sağlık bilimleri üniversitesi süreyyapaşa göğüs hastalıkları ve göğüs cerrahisi hastanesi

Introduction: Analgesic intolerance is a clinical picture consisting of bronchospasm, angioneurotic edema, urticaria, rhinitis or anaphylactic shock within a few hours after taking acetylsalicylic acid or other nonsteroidal anti-inflammatory drugs. Apart from drugs, acetylsalicylic acid is also found in cosmetic products and foods that are frequently used in daily life. There are high amounts of salicylate (>1mg) in vinegar,waxes used in epilations, daily lotions, foods such as tomatoes, strawberries, peppers, raisins, blackberries, olives, turmeric and mustard. In this case, we wanted to describe the urticaria that developed after exposure to waxes use in epilations.

Case: A 20-year-old female patient had previously described urticaria after dexketoprofen use and itching after clarithromycin. Therefore, nimesulide and levofloxacin were found as safe alternative drugs in the allergy and immunology clinic. 5 minutes after the patient contacted the waxing arm, whose name he did not know, redness, itchy swelling with the appearance of urticaria.İt was seen that the patient had acute urticaria. Antihistamine treatment was given when the patient was not observed. The patient didnt accept aspirin provocation test for cross-reactivity with other nsai. The patient, was advised not to use aspirin and other Nsai drugs, food and cosmetic products containing salicylic acid.

Conclusion: Since acetylsalicylic acid sensitivity may occur as a cross-reaction in patients with analgesic sensitivity, these patients should be warned about the use of aspirin, and since there may be salicylic acid in cosmetic products and foods, patients who describe an allergic reaction after contact with these products.

Keywords: salicylate allergy,urticaria associated salicylate



PP-126

RARE DRUG ALLERGY: BRADYKININ-RELATED ANGIOEDEMA AFTER LINAGLIPTIN

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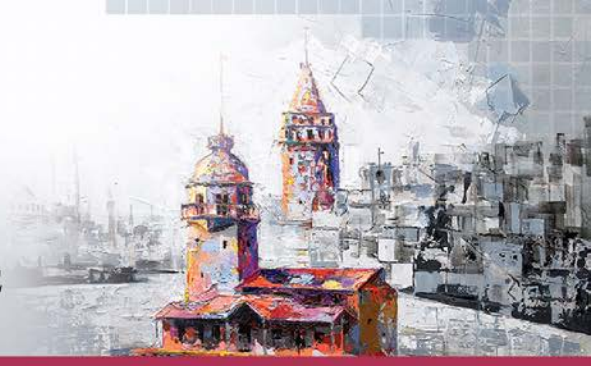
Health Sciences University, Süreyyapaşa Training and Research Hospital, Allergy and Immunology Clinic

Introduction: Angioedema is a local, non-inflammatory and self-limiting type of edema caused by increased plasma leakage from the capillaries located in the mucosa and subcutaneous layer of the skin. Mediators called histamine and bradykinin are responsible for most cases of angioedema. according to these mediators,Nonsteroidal anti-inflammatory drugs, acetyl salicylic acid, antibiotics, ace inhibitors, dpp-4 inhibitors, valsartan sacubutril, tamoxifen are most common causes of angiodema.İn this study, we wanted to describe a case of bradykinin-mediated angioedema that developed after the use of linagliptin.

Case: 57 year old female patient has been taking linagliptin treatment for diabetes for 4 years. 2 months ago, she applied to the emergency outpatient clinic with difficulty swallowing developing 8 hours after taking the medicine, swelling angioedema and echymosis on the hands.The patient consulted with our allergy outpatient clinic, because the angiodema cannot regress at the emergency treatment of adrenaline, feniramin, prednisolone therapy. c1 esterase inh 1*2 flkn 1000iu iv was applied to the patient.Laryngeal edema regressed and the patient was discharged after 3 days Skin biopsy was taken from edema.Biopsy found compatible with drug reaction. c3, c4,c1 esterase ınhıbıtor level and functıon results were normal.After linagliptin therapy was stoped, the patient did not attack angioedema.

Conclusion: dpp-4 inhibitors are one of the most commonly used drugs in the treatment of diabetes. as a side effect of these drugs, 1 %of patients can be seen in urticaria and/or facial edema (angioedema) and the drug should be stopped.

Keywords: linagliptin alergy,angıoedema of linagliptin,ısolated angıoedema



PP-127

RETROSPECTIVE INVESTIGATION OF FACTORS AFFECTING SKIN TEST POSITIVITY IN B-LACTAM ALLERGIES

Hatice Serpil Akten, Ceyda Tunakan Dalgic, Meryem Demir, Onurcan Yıldırım, Reyhan Gumusburun, Sinem Inan, Gulhan Bogatekin, Nihal Mete Gökmen, Okan Gülbahar, Ali Kokuludag, Aytul Zerrin Sin
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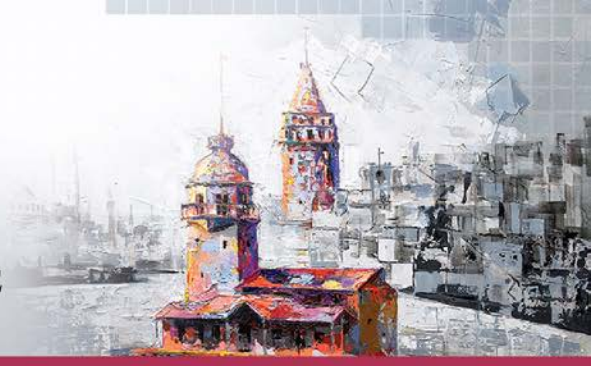
Background: β-Lactams are the antibiotics causing the most common drug hypersensitivity reactions (HSRs). True susceptibility should be revealed by detailed history and appropriate skin tests (STs).

Materials-Methods: Patients who had the suspicion of HSRs against β-Lactams and underwent STs between July 2019 and April 2022 were retrospectively analyzed. DAP β-Lactams tests (Penicillin minoR- major determinants, clavulanic, amoxicillin) (Diater,Spain©), ampicillin, sulbactam, culprit drugs, and alternative cephalosporins were used following the recommended EAACI ST concentrations. Positive STs and true HSR rates were investigated.

Results: Of the 73 patients, 82% (n=60) were female. The median age was 41 (18-67). While grade 1-2 (55%; 19%) HSR were observed, 15% were grade 4 and presented as urticaria (64.3%), flushing (53.4%), bronchospasm (34.2%). Amoxicillin-clavulanate (23.2%) was the most frequently reported culprit. The positivity rate for all STs was 23%. 65% of positive STs were observed among the patients having an HSR within the last 6 months. The positivity rate decreased significantly (23.5%) in those who were tested 3 years after HSR. While the positivity rate was found at 13% in the grade 1 HSRs, it increased to 45% in grade 4. Drug provocation tests (DPTs) were negative in cases both with negative STs and with grade 1/2 HSRs.

Conclusion: Significant positivity in STs emphasizes the importance of HSR time and severity, especially in those having STs within the first 6 months. The negative results of the drug STs and the completion of the DPTs without an HSR paved the way for patients to use penicillin freely.

Keywords: β-Lactam Allergy, Skin tests, Drug Hypersensivity



PP-128

CHEMOTERAPHY DESENSITIZATION: OUR PREMEDICATION SCHEME AND RAPID DRUG DESENSITIZATION

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Health Sciences University, Süreyyapaşa Training and Research Hospital, Allergy and Immunology Clinic

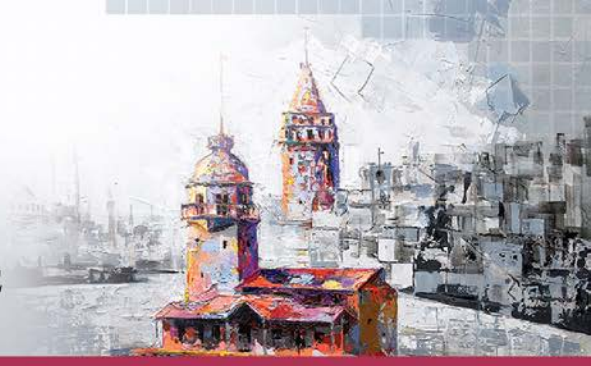
Background: Rapid drug desensitization is applied in early-type hypersensitivity reactions to chemotherapeutic agents. Premedication schemes before desensitization differ.

Patients And Method: We retrospectively analyzed the patients referred to the Allergy Department, who had experienced early type hipersensitivite reactions related to a chemoteraphy drug between January 2020 to July 2022. Demographic data of the patients, organ malignancy, chemotherapeutic agent, premedication status, desensitization success were examined.

Results: Desensitization was applied to 19 patients due to early-type drug hypersensitivity. 21% (n: 4) of the patients were female; the most common malignancy was ovarian ca 42% (n:8); the most common responsible agent was carboplatin 47.3% (n:9); drug-induced anaphylaxis, which was the most common symptom on admission, was 68.4% (n:13). Prick test or intradermal test positivity could be seen in 42% (n: 8) patients. % 15.7 (n:3) Premedication before chemotherapy that we applied in our clinic was applied to all patients. After an allergic reaction, all patients underwent 12-step desensitization. Despite standard premedication, insufficiency was observed in 31.5% (n:6) patients.

Conclusions: Rapid drug desensitizatin and our premedication scheme is a potentially safe and effective procedure in patients suffering from early reactions to chemotherapeutic agent.

Keywords: Rapid drug desensitizatin, Premedication schemes, chemotherapy



PP-129

WOGONIN INHIBITS TIGHT JUNCTION DISRUPTION VIA SUPPRESSION OF INFLAMMATORY RESPONSE AND PHOSPHORYLATION OF AKT/NF-κB AND ERK1/2 IN RHINOVIRUS-INFECTED HUMAN NASAL EPITHELIAL CELLS

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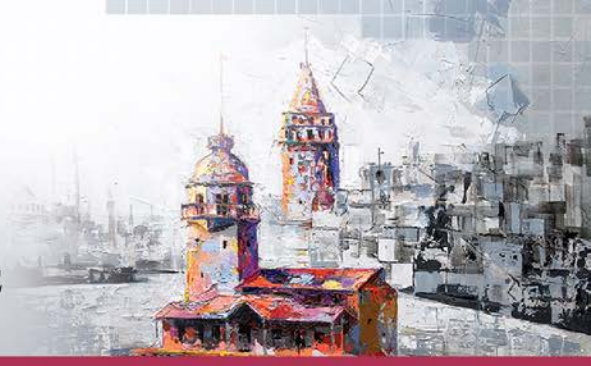
Objective: The maintenance of tight junction integrity contributes significantly to epithelial barrier function. If barrier function is destroyed, cell permeability increases and the movement of pathogens is promoted, further increasing the susceptibility to secondary infection. Here, we examined the protective effects of wogonin on rhinovirus (RV)-induced tight junction disruption. Additionally, we examined the signaling molecules responsible for anti-inflammatory activities in human nasal epithelial (HNE) cells.

Methods-Results: Primary HNE cells grown at an air-liquid interface and RPMI 2650 cells were infected apically with RV. Incubation with RV resulted in disruption of tight junction proteins (ZO-1, E-cadherin, claudin-1, and occludin) in the HNE cells. Cell viability of wogonin-treated HNE cells was measured using the MTT assay. Pretreatment with wogonin decreased RV-induced disruption of tight junctions in HNE cells. Furthermore, wogonin significantly decreased RV-induced phosphorylation of Akt/NF-κB and ERK1/2. Additionally, RV-induced generation of reactive oxygen species and RV-induced up-regulation of the production of inflammatory cytokines IL-8 and IL-6 were diminished by wogonin in HNE cells.

Conclusion: Wogonin inhibits HRV-induced tight junction disruption via the suppression of inflammatory responses and phosphorylation of Akt/NF-κB and ERK1/2 in HNE cells. These finds will facilitate the development of novel therapeutic strategies.

Keywords: HNE cells, Rhinovirus, Tight junction proteins, Wogonin



PP-130

HOST AND SURGICAL FACTORS AFFECTING THE FREQUENCY AND DURATION OF REVISION ENDOSCOPIC SINUS SURGERY

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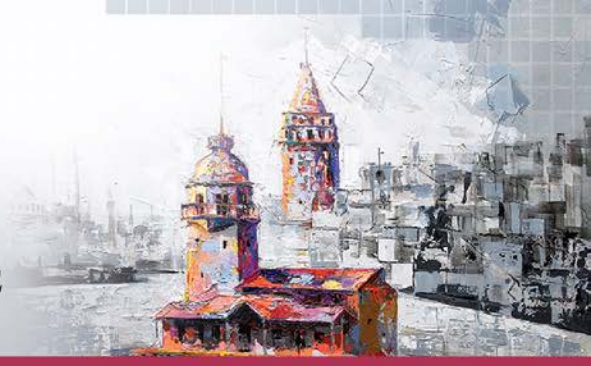
Introduction: Endoscopic sinus surgery is accepted as effective surgical approach in the management of chronic rhinosinusitis. Different clinical pictures can be seen in chronic rhinosinusitis with nasal polyps (CRSwNP). Unfortunately, eradication of disease is not possible in all cases even if it is performed by experienced surgeons. The polyps may regenerate, and symptoms may come back less or more in different durations in significant number of patients. Due to complex pathophysiology of the disease, the revision in sinus surgery is accepted as multifactorial problem. We aimed to investigate both the possible host and surgical factors which are more related with increased frequency and earlier revision surgeries in CRSwNP.

Methods: Patients operated two or more times in between 2010 and 2019 years, were retrospectively identified and total of 49 patients with CRSwNP (38 male, 11 female) were statistically analyzed. Effect of both host and surgical factors on frequency and duration of revision surgery in CRSwNP were assessed.

Results: Samter's Syndrome was found as a significant host factor affecting recurrence and revision surgeries. Also, we observed significantly more frequent scarring and adhesions in patients with higher number of operations.

Conclusion: Patients with Samter's Syndrome should be informed for possible revision surgeries. Soft and mucosa preserving technique is important for less scaring and good postoperative results.

Keywords: revision, endoscopic sinus surgery, paranasal sinus, nasal polyps, Samter's Syndrome



PP-131

OXYMETAZOLINE HYDROCHLORIDE 0.05% AND FLUTICASONE FUROATE 27.5MCG AS EFFECTIVE COMBINATION IN CASES OF ALLERGIC NASAL POLYPOSIS AND ALLERGIC SINUSITIS

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ENT centre Indore India

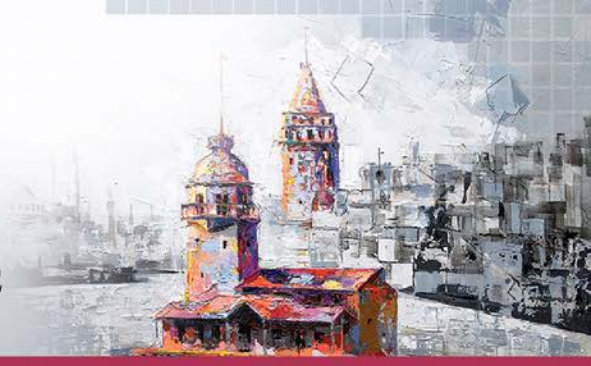
Purpose Of Study: To relive patients of nasal obstruction,rhinorrhoea and headache in patients of allergic nasal polyposis and allergic sinusitis.

Methods And Material: 25 young adults between the age of 20 and 40 years of age of either sex who were suffering from allergic nasal polyposis and allergic sinusitis who were not ready to get functional endoscopic sinus surgery done and used fluticasone furoate alone and were not satisfied from reduction in symptom score. The above group of patients were subjected to use of oxymetazoline hydrochloride 0.05% w/v two sprays each nostril followed by a interval of 10 minutes and then fluticasone fuorate 27.5mcg two sprays each nostril for fifteen days followed by fluticasone furoate 27.5mcg alone each nostril for two months. There was a remarkable improvement in symptom score mainly pertaining to nasal obstruction, rhinorrhoea and headache.

Conclusion: Alone fluticasone furoate 27.5mcg per spray was not that effective in controlling the symptom score as compared to combined use of oxymetazoline hydrocholoride 0.05% and fluticasone fuorate in cases of allergic nasal polyposis and allergic sinusitis.

Future Guideline: Combined nasal spray of oxymetazoline hyrdocholride 0.05% and fluticasone furoate 27.5mcg for the treatment of of allergic nasal polyposis and allergic sinusitis has shown promising results.

Keywords: Nasal obstruction,Nasal polyposis,Nasal spray



PP-132

EVALUATION OF COMPLIANCE AND ATTITUDE OF PATIENTS WITH ALLERGIC RHINITIS TO NASAL STEROID TREATMENT

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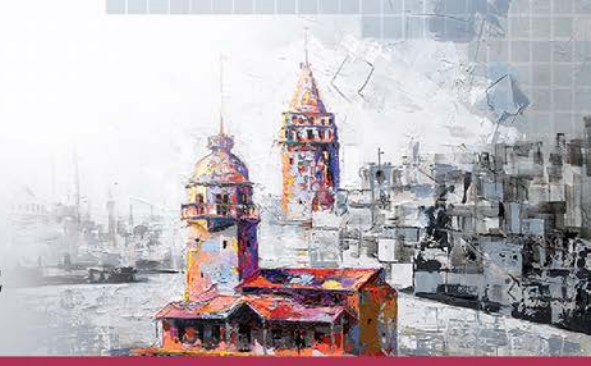
Background- Objectives: Allergic rhinitis (AR) is an inflammatory disease and nasal corticosteroids (NCS) are the most effective drugs used in AR treatment. NCS treatment requires regularity and compliance. In this study, it was aimed to evaluate the compliance and attitude of patients with AR to NCS treatment.

Materials-Methods: Morisky Treatment Compliance Scale-8 (MTCS-8) was performed to the patients to determine their treatment compliance. In addition, a checklist was used to evaluate the patient's ability to use NCS correctly by the physician.

Results: One hundred and four patients were included in the study (F / M: 87/17, mean age 34.7 ± 12.89 years) and 54.8% of the patients had MTCS-8 scores <6. The patients' compliance with NCS treatment was low. The MTCS-8 scores were significantly higher in patients whose symptoms were perennial (p:0.03). In the mono-sensitized patients, MTCS-8 scores were higher (p: 0.028). As the disease duration of the patients increased, MTCS-8 scores significantly decreased (p <0.001). Treatment adherence was higher in patients who benefited from allergen immunotherapy (p:0.015). The most frequently misleading step during the use of NKS was not tilting the head slightly forward and 45 degrees to the side. Drug compliance was significantly better in those who applied this step correctly (p: 0.05).

Conclusion: As in the treatment of all diseases, patient education and the use of drugs by physicians are important in AR treatment. All these trainings increase treatment compliance and provide control of the disease.

Keywords: Allergic rhinitis, nasal corticosteroids, treatment compliance



PP-133

RHINITIS: IS IT BEYOND A LOCAL INFLAMMATION?

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Objective: Rhinitis is the local inflammation of the nasal mucosa with allergic (AR) or nonallergic (NAR) mechanisms but it is not known whether it causes systemic inflammation which can increase the morbidity and mortality. We aimed to investigate the systemic inflammation in patients with chronic rhinitis using novel serum inflammation markers. Therewith, we would answer if these parameters have an effect on determining various endotypes.

Methods: In this retrospective case-control study, 439 patients with newly diagnosed AR (n: 179), NAR (n: 157), and 103 healthy individuals were included. Inflammation related blood parameters were collected; lymphocyte/monocyte ratio (LMR), neutrophil/lymphocyte ratio (NLR), platelet/neutrophil ratio (PLR), and systemic immune inflammation index (SII).

Results: Neutrophil counts (4.51±0.09, 4.54±0.1 vs 3.73±0.1, p<0.001). NLR (1.91± 0.56, 1.89±0.61, 1.61±0.59, p<0.001), LMR (5.76±0.17, 5.93±0.17, 5.1±0.15, p=0.005), SII (533.3±16.6, 558.1±20.9, 479.9±22.2, p=0.035), and CRP (1.44±0.09, 1.67±0.09, 0.87±0.04, p<0.001) were significantly higher both in AR and NAR groups than the controls, respectively. SII was correlated with presence of asthma (r=0.146, p=0.007).

Conclusion: We found that systemic circulation of inflammatory cells were significantly increased in rhinitics irrespective of allergy. This study showed that not only AR, but also NAR triggers a systemic increase of inflammation which supports the link between rhinitis and comorbid conditions such as asthma, chronic hyperplastic eosinophilic sinusitis, nasal polyposis, and serous otitis media. Therefore, effective treatment is suggested for both local inflammation and its systemic manifestations.

Keywords: allergic rhinit, systemic immune inflammation index, biomarkers, inflammation, lymphocyte to monocyte ratio, neutrophil to lymphocyte ratio

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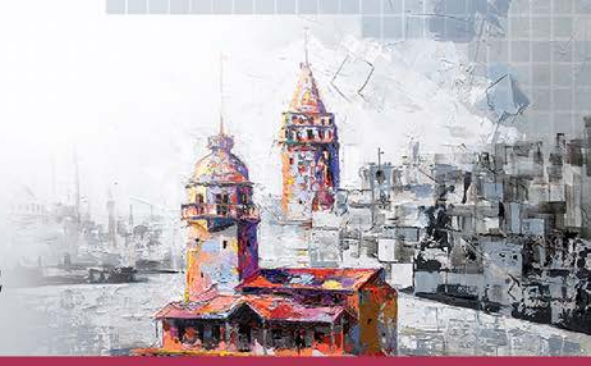

PP-134

CHRONIC RHINOSINUSITIS WITH NASAL POLYPS AND PREVALENCE OF TYPE 2 INFLAMMATION SIGNATURE: RESULTS FROM TWO PHASE 3 CLINICAL TRIALS, SINUS-24 AND SINUS-52

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[10]Global Medical Affairs, Sanofi, Bridgewater, NJ, USA

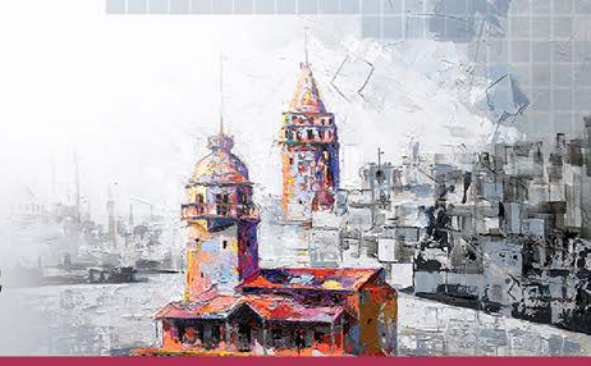
Background And Objective: Several published algorithms describe identification of type 2 inflammation in chronic rhinosinusitis with nasal polyps (CRSwNP) without tissue analysis. Here, we assessed the prevalence of type 2 inflammation in patients with severe CRSwNP from the SINUS-24/SINUS-52 (NCT02912468/NCT02898454) studies using these algorithms.

Materials-Methods: Type 2 inflammation was assessed at baseline (pooled SINUS-24/SINUS-52; N=724) according to: 1. EPOS consensus guidelines (eosinophils ≥250 cells/μL or IgE ≥100 IU/mL); 2. EUFOREA 2020 position paper (comorbid asthma or eosinophils ≥300 cells/μL); 3. GINA threshold for airway inflammation (eosinophils ≥150 cells/μL); 4. eosinophils ≥150 cells/μL or IgE ≥100 IU/mL; 5. type 2 comorbidity (atopic dermatitis/allergic rhinitis/asthma/nonsteroidal anti-inflammatory drug-exacerbated respiratory disease); 6. eosinophils ≥150 cells/μL or IgE ≥100 IU/mL or type 2 comorbidity.

Results: The proportions of patients by each type 2 inflammation definition were: 1. 83.4%; 2. 76.4%; 3. 85.8%; 4. 92.3%; 5. 78.6%; and 6. 96.7%. In patients without comorbid asthma at baseline (n=296) the proportions were: 1. 75.0%; 2. 42.2% (asthma criterion excluded); 3. 79.1%; 4. 87.8%; 5. 47.6%; and 6. 91.9%. In patients with low baseline IgE levels (n=82) (<30 IU/mL) (IgE criterion excluded from 1, 4, and 5) the proportions were: 1. 58.5%; 2. 64.6%; 3. 74.4%; 4. 74.4%; 5. 68.3%; and 6. 91.5%.

Conclusions: Most of patients with CRSwNP, irrespective of the presence of comorbid asthma or low IgE levels, displayed a type 2 inflammatory signature. These algorithms can be used for CRSwNP patient characterization without tissue analysis.

Keywords: Comorbidity, inflammation, nasal polyps, sinusitis



PP-135

SNOT-22 ITEMS MOST IMPORTANT TO PATIENTS WITH CHRONIC RHINOSINUSITIS WITH NASAL POLYPS AND THE EFFECT OF DUPILUMAB AND ASSOCIATION WITH OBJECTIVE DISEASE MEASURES

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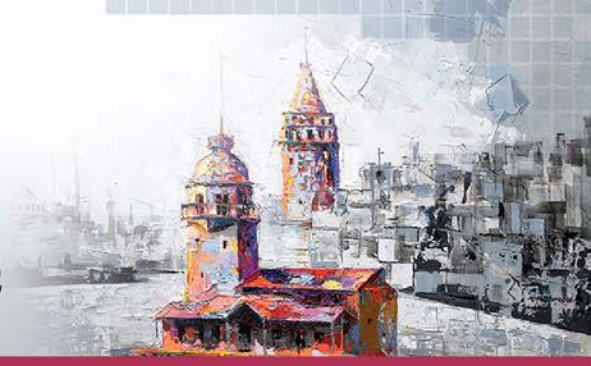
Background And Objective: Dupilumab significantly improved 22-item Sino-Nasal Outcome Test (SNOT-22) total score vs placebo in SINUS-24/SINUS-52 (NCT02912468/NCT02898454) and was well tolerated. This post-hoc analysis aims to identify the SNOT-22 items most important to patients, assess the effect of dupilumab, and association with objective disease measures.

Materials-Methods: Patients ranked the most important SNOT-22 items at baseline. Item severity (0-5 scale, 4 or 5 considered severe) was assessed at baseline and Week 24 (W24),changes <0 points classed as improvement. Nasal polyp (NPS) and Lund-Mackay (LMK) scores were assessed in patients with/without SNOT 22 items improvement at W24.

Results: Decreased sense of smell/taste and nasal blockage (NB) were the 2 most important SNOT-22 items at baseline (87.4% and 82.4% of patients, respectively). Dupilumab-treated patients improved in these items at W24 vs placebo: smell/taste, 76.7% vs 30.4%; NB, 79.5% vs 44.4%. The proportion of patients ranking the top 2 items severe at baseline was 81.9% (smell/taste) and 60.5% (NB). Dupilumab reduced the proportion of patients with severe symptoms at W24 vs placebo: smell/taste, 19.8% vs 71.3%, odds ratio (95% CI), 0.09 (0.06,0.13); NB, 8.0% vs 36.0%, 0.19 (0.13,0.28); all P<0.0001. Dupilumab improved NPS and LMK at W24 in all patients; improvements were numerically greater in patients with SNOT-22 item improvement: LS mean difference vs placebo, with/without improvement, NPS smell/taste: -1.78/-1.19, NB: -1.90/-1.01; LMK: -5.77/-4.26, -6.22/-3.28; all P<0.0001.

Conclusions: Dupilumab reduced the severity of SNOT-22 items most important to patients vs placebo. Improvement in these symptoms signals greater improvement in objective measures.

Keywords: Nasal polyps, Sinusitis, SNOT-22, Smell, Taste



PP-136

THE EFFECT OF HEALTH LITERACY ON ALLERGIC AND NON-ALLERGIC RHINITIS SYMPTOM CONTROL

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Introduction: Rhinitis is a chronic allergic disease that can impair quality-of-life. The effect of health literacy on rhinitis symptom control is unknown. This study was aimed to determine the relationship between health literacy and rhinitis symptoms in patients with allergic (AR) and non-allergic (NAR) rhinitis.

Methods: Patients who applied to allergy outpatient clinic were grouped as AR (n=63) and NAR (n=47). Rhinitis symptoms were evaluated by total nasal symptom score (TNSS). Participants fulfilled "Turkey Health Literacy Scale-32 (TSOY-32)" which has final scores as "0-lowest" and "50-highest".

Results: Participants' median age was 31 years (18-61), 60.9% F and 49.9% were university graduates. Rate of having "inadequate/limited" health literacy level was 63.8% in NAR and 61.9% in AR, without significant difference. Results of 6 sub-dimensions of TSOY-32 were similar between the groups, and "inadequate/limited" score rates of the whole group were; "understanding health-related information: 35.5%", "accessing health-related information: 38.2%", "treatment and service: 50%", "use/application of health-related information: 51.8%", "protection from diseases and health promotion: 62.7%", and "evaluating health-related information: 70.9%". NAR group had higher frequency of insufficient "use/application of health-related information" score than AR (61.7% vs 44.4%, p=0.05). Among the factors determining health literacy as AR/NAR, age, TNSS, having comorbidity, and education level, only gender was related to general TSOY-32 levels ($p<0.05$).

Discussion: It was found that general health literacy was below adequate level in all rhinitis groups without difference between AR-NAR. Additionally, no direct relationship was found between rhinitis symptom scores and health literacy. Female gender was a risk factor for low health literacy.

Keywords: Allergic rhinitis, non-allergic rhinitis, health literacy, total nasal symptom score

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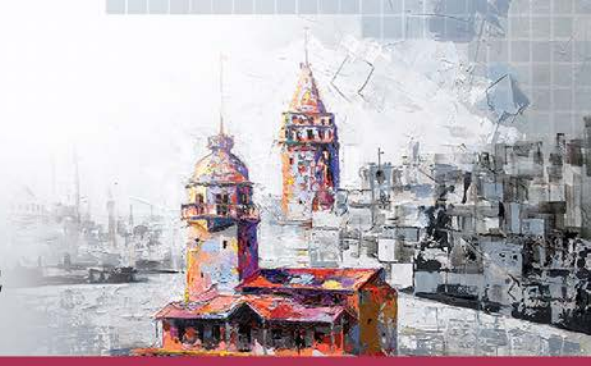

PP-137

AROMA: REAL-WORLD GLOBAL REGISTRY TO ASSESS LONG-TERM OUTCOMES OF DUPILUMAB TREATMENT IN PATIENTS WITH CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

Adam Chaker[1], Claus Bachert[2], Joseph Han[3], Peter Hellings[4], Anju Tripathi Peters[5], Enrico Heffler[6], Siddhesh Kamat[7], Haixin Zhang[7], Scott Nash[7], Asif Hameed Khan[8], Lucía De Prado Gomez[9], Juby Anne Jacob Nara[10], Shahid Siddiqui[7]

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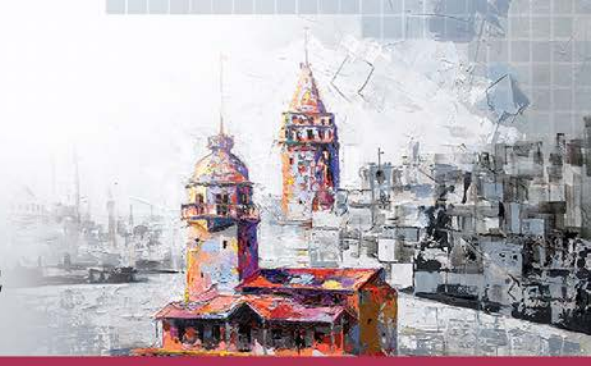
Background And Objective: Chronic rhinosinusitis with nasal polyps (CRSwNP) is a predominantly type 2 inflammatory disease of the nasal and paranasal sinuses. Dupilumab, a fully human monoclonal antibody, blocks the shared receptor component for interleukin (IL)-4 and IL-13, which are key and central drivers of type 2 inflammation. In clinical trials, dupilumab significantly improved objective and patient-reported measures of CRSwNP vs placebo, and was well tolerated. The AROMA global registry (NCT04959448) aims to collect real-world, long-term data on the characterization, utilization, effectiveness, and safety of dupilumab for CRSwNP treatment.

Materials-Methods: AROMA will enroll approximately 1000 adults newly starting dupilumab for CRSwNP according to local labelling across 120 global sites. Post baseline study visits are scheduled every 3 months to Month 24, then every 6 months until Month 36 (end of study; some patient-reported outcomes will be assessed more frequently).

Results: Baseline characteristics will include demographics, medical/surgical history, and presence of type 2 comorbidities (eg asthma). Effectiveness will be assessed by a range of patient-reported symptoms (eg loss of smell, nasal congestion, 22-item Sino-Nasal Outcome Test) and objective measures conducted as part of routine care (eg Lund-Mackay computed tomography). Treatment patterns and long-term safety will be recorded.

Conclusions: AROMA is the first global, real-world, prospective, longitudinal registry to characterize patients with CRSwNP starting dupilumab treatment. Results from AROMA will complement data from dupilumab randomized clinical trials, generating clinical evidence to address gaps in knowledge regarding real-world treatment patterns and outcomes among patients with CRSwNP and associated type 2 disease comorbidities.

Keywords: Adult, Biological agents, Chronic sinusitis, Nasal polyps, Study design



PP-138

SLEEP QUALITY DISTURBANCES AND AFFECTIVE DISORDERS IN CHILDREN WITH ALLERGIC RHINITIS

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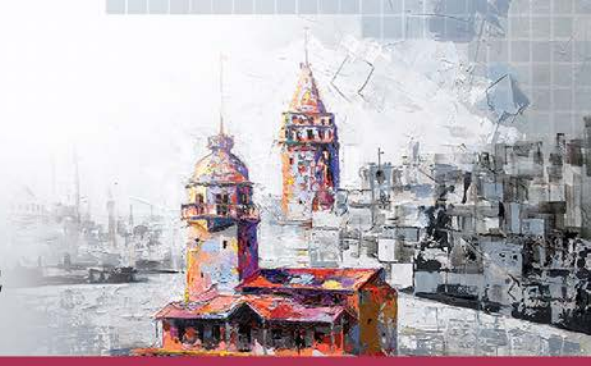
Objective: Allergic diseases were associated with depression and anxiety disorders. This study aimed to investigate between allergic rhinitis and depression, affective disorders, sleep quality disturbances.

Materials-Methods: 105 participants were included in this cohort study. All the participants with allergic rhinitis were followed up by Sakarya University Training Hospital Pediatric allergy and immunology clinic. Disease severity, sleep quality, mood disorders, affective disorders were evaluated using validated questionnaires such as the children's sleep habits questionnaire, Kiddie schedule for affective disorders and schizophrenia. Statistical program for social science (SPSS) 25.0 version was used in statistical analysis.

Results: Sleep quality disturbances in patients with allergic rhinitis was detected at a rate of 61% (n:64). The rate of additional allergic disease in the participants was determined as 60,9% (n:64). The rate of having an allergic disease in the family of participants was determined as 64.8% (n:68). A moderate correlation was found between the academic achievement status of the patients and the presence of additional allergic disease (n:102, r:0,388). A strong correlation was found between the presence of additional allergic diseases and the children's sleep habits questionnaire total score in children with allergic rhinitis or their families (n:49 r:0,573, n:49 r:0,504).

Conclusions: We have demonstrated that the allergic rhinitis and additional allergic diseases were highly risk factors for affective disorders and sleep disorders.

Keywords: allergy, allergic rhinitis, psychiatric disorders, sleep quality



PP-139

ASSESSMENT OF SAFETY OF HUMAN OLFACTORY MUCOSA-DERIVED MESENCHYMAL STEM CELLS IN TREATMENT OF ALLERGIC RHINITIS AND CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

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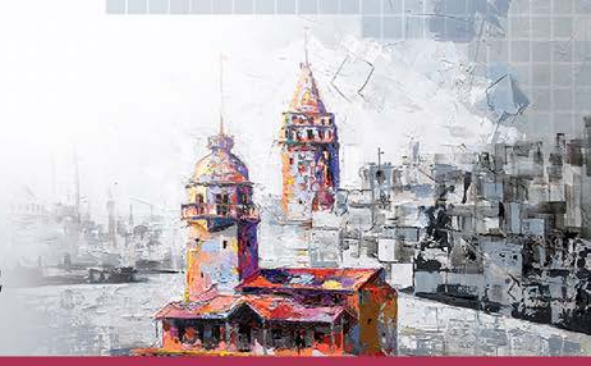
Background and Objectives: Allergic rhinitis (AR) and chronic rhinosinusitis with nasal polyps (CRSwNP) are the most common non-infectious diseases of the nasal cavity. Mesenchymal stem cell (MSC) therapy is a promising method for treatment of AR and CRSwNP due to immunosuppressive properties of MSCs. This study evaluates the safety of MSC therapy for AR, CRSwNP in clinical trials (clinicaltrials.gov NCT05167552).

Materials-Methods: MSCs were obtained from biopsy of olfactory mucosa (OM) of patients with AR, CRSwNP (n=10) and cultured at standard conditions (37°C, 5% CO2). The day before the cell therapy OM-MSCs were primed with 25 ng/ml TNF-α to increase their immunosuppressive properties. CD90+CD105+CD73+HLA-DR–CD31–CD45– OM-MSCs were injected submucosally in the nasal cavity at a dose of 2–3×107 in addition to standard treatment. The endoscopic nasal assessment and clinical observation were performed after cell therapy in 1 to 7 days.

Results: Allergic reactions to OM-MSCs were not identified by intradermal allergy tests before cell therapy. According to nasal endoscopy 30% of patients had unilateral inflammation of the nasal mucosa in the injection area, 20% of patients had nasal mucosa bluish discoloration and 50% had no any reactions in 1 to 3 days after cell therapy with no local reactions later. No systemic reactions related to blood pressure, body temperature, or pulse were noted.

Conclusions: Use of human olfactory mucosa-derived OM-MSCs as therapy for AR, CRSwNP was safe and well tolerated. Allergic reactions and other adverse effects were not detected.

Keywords: cell therapy, MSCs, allergic rhinitis, chronic rhinosinusitis with nasal polyps



PP-140

INCREASING TREE NUTS ALLERGIES, ESPECIALLY WALNUT BY PAST 20 YEARS NATIONWIDE SURVEY IN JAPAN

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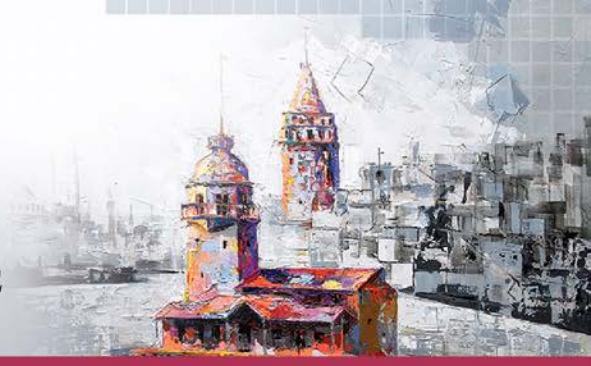
Background and Objectives: The nationwide survey on immediate-type food allergy has been conducted every three years since 2001 in Japan. The aim of this study is to clarify the distribution of causative foods and incidence of food allergy in 2020 in comparison with the previous results.

Methods: This survey included a total of 1,089 volunteer physicians who were members of the Japanese Society of Allergology and the Japanese Society of Pediatric Allergy and Clinical Immunology. Patients who had any allergic reaction within 60 minutes after ingesting causative food and visited their medical institutions were registered. We collected clinical information on causative foods, symptoms, and treatment etc.

Results: A total of 6,080 cases, with a median age of 2 years, were analyzed. The most common causative food was hen's egg (33.4%), followed by cow's milk (18.6%), tree nuts (TN, 13.5%), wheat (8.8%), and peanuts (6.1%). Among 819 cases of TN, walnuts accounted for more than half by 463 cases (56.6%) with 7.6% of the total, more frequent than peanuts alone. Compared to the past survey results, TN have continuously increased since 2014. Walnut cases increased more than 4-fold since 2014 (1.8%). In new onset cases by age group, the percentage of TN allergies have continuously increased in all groups beyond 1 year of age.

Conclusions: The survey revealed TN were the third most causative food after hen's eggs and cow's milk. Compared to the previous survey, the proportion of TN increased mostly in preschool children with a significant increase in walnuts.

Keywords: epidemiology, food allergy, nationwide survey, walnut allergy, tree nuts allergy



PP-141

SAFETY OF THE ORAL FOOD CHALLENGE DURING THE CORONAVIRUS DISEASE 2019 (COVID-19) PANDEMIC

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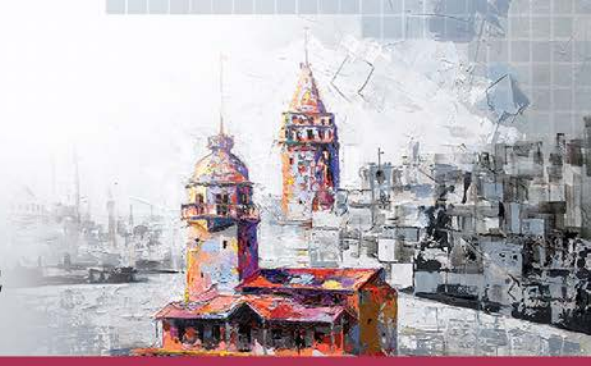
Background and objectives: Coronavirus disease 2019 (COVID-19) pandemic has affected the inpatient oral food challenge (OFC) for severe food allergy (FA) patients. We aimed to determine the safety of OFCs during the pandemic and the potential of salivary loop-mediated isothermal amplification (LAMP) testing to prevent nosocomial infection.

Materials and Methods: We retrospectively examined the clinical data of OFCs from October 2021 to March 2022 (the pandemic) and compared those from October 2018 to March 2019 (the pre-pandemic). During the pandemic, only healthy patients without close contact with COVID-19 were admitted and demonstrated negative LAMP tests received OFC.

Results: 719 patients received OFC (median age: 6.1 years; egg: 214 cases; milk: 201 cases; wheat: 76 cases; peanut: 75 cases; walnut: 62 cases; and others: 91 cases) during the pandemic and were compared to 1259 patients received OFC during the pre-pandemic. During the pre-pandemic and pandemic, there were 672 (53.4%) and 372 (51.7%) patients with a history of an immediate reaction ($p = 0.5122$), 212 (16.8%) and 181 (25.2%) patients with a history of anaphylaxis ($p < 0.001$), 526 (41.8%) and 362 (50.4%) patients with positive cases of OFC ($p < 0.001$), and 49 (3.9%) and 34 (4.7%) patients with anaphylaxis ($p > 0.999$), respectively. Although two patients were diagnosed with COVID-19 by LAMP testing, no nosocomial infections occurred.

Conclusions: OFCs could be conducted safely even under conditions in which Omicron variant became dominant and the number of COVID-19 patients in children increased. LAMP testing was helpful to prevent potential nosocomial infection.

Keywords: food allergy, oral food challenge, coronavirus disease 2019, loop-mediated isothermal amplification test



PP-142

EVALUATION OF PATIENTS WITH COW'S MILK ALLERGY WHO RECEIVED MEASLES OR MEASLES, RUBELLA AND MUMPS VACCINES CONTAINING ALPHA-LACTALBUMIN

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Background: There are measles and measles, mumps and rubella (MMR) vaccines containing alpha-lactalbumin. Some patients with cow's milk allergy reacted to these vaccines.

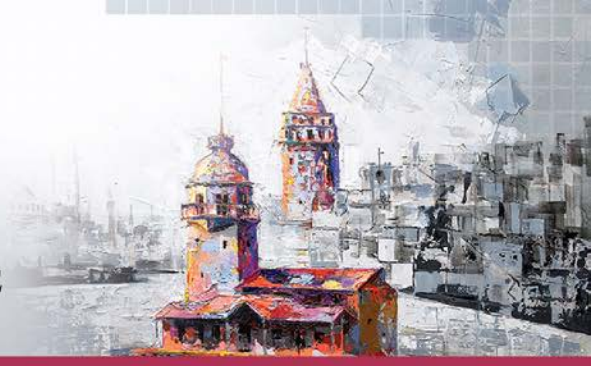
Objectives: In this study we aimed to evaluate the patients with cow's milk allergy who received measles or MMR vaccine containing alpha-lactalbumin.

Materials-Methods: Patients followed up in Allergy Clinic for cow's milk allergy and who received measles or MMR vaccine containing alpha-lactalbumin at 9th or 12th months, were included in the study and their characteristics were analyzed retrospectively from the hospital registry system.

Results: Of the 49 patients included in the study 57% were female. Six patients received measles vaccine whereas 43 patients received MMR vaccine containing alpha-lactalbumin. Vaccine skin tests were performed on those 6 patients.One patient had a positive intradermal test, an alternative vaccine that didn't contain alfa-lactalbumin was administered, while the other 5 patients were vaccinated and no reaction was observed. Anaphylaxis was observed in 3 of 43 patients who received MMR vaccine containing alpha-lactalbumin. All of these patients' first reactions with dairy products were anaphylaxis. Two of those patients' cow's milk-spIgE levels were >100 kU/L and alpha-lactalbumin-spIgE levels were also high as 97 kU/L and 90 kU/L. The third patient's cow's milk-spIgE level was 15.9 kU/L whereas alpha-lactalbumin-spIgE level was 0,4kU/L.

Conclusions: Especially in patients with an initial reaction of anaphylaxis with dairy products and high cow's milk-specific IgE levels, the risk of reaction is high. A low alpha-lactalbumin level does not mean that there will be no reaction.

Keywords: Cow's milk allergy, child, measles, measles mumps and rubella vaccine



PP-143

LABEL READING HABITS AND PERSPECTIVES OF FAMILIES WITH FOOD ALLERGY IN THEIR CHILDREN

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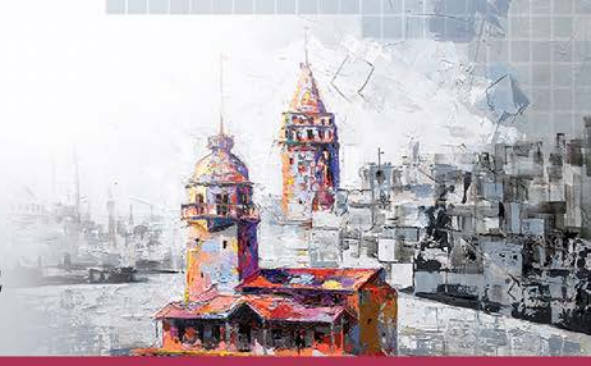
Background and Objectives: Food allergy is an public health problem that can be fatal due to anaphylaxis and affects the quality of life of the patients's parents. With this study, it was aimed to determine how much children with food allergies and their parents read, take into account and know allergy warnings on packaged foods.

Materials-Methods: This study was conducted with 106 children between the ages of 0-18 and their parents who applied to the pediatric allergy outpatient clinic between 01.02.2021 and 31.05.2021. Parents of children with food allergies were asked survey questions on their label-reading habits, how much attention they pay to the labels, innovations that can be made on labels, and food allergy knowledge and awareness.

Results: The study included 106 patients whose 60% were followed up by our clinic less than 1 year. The most common food allergens were eggs (75%), cow's milk (56%). While 39.6% of children rarely consumed packaged products, the proportion of children who did not consume packaged products at all was 32.1%. While all parents stated that they read the labels, 65.1% announced that labeling was inadequate in Turkey and that it could be more noticeable if the symbols (53.6%) or bold text (39.1%) were used.

Conclusions: The results of this study show that parents with a diagnosis of food allergy in their child are highly aware of labels that indicate the content of the product, but they think that the labels are insufficient in terms of content and shape.

Keywords: child, food allergy, label, parents



PP-144

HIGH FAMILY HISTORY OF RED MEAT ALLERGY AND VENOM ALLERGY IN ALPHA-GAL SYNDROME

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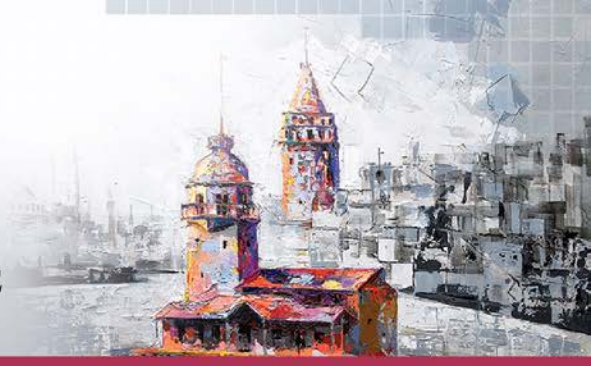
Background: α-Gal syndrome (AGS) is a food allergy with severe delayed allergic reactions, mediated by IgE-reactivity to galactose-α1,3-galactose (α-Gal). AGS is strongly associated with tick bites. An increased incidence of venom sensitization has been found in AGS patients. Here, we evaluated the the clinical characteristics of adult patients with AGS and accompanying venom allergy in Ordu,Turkey.

Methods: Our study included 28 patients with positive α-Gal IgE and exhibiting allergic symptoms after consumption of mammalian meat and/or products between 2018 and 2022.

Results: A total of 28 patients were included. All patients were living in the countryside and had a history of contact with ticks during the hazelnut harvest. Most of the patients were male (64.2%) and mean age was 32.86 ± 11.29 years. Time to onset of symptoms after consumption of red meat was 2.67 ± 2.5 hours and mean age of meat allergy was 11.34 ± 9.8. A blood group was the most common group (57.1%), asthma was the most common allergic comorbidity (57.1%). A family history of venom allergy reported by 13 patients(46.4%) and family history of meat allergy reported by 18 patients (64.2%). Venom allergy was present in 46.4% of AGS patients. Most common reaction type was anaphylaxis (61.5%).

Conclusion: We believe that there may be shared immunologic factors and similar antigens; making venom allergic patients more susceptible to AGS and genetic factors could have an important role.

Keywords: alpha gal, venon allergy, anaphylaxis



PP-145

BEETROOT AS A RARE CAUSE OF ANAPHYLAXIS IN A CHILD

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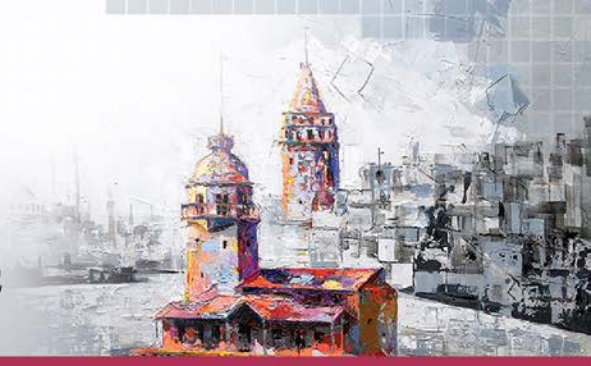
The beet (Beta vulgaris) is a plant in the Chenopodiaceae family. There have been only a few allergies to beetroot. Two cases of anaphylaxis after beet ingestion were reported, in one case skin sensitivity to beetroot was demonstrated and the other was confirmed by an oral provocation test. Here, we present a case of food anaphylaxis attributed to the beetroot, sensitivity proven by skin tests. An 11-year-old boy was referred to our clinic for evaluation of anaphylaxis after eating boiled beetroot. The patient described shortness of breath, throat tightness, swelling, and redness of the eyelids one hour after eating the soup containing beetroot. The prick-to-prick test performed with fresh and boiled beetroot was positive. The patient and his family were informed to avoid beet intake and an epinephrine autoinjector was prescribed. A second episode of anaphylaxis occurred 7 months after the first anaphylaxis. He had drank mixed fruit juice with dinner. After 30 minutes the dinner he complained of bilateral eyelid swelling, shortness of breath, and cough. It was evaluated as anaphylaxis on admission to the emergency department. His symptoms completely regressed after intramuscular epinephrine, methylprednisolone, and inhaled salbutamol. The second episode of anaphylaxis was thought to be caused by the beet-derived colorant in the juice. To our knowledge, this is the third case of food anaphylaxis to beetroot reported. Our findings draw attention to beetroot and beet-derived additives in processed foods as potential food allergens.

Keywords: Anaphylaxis, Beetroot, Food allergy



PP-146

PEPPERMINT FOOD AND ALLERGY CONTACT

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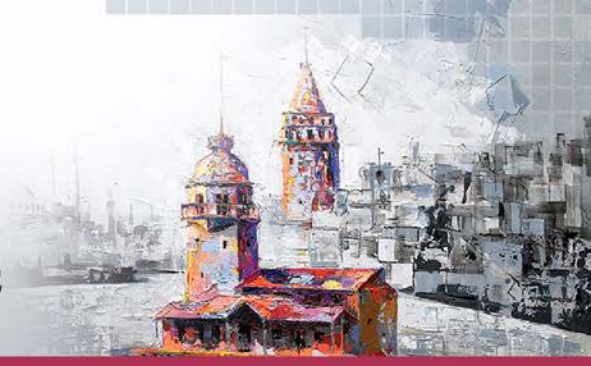
Background and Objectives: Products derived from Mentha piperita (peppermint) and Mentha spicata (spearmint) are frequently used in cosmetics and food or medicinal flavorings. However, allergy to Mentha and other spices is infrequent, and it has only been described in adults. The objective is to investigate a case of allergic symptoms related to mint exposure in order to detect proteins binding serum specific IgE.

Materials-Methods: A 41-year-old male patient presented a history of allergic episodes to cosmetics containing menthol and foods and medicines containing mint flavor. Clinical reactions included urticariform reaction, nasal blockage, sneezing and hydrorrhea and were controlled by oral antihistamines. Skin prick testing was performed with a commercially common inhalants and foods. Commercial radioallergosorbent tests (RAST) were performed using peppermint, oregano, basil and thyme. Prick by prick test was performed to peppermint, basil, oregano, and thyme. Reducing conditions SDS-PAGE and Western-blot were performed using extracts of Mentha piperita, Mentha spicata and Ocimum basilicum (basil) from fresh leaves.

Results: The skin prick test was positive to house dust mites and negative to foods. Specific IgE (CAP System) was only POSITIVE to peppermint (0.4 kU/l). Prick by prick was POSITIVE for Mentha piperita fresh leaf. A 67 kDa band was shown to bind IgE in peppermint extract by immunoblotting.

Conclusions: We describe a case of allergy to mint with symptoms after ingestion, and topical administration. A 67 kDa protein was identified in peppermint by the patient's serum IgE. No Mentha piperita allergens have been described so far.

Keywords: contact allergy, food allergy, peppermint, spice



PP-147

NUTS AND SEEDS IN INFANT COMPLEMENTARY FEEDING PRACTICE IN TURKEY

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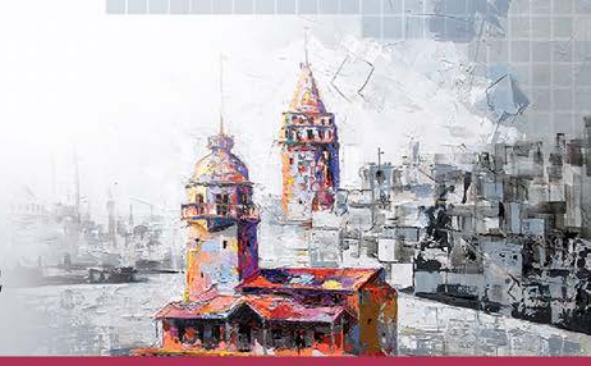
Background: Turkey is characterized by the most common food allergies (FAs) to nuts, seeds and peanuts, respectively. There is lack of data for the consumption practice in the early childhood period when FA develops.

Method: In order to document the nut and seed consumption practice in early childhood, caregivers of infants with FA and healthy controls were questioned face to face.

Results: A total of 75 healthy controls, [61.3% male, median age 17.3 months] and 96 with FA [71.9% male, median age 16.8 months, 67.7% with multiple FA] were allocated. The majority of healthy controls started to consume walnuts (96%) and sesame (93.3%), followed by hazelnuts, sunflower seeds, almonds, peanuts, cashew and peanuts (>50% in all) whereas the earliest introduction was with walnuts, hazelnuts and tahini, respectively. In the FA group, although the rate of introduction was slightly lower than the controls, >80% were introduced to walnut and tahini and >50% to other tree nuts. In the FA group, both the rate of exposure to food allergens were slightly lower than healthy controls (almost 80% for walnuts and tahini, >50% for other tree nuts) and the onset time was later. Interestingly, the hazelnut (p=0.048) and almond (p=0.036) introduction timing in the healthy group was significantly earlier than in the FA group.

Conclusion: In Turkey, most infants with or without FA start to consume nuts and sesame seeds in the first year of life, while walnuts, sesame and hazelnuts are the earliest ones.

Keywords: Food allergy, complementary feeding



PP-148

INVESTIGATION OF PREVALENCE OF COW'S MILK AND EGG ALLERGY IN ONE YEAR OLD BABIES IN GAZIANTEP IN TURKEY

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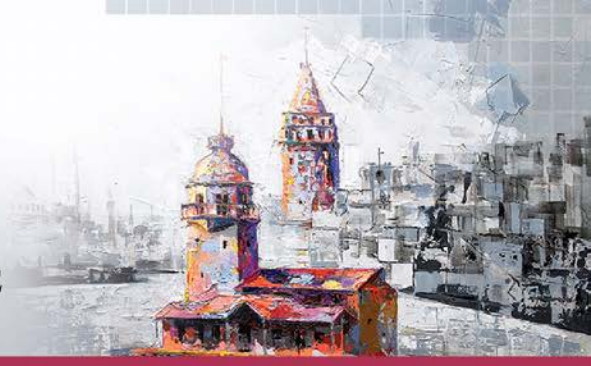
Aim: Cow's milk and egg allergy are the most important food allergies in infancy. There are very few studies on prevalence of cow's milk and egg allergy in our country. In our study, we aimed to determine the point prevalence of these allergies and the factors affecting this, which started to be a serious health problem for babies.

Methods: One -year-old vaccinations to family health centers in Gaziantep province Cow's milk and egg skin prick test for all babies admitted for done. Questionaire form was filled by discussing with the parents. Complete blood count, cow's milk and egg specific IgE tests were performed from babies who were positive for allergy skin test. Oral challenge test were performed with related food in babies with positive skin test.

Results: The prevalence of egg allergy was 3.34% and the prevalence of cow's milk was 0.77%. It was revealed that the risk of egg allergy increased in babies with high educated mother (p=0,029). It was found that atopic dermatitis was more common in infants with food allergies (p<0,0001). Egg allergy and food allergy were observed to occur more in male gender (p=0,035) (p=0,023).

Conclusion: According to the previous studies in our country, the prevalence of cow's milk and egg allergy was increased. We conclude that egg allergy is more common than cow's milk allergy. It was concluded that there is a very close relationship between food allergy and atopic dermatitis.

Keywords: Cow's milk allergy, egg allergy, skin prick test, oral food challenge test



PP-149

ARE THERE ANY DIFFERENCES IN OMALIZUMAB EFFICACY BETWEEN YOUNG AND ELDERLY ASTHMATICS ?

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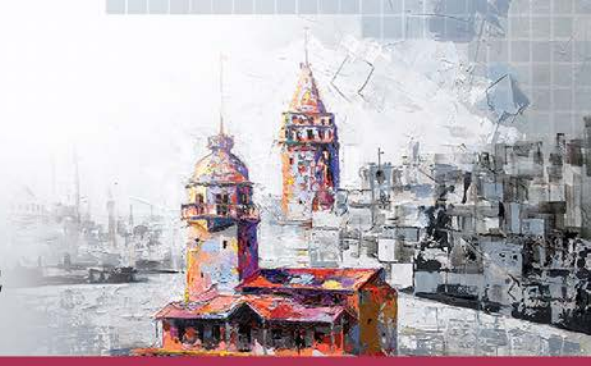
Introduction: Omalizumab, a humanized monoclonal anti-IgE antibody, has largely demonstrated its efficacy in severe atopic asthma. There are limited data regarding the effectiveness of omalizumab in elderly patients with severe allergic asthma. Our study aimed to evaluate the long-term efficacy of the anti-IgE antibody omalizumab in elderly (aged >65 years) asthmatics and compared with young asthmatics.

Methods: This study was an observational, retrospective, tertiary single-center study that we evaluated and compared the clinical outcome of adult patients with atopic severe asthma (134 young and 33 elderly), who achieved good control after the first year of treatment with omalizumab between January 2008 and January 2020. Effectiveness was assessed by considering symptom scores (GINA categorical), daily oral corticosteroid (OCS) dosage, blood eosinophil counts, pulmonary function, and number of severe exacerbations and hospitalizations within the last 1 year.

Results: Omalizumab demonstrated significant improvement in the clinical status of elderly asthmatics as measured by GINA, which decreased from 3.56±0.89 to 1,11±1.34(p<0.001), number of emergency room visits for asthma decreased from 6.77±9.3 to 0.23±0.8(p<0.001),number of hospitalizations decreased from 1.32±2.04 to 0.16±0.72 (p=0.002).These results were not significantly different from those obtained in young asthmatics. Pulmonary function tests were not changed after omalizumab in elderly asthmatics however FEV1 and FVC was improved significantly from respectively 2.24±0.85 to 2.26±0.8 (p=0.021) and from 2.9±0.9 to 2.92± 0.84(p=0.021) in young asthmatics.

Conclusion: Our study found that omalizumab is as effective as younger severe asthmatics and makes no significant difference in pulmonary function tests.

Keywords: elderly, asthma, omalizumab



PP-150

MOLECULAR DIAGNOSIS IDENTIFIES BLO T 5 AND BLO T 21 AS BLOMIA TROPICALIS COMPONENTS ASSOCIATED WITH ASTHMA

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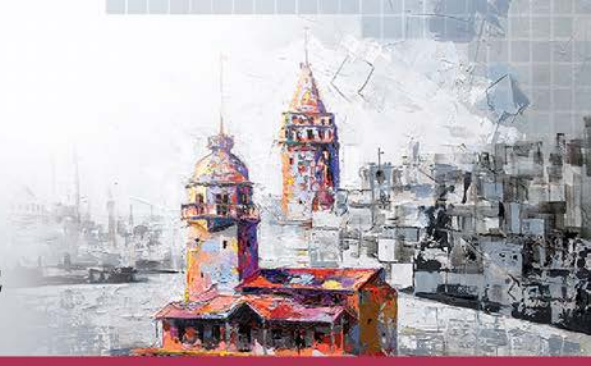
Background and Objectives: B. tropicalis sensitization is associated with asthma in different tropical and sub-tropical countries; however, information about the specific molecular components associated with asthma is scarce. Using molecular diagnosis, we sought to identify B. tropicalis allergens associated with asthma in Colombia.

Materials-Methods: IgE sensitization to eight B. tropicalis allergens was determined using an in-house developed ELISA system in 272 asthmatic patients and 298 control subjects recruited in a national prevalence-study performed in Colombia. Blo t 2, Blo t 5, Blo t 7, Blo t 8, Blo t 10, Blo t 12, Blo t 13 and Blo t 21 were produced as his-tagged recombinant proteins and purified by affinity chromatography (Colciencias Grant 803-2018). Asthma was defined using an ISAAC-based questionnaire.

Results: 39,5% of patients and 29.4% of control subjects were positive to at least one allergen (p=0.012). Blo t 2 was the most common sensitizer in the sample study but sensitization to this allergen was not associated with asthma. In contrast, sensitization to Blo t 5 (aOR: 1,61; 95%CI: 1,05-2,47; p=0,03) and Blo t 21 (aOR: 1,86; 95%CI: 1,20-2,87; p=0,005) was associated with asthma. Specific IgE levels to Blo t 21 and to Blo t 5 were also significantly higher in the disease group.

Conclusions: Although Blo t 5 and Blo t 21 has been described as common sensitizers, this is the first report of their association with asthma in Colombia. Both components could be included in molecular panels for allergy diagnosis in the tropics.

Keywords: Molecular diagnosis, Blomia tropicalis, Blo t 5, Blo t 21, Asthma, Allergy



PP-151

THE ROLE OF BIOLOGICS IN THE MANAGEMENT OF PATIENTS WITH ASTHMA AND CHRONIC RHINO SINUSITIS WITH NASAL POLYPOSIS

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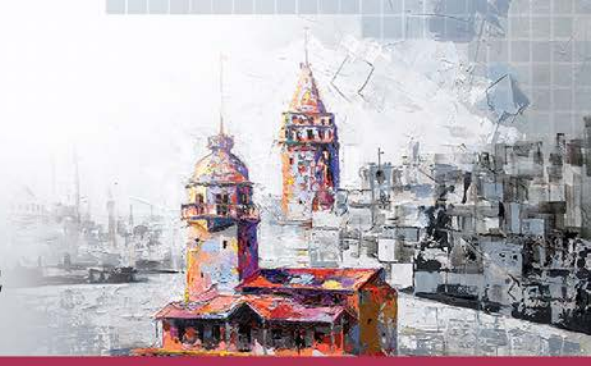
Background and Objectives: Severe asthma can be associated with chronic rhinosinusitis with nasal polyps (CRSwNP). The management includes targeted therapies with biologics. We investigated the role of biologics in management of severe asthma associated with CRSwNP

Materials-Method: A cross-sectional prospective study of 141 patients type 2 inflammatory respiratory disease. Patients were recruited from respiratory allergy OPD clinic at a tertiary allergy center in Kuwait. Asthma was defined according to ATS/ERS criteria

Results: Mean age of patients 43.3 years, SD 12.7. A total of 141 patients were recruited and 79 received biologic therapy for CRSwNP. We had 57 patients (72.2%) with associated asthma. 93.6% were eligible for biological therapy. Oral corticosteroid (OCS) courses were frequently used in 84 patients (59.6%) in the previous year for CRSwNP. However, 98.7% had no OCS after biologic initiation. 62.4% of patients had at least 2 or more surgeries in the previous year prior to biologic therapy. Dupilumab was the common biologic used for patients with type 2 inflammatory respiratory diseases

Conclusion: Majority of patients with type 2 inflammatory respiratory diseases were eligible for biologic therapy and this decreased OCS therapy significantly

Keywords: asthma, CRSwNP, biologic, type 2



PP-152

PROGNOSTIC FACTORS IN SEVERE EOSINOPHILIC ASTHMA IN AN ADULT POPULATION

Clara Padro Casas[1], Maria Basagaña Torrentó[1], Carlos Martínez Rivera[2], Ignasi Garcia Olivé[2], Maria Del Mar Martínez Colls[3], Carlos Pollán Guisasola[4], Aina Teniente Serra[5], Eva Martínez Cáceres[5], José Tomás Navarro Fernando[6], Jorge Abad Capa[2], Albert Roger Reig[1]
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Introduction & Objectives: Uncontrolled severe eosinophilic asthma represents a challenging health problem. Our objective was to characterise the variables that predict poor asthma control.

Methods: A prospective cohort study was conducted with 98 adult patients with severe asthma according to GINA with ≥0.22X109/L blood eosinophils. Demographic and atopic data, lung function, ACT, AQLQ, and exacerbations were recorded. Blood and sputum cells, interleukins (TH1,TH2,TH17 families) and blood innate lymphoid cells 1,2,3 were collected. Patients were followed for one year to assess asthma control.

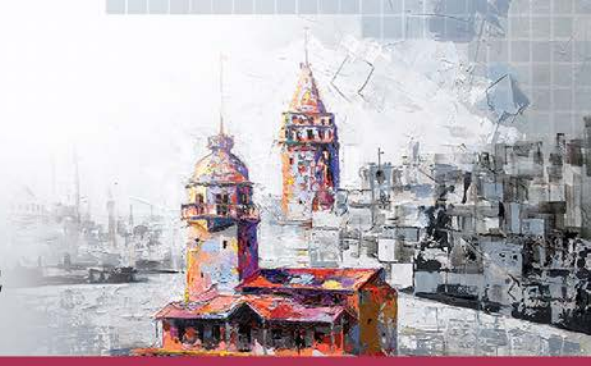
Results: Mean age was 47.2y., 73,5% female, 61% adult onset asthma, inhaled corticosteroids medium dose 1405ug (budesonide equivalent), 11% took systemic corticosteroids, 57,7% showed ACT<20, 58% had FEV1<80% and 20,4% had >1exacerbation previous year. 81,7% had any allergic sensitization. Mean blood eosinophils were 467cels/uL, mean sputum eosinophils 4.7% and 48.3% had sputum eosinophilia(>3%).

We divided our sample into 2 groups based on asthma control during the follow-up: never controlled(n=48) and sometimes/always controlled(n=50). Never controlled patients were older, had adult onset asthma, were more symptomatic, had less quality of life and worse lung function. No difference based on the allergic sensitization, cellularity and other inflammatory variables.

A stepwise multivariate model showed that obstruction and age were significantly and independently related to Uncontrolled Asthma in the follow-up. For each year, the obstruction increased the possibility of uncontrolled asthma by 4.5%(OR1.045, p=0.026).

Conclusions: Patients with never controlled severe asthma were older, more symptomatic and had worse quality of life and lung function. Obstruction and age were independently related to uncontrolled asthma.

Keywords: asthma control, eosinophilic asthma, biomarker



PP-153

A DESCRIPTIVE STUDY EVALUATING QUALITY OF LIFE AND FACTORS AFFECTING QUALITY OF LIFE IN ADULT ASTHMATIC PATIENTS

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Introduction: Asthma is a chronic inflammatory disease of the respiratory system.Asthma-related quality of life is important for the perceived impact that asthma has on the patients.Study results revealed that the level of asthma control and quality of life(QOL) are related to each other.

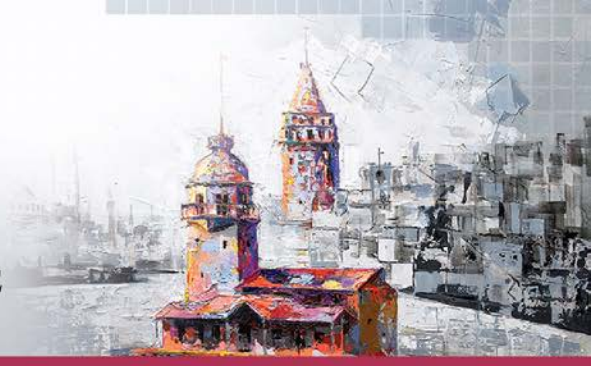
Material-Methods: This descriptive study included patients who were followed up with a diagnosis of asthma. Demographic characteristics,asthma control level,medication adherence and quality of life were evaluated.

Results: This study included 148 adults.The patients' mean age was 48.34 years.On the physical functioning subscale patients with controlled asthma scored higher than uncontrolled asthmatics.On the physical role limitations subscale,patients with controlled asthma scored higher than uncontrolled asthmatics.On the emotional role limitations subscale,patients with controlled asthma scored higher than uncontrolled asthmatics. Evaluation of the relationship between continuous variables and SF-36 scores revealed that age,BMI,level of medication adherence,and asthma symptom control scores are negatively related to SF-36 scores.

Discussion: The results of study showed that age,BMI,level of medication adherence,and asthma symptom control scores were related to QOL in asthmatics.Increased age was related to poor physical functioning subscale scores,increased BMI values to poor physical functioning,physical role limitations,social functioning and general health perceptions subscale scores.On the other hand well control of asthma indicated by decreased GINA scores was related to higher physical functioning,physical role limitations,emotional role limitations,energy/vitality,bodily pain and general health perceptions subscale scores.Regarding the medication adherence it was seen that as medication adherence increased SF-36 mental health subscale scores increased.

Conclusion: Consequently level of medication adherence and control level of the disease are related to quality of life.

Keywords: asthma, quality of life, asthma control, inhaler technique, medication adherence, comorbidities.



PP-154

CLINICALLY RELEVANT ALLERGY AS A PROGNOSTIC MARKER IN SEVERE EOSINOPHILIC ASTHMA

Clara Padro Casas[1], Maria Basagaña Torrentó[1], Carlos Martínez Rivera[2], Ignasi Garcia Olivé[2], Maria Del Mar Martínez Colls[3], Carlos Pollán Guisasola[4], Aina Teniente Serra[5], Eva Martínez Cáceres[5], José Tomás Navarro Fernando[6], Jorge Abad Capa[2], Albert Roger Reig[1]
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Introduction & Objectives: Sensitization to aeroallergens must be associated with symptoms to establish the diagnosis of allergic asthma. Our objective was to compare patients with severe allergic eosinophilic asthma and patients with severe asthma sensitized without clinical relevance.

Methods: Prospective cohort study was conducted. 98 adult patients with severe asthma according to GINA and selected according to ≥0.22X109/L blood eosinophils were enrolled.

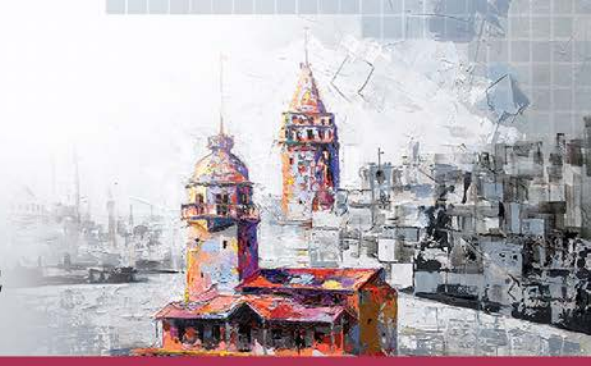
Demographic data, lung function, ACT, AQLQ, and exacerbations were recorded. Blood and sputum cells, interleukins of TH1,TH2,TH17 lymphoid families, and innate lymphoid cells (ILCs) type 1,2,3 in serum were collected. Patients were followed for one year to assess asthma control (ERT/ATSguidelines).

Patients were classified as allergic based on whether sensitivity to allergens (prick test, specific IgE) was clinically relevant, according to the criteria of two independent allergists from the Severe Asthma Unit.

Results: 81.7% had some allergic sensitization, but we described allergic asthma in 36(42.4%) vs. 38(44.7%) of our population with a kappa correlation index of 0.761 (p=0.000) based on the judgment of two allergists. Patients with allergic asthma were younger, had less obstruction (FEV1), lower sputum cellularity (eosinophils and neutrophils), and lower serum IL8 values. No statistically significant differences were detected in exacerbations or symptoms. No differences were observed in other inflammatory profiles (interleukins, lymphoid families, or ILC).

Conclusions: In severe eosinophilic asthma, sensitivity to clinically insignificant aeroallergens should not be characterized as allergic asthma, as they may represent different profiles. Eosinophilic allergic asthma would be associated with younger patients and with better control of lung function.

Keywords: Severe asthma, allergic asthma, allergen sensitization



PP-155

Resistance to steroid of inflammation parameters in a dog allergen-induced murine model of asthma

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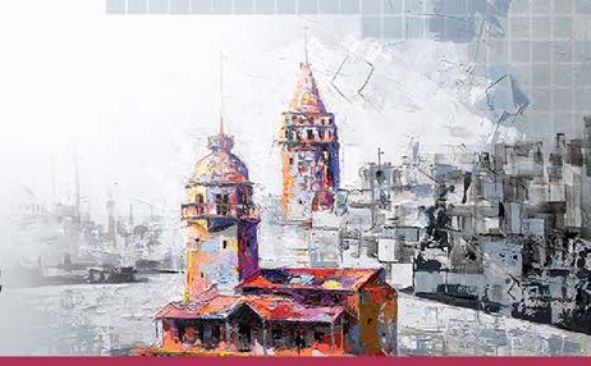
Background and Objectives: In a previous work, we reported interesting properties of an original dog allergen-induced murine model of chronic asthma, including mainly Th17-driven and neutrophilic lung inflammation, mimicking non-T2 asthma. In this work, we aimed to determine whether or not this model exhibits features of severe asthma by assessing its resistance to steroids.

Materials-Methods: Female C57BL/6J were sensitized and then challenged with intranasal administration of dog allergen or buffer over 5 weeks. During the last week of challenge, mice were treated by daily intraperitoneal injection of 1 mg.kg-1 dexamethasone or buffer. Twenty-four hours after the last administration, asthma parameters were measured.

Results: Airway hyperresponsiveness assessed in response to increasing doses of methacholine showed no statistically significant difference between dexamethasone-treated and positive control mice. Conversely, the administration of dexamethasone significantly decreased the total cell count (86950 vs 237109, $p<0.0001$) and the neutrophil count (46919 vs 116842, $p<0.0001$) in bronchoalveolar lavage but they remained higher than those from the negative control group (respectively 19867 and 493, $p=0.03$ and $p=0.01$). Interleukins 13 and 17 expression in lungs was not modified by dexamethasone as compared to positive controls ($p>0.999$).

Conclusions: Although some features of this dog-allergen-induced model of asthma are improved by the administration of steroids, we found persistent neutrophilic and Th17 inflammation in lungs, suggesting resistance to steroids.

Keywords: severe asthma, steroid resistance, dog allergen, Th17 inflammation, neutrophilic inflammation.



PP-156

ASSESSING PRODUCTIVITY LOSS IN ASTHMATIC WORKERS

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Background and Objectives: Asthma can be a significant source of impairment. In Tunisia, asthma is one of the leading nonmusculoskeletal causes of work limitation affecting millions of young and active workers. This study aims to assess work productivity and activity Impairment in asthmatic workers.

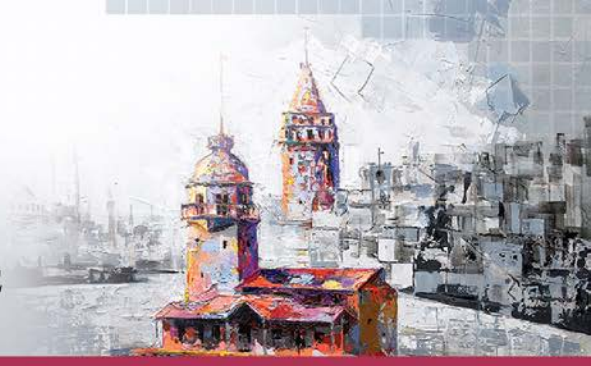
Materials-Methods: The study population were enrolled from the pneumology department of the Teaching Hospital of Mahdia (Tunisia) from 2020 to 2021.

Data collection was based on a synoptic sheet containing the socio-demographic and professional characteristics of the participants. Informations related to their work productivity was assesed using the validated questionnaire of Work Productivity and Activity Impairment (WPAI).

Results: One hundred and one active workers affected with asthma were included in this study. Thirthy percent of them worked in the textile industry, 14% in the cleaning sector and 12 % in the healthcare sector. The average number of hours missed due to health conditions was 2.6 hours per week. The impact of the general health condition on work productivity and current activities were 3.3±2.5 and 2.9±2.4 respectively. The percentage of absenteeism was 4.2%, while that of presenteeism was 33.1±25.9%. The resulting decrease in productivity was estimated to be 30.4 ± 22.2% on average. Female gender (p=0.02), alcohol consumption (p=0.00), uncontrolled asthma (p=0.00), occupational asthma (p=0.01), as well as was worsening of symptoms in the workplace (p=0.00) were significantly associated with Productivity Loss.

Conclusions: These findings highlight the need for structured patient education and raised awareness of the disease.

Keywords: Asthma, Productivity loss, work



PP-157

FISH PROCESSING REDUCES PARVALBUMIN DETECTABILITY IN GILTHEAD SEABREAM AND EUROPEAN SEABASS

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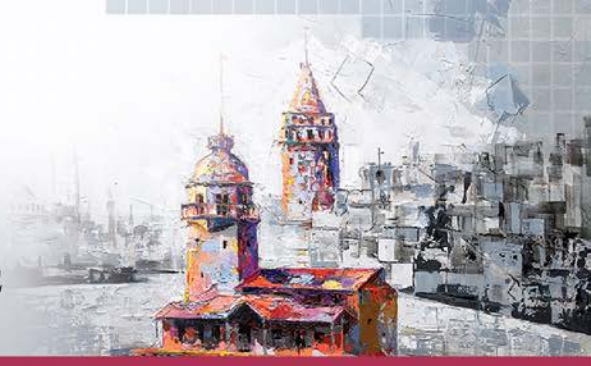
Background and Objectives: Fish consumption enriches human nutrition through supplements of high quality proteins and omega-3 fatty acids. Given the world trade market, seafood can travel long distance until reaching consumers. To extend shelf life and improve fish flavor, processing techniques are commonly used. It has been demonstrated that certain techniques can alter fish allergens potency, which may contribute to alleviate allergic reactions in consumers. Most allergies to fish are caused by parvalbumin. We focused this study on assessing the impact of a thermal process on parvalbumins detectability. Two economically and cultural important species in southern Europe, gilthead seabream and European seabass were used.

Methodology: Muscle samples from both processed and raw fish were used as matrix during the process of boiling at 121°C with 1.1 bar, for 20 min. Proteins were extracted afterwards using a tissue lyser. Parvalbumin was detected using a sandwich ELISA. Significant differences were assessed by a student's t-test after verifying residual's normality and homoscedasticity.

Results: Ultra-high heating with 1.1 bar pressure, showed to reduce significantly ($p<0.05$) parvalbumins detectability when compared to raw samples (from 174.5 ± 14.1 ng/mg to 2.27 ± 0.30 ng/mg and 119.0 ± 23.7 ng/mg to 1.48 ± 0.12 ng/mg for gilthead seabream and European seabass, respectively).

Conclusions: This study showed a reduction in parvalbumin detectability, suggesting that increased pressure and ultra-high heating processing might affect the secondary structure of proteins, most likely through alterations in specific epitopes. Further studies are encouraged in this area to understand parvalbumins allergenicity after being processed.

Keywords: Allergenicity, Parvalbumin, Fish processing, Gilthead seabream, European seabass



PP-158

IgE-MEDIATED ALLERGIC REACTION TO PUMPKIN SEEDS IN AN ADULT

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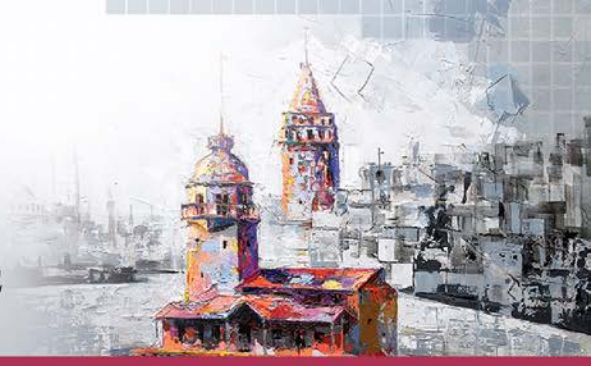
Introduction: Food allergy (FA) is an important and concerning public health problem, which has been increasing in incidence. The prevalence of FA has been rapidly increasing in children in the past couple decades. As these children are growing into adults, this trend is being observed in adults as well. The most common allergens include milk, wheat, egg, soy (seen most commonly in children), peanut, tree nuts, fish, and shellfish.

Case: Male, 38 years old, without previous food allergy. He went to the emergency department with generalized skin pruritus and facial edema, shorthess of breath, laringeal edema thirty minutes after ingesting pumpkin seeds and mixed nuts. Allergic reaction was controlled with adrenalin, antihistaminic and corticosteroid drugs. After treatment, his symptoms resolved within 2 hours. Two months after these symptoms, a similar reaction developed 30 minutes after eating 5 pumpkin seeds. Skin prick test with commercial extract was negative for hazelnut, peanut, almond, walnut. Prick to prick test with pumpkin seeds 15*15mm and watermelon seeds 10*10mm were positive. When the patient ate watermelon seeds, there was no reaction. Cross-reaction information was given to the patient and he was advised to avoid pumpkin seeds.

Conclusion: The described case is interesting due to the fact that the allergy to pumpkin seeds is relatively rare. With the increasingly inclusion of edible seeds globally, it is expected that this allergy will increase exponentially. Cross-reaction between edible seeds should not be overlooked. The gold-standard treatment is the avoidance of this allergen and others with potential for cross-reactivity.

Keywords: food allergy, pumpkin seeds, anaphylaxis,



PP-159

ADULT ONSET LENTIL ALLERGY: A CASE REPORT

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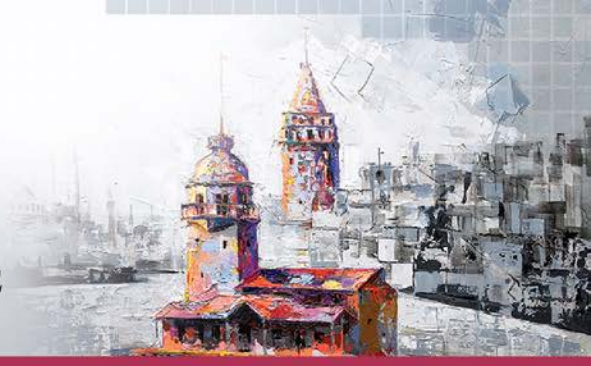
In the past few decades, the prevalence of allergic diseases has increased, with a key role played by food allergies. In adulthood, acute reaction to food allergens has become a common problem and its incidence is increasing. Female, 38 years old. There were no previous manifestations of food allergy. The patient described itching over the whole body, urticaria, facial angioedema, shortness of breath, and syncope, which developed 20 minutes after drinking lentil soup at dinner occuring twice in the last 6 months. The patient was treated in the emergency room in every reaction. Skin prick test with commercial extract was negative for hazelnut, peanut, almond, walnut, carrot, beef, chicken, mutton, wheat, corn, milk, egg, tomato, black pepper. Food allergy screening with specific IgE was negative (peas, chickpeas, haricot beans, green beans, cereals, chickpeas, rice, nuts). Prick to prick test with red lentil 15*15mm and green lentil 15*15mm were positive. She has not eaten red lentils before. Cross-reaction information was given to the patient who described anaphylaxis after eating lentils and she was advised not to eat lentils.

Conclusion: Among legumes, lentil is a major dietary component in many Mediterranean and Asian countries due to its high nutritional value, especially protein. Regional dietary habits may influence the epidemiology of legume allergy. In a study, there is data showing that lentil allergy is more common than peanut allergy in Turkey. Cross-reactivity among types of lentils is also variable and not easily predictable.

Keywords: lentil allergy, anaphylaxis, food allergy



PP-160

LIPID TRANSFER PROTEIN SENSITIVITY PROFILE IN EASTERN MEDITERRANEAN CHILDREN

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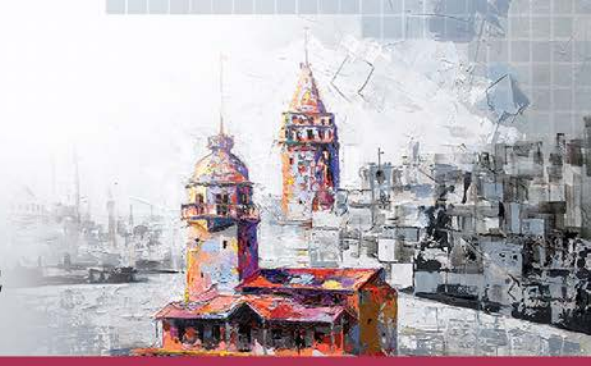
Background: Nonspecific lipid transfer protein (nsLTP) is the cause of type II food allergies. We aimed to investigate co-sensitization patterns and sensitivity cluster relationships to different nsLTPs in eastern Mediterranean children.

Method: A total of 305 children evaluated with component-based multiplex testing over a two-year period were reviewed and 105 children with any nsLTP sensitivity were allocated.

Results: Most patients (74.2%) were sensitized to Pru p 3, followed by 66,6% Cor a 8, 60% Mal d 3, 17,1% Tri a 14. Of the nsLTP components, sensitivity to Pru p 3 was associated with other nsLTP sensitivities (90,7%-50,1%), followed by Mal d 3 (85,3%-59,4%) and Cor a 8 (85%-52,6%), while Tri a 14 (20,8%-53,9%) was the least associated component. Hierarchical cluster analysis revealed a large cluster containing all components except Tri a 14. The clinical reactivity (oral allergy syndrome, systemic or anaphylaxis) rate for peach was 10.2% of the children sensitive to Pru p 3, with no relationship to level of sensitivity. However, for tree nut and wheat components, an increased clinical reactivity rate was detected with increased sensitivity level. Furthermore, the frequency of clinical reactivity increased with increasing age.

Conclusion: In eastern Mediterranean children, Pru p 3 is the most commonly found nsLTP sensitivity. Between different nsLTP components, there was a high rate of co-sensitivity, from which with Tri a 14 being the least likely. Because of only a small minority of pru p 3 sensitive children had clinical reactivity, presumably, the rate of clinical reactivity will increase with age.

Keywords: nsLTP, sensitivity, pru p 3, component



PP-161

BIOLOGICAL FACTORS THAT MIGHT PREDICT IMMUNE TOLERANCE IN COW'S MILK ALLERGY

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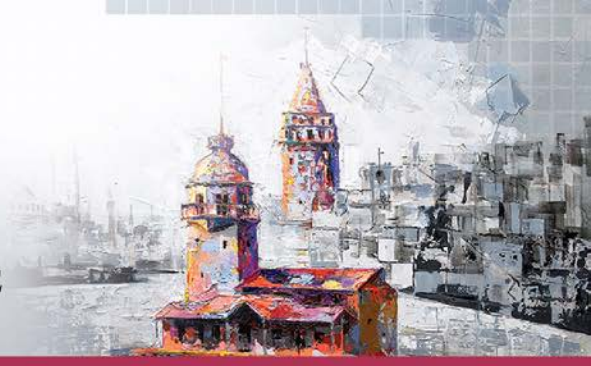
Background: Cow's milk allergy (CMA) is the most common food allergy in children. The oral tolerance to cow milk is reached in more than half of the patients by age of 5 years, but some patients remain with persistent CMA. The aim of the study analyzed clinical and biological factors that might predict achievement of tolerance in patients with IgE mediated CMA.

Method: Seventy patients with IgE-mediated CMA (44.24±24.16 months) were included in the study. The patients were evaluated clinically, through skin prick test and sIgE to whole milk, casein, beta-lactoglobulin and alpha-lactalbumin. An eviction diet of 6 months was established, followed by oral food challenge test (OFC) and oral immunotherapy (OIT) with baked milk for 6 months. The tolerance was assessed after 2 years follow up.

Results: Thirty percent of patients presented anaphylaxis of different degree of severity as first manifestation of CMA. Sixty-two patients followed OIT or an accelerated reintroduction of milk. Ten patients (14.28%) did not obtain tolerance to milk within 2 years. Larger wheal in SPT and higher sIgE to milk, casein and betalactoglobulin were noticed in patients with positive OFC. A basal level < 2.5 kU/l for sIgE to milk and < 11.73kU/l for sIgE to caseins predicted the occurrence of tolerance in CMA patients.

Conclusion: Basal levels of sIgE to milk and casein may help to identify patients that could become tolerant to milk.

Keywords: cow milk allergy, tolerance, specific IgE, casein



PP-162

IS THE PEDIATRIC EOSINOPHILIC ESOPHAGITIS SYMPTOM SCORE V2.0 RELIABLE FOR TELEMEDICINE?

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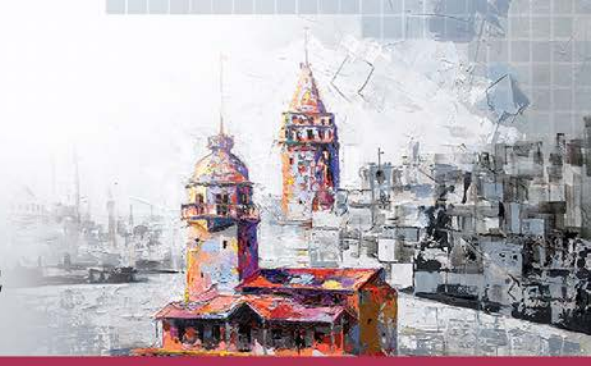
Background and Objectives: Eosinophilic esophagitis (EoE) is a chronic immune-mediated disease. Telemedicine is a healthcare technology used when a patient is separated by distance. The reliability of Pediatric Eosinophilic Esophagitis Symptom Score, version 2.0 (PEESS V2.0) for telemedicine applications has not been studied, yet. Therefore, we aimed to evaluate the reliability of PEESS V2.0 for telemedicine.

Materials-Methods: We used telesurvey that uses questionnaires via electronic telecommunication as the telemedicine method. Children with EoE and their parents were asked to fill out PEESS V2.0 with telesurvey method (unsynchronized with the physician) and in person visits one week apart. Intraclass correlation (ICC), Wilcoxon, and Bland Altman tests were used as relaiability analyses. Reliability was defined as a strong agreement between the measurements in ICC ≥ 0.8 and a p value of ≤0.05 and no statistically significant difference between the scores of two methods in the Wilcoxon and Bland & Altman analyses i.e. a p value of > 0.05.

Results: The total scores of children and parents were higher in-person visits than telesurvey application (Wilcoxon tests, p≤0.05). Bland & Altman analysis showed that the mean difference in total scores between two methods was significant for both children and parents (p≤0.05). ICC levels for the children and parent scores for the whole group ranged from 0.595 to 0.763 (moderate aggrement).

Conclusions: Unsynchronized telesurvey application of PEESS V2.0 is unreliable both for children and parents. We suggest testing the reliability of the chosen telemedicine methods before using them in clinical and research practice.

Keywords: Children, eosinophilic esophagitis, reliability, telemedicine



PP-163

A NOVEL PEDIATRIC EOSINOPHILIC ESOPHAGITIS SCALE: GAZI UNIVERSITY EOSINOPHILIC ESOPHAGITIS SYMPTOMS AND ADAPTIVE BEHAVIOR SCALE (GAZIESAS) V2.0

Dilek Yapar[1], Hacer Ilbilge Ertoy Karagol[2], Sinem Polat Terece[2], Demet Teker Duztas[3], Odul Egritas Gurkan[3], Sinan Sari[3], Buket Dalgic[3], Arzu Bakirtas[2]
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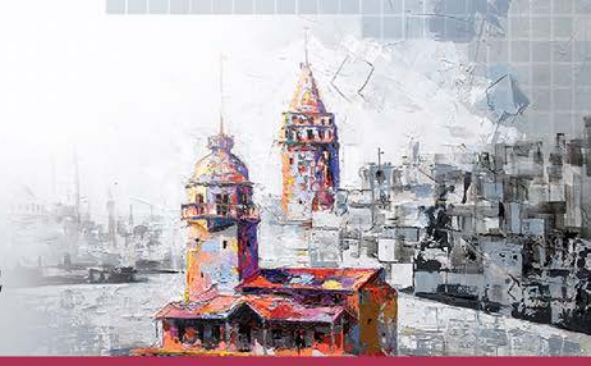
Background And Objective: High-quality scales (HQS) are needed for children with eosinophilic esophagitis (EoE) suitable for different age groups, measuring adaptive behaviours (AB) and symptoms with proven validity and reliability. We aimed to develop a high quality EoE scale that fulfills all these gaps.

Materials-Methods: Children (7-11 years), teens (≥12 years) and parents of 2-18 years old children with EoE were included in the study. A HQS should complete: 1) identification of domain and item generation, 2) content validity (CnV) and pre-test and 3) field test: construct validity (CsV) and reliability. Convergent and known group validity (CgV and KgV) were used for CsV. Correlations between Pediatric Eosinophilic Esophagitis Symptom Score, version 2.0 (PEESS v2.0) and GaziESAS v2.0 were used for CgV. The scores of uncontrolled and controlled groups were used for KgV. Reliability was determined by internal consistency (Cronbach-α) and test-retest reliability (intraclass correlation coefficients: ICC).

Results: Nineteen children, 42 teens and 82 parents completed the study. GaziESAS v2.0. was composed of two main domains: symptoms (subdomains: dysphagia and non-dysphagia) and AB (total 20 items). CnV indexes were excellent for all items. The CgV was found good to strong ($r=0.548$ to $r=0.961$). GaziESAS v2.0 differentiated uncontrolled EoE group from the controlled one ($p<0.05$) and showed good reliability (Cronbach-α >0.7 and ICC >0.6).

Conclusion: GaziESAS v2.0 is the first and the only valid and reliable HQS that measures symptoms and AB of EoE within the last month with seperate forms for children, teens and parents.

Keywords: children, dysphagia, eosinophilic esophagitis, validity, reliability, scale



PP-164

ALLERGIC DISEASE IN A PATIENT PRESENTING WITH DYSPEPSIA; EOSINOPHILIC DUEDONITIS

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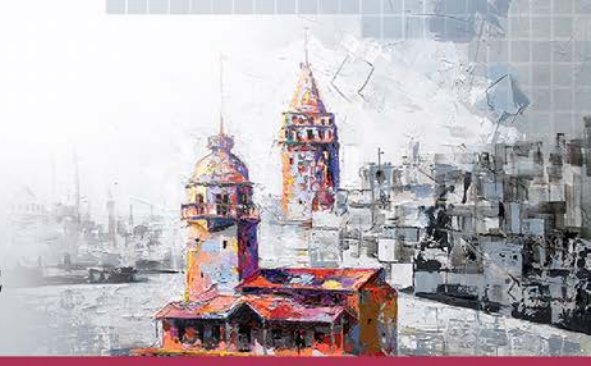
Introduction: Eosinophils are found in the lamina propria in other parts of GIS except the esophagus. Conditions in which the GIS is abnormally infiltrated with eosinophils; Parasitic infections, Inflammatory bowel diseases, Hypereosinophilic syndrome, Connective tissue diseases Myeloproliferative neoplasms, Drug hypersensitivity. Eosinophilic gastrointestinal diseases,Chronic inflammatory diseases characterized by abnormal eosinophilic infiltration, excluding known other reasons.. In this study, we wanted to present our case with a diagnosis of eosinophilic duedonitis in a patient.

Case: A 50-year-old male patient had an endoscopy due to abdominal pain, nausea, gas. He applied to the allergy outpatient clinic in terms of eosinophilic duedonitis, because more than 40 eosinophils were found in the lamina propria in the duodenal biopsy.

In the examinations, eosinophil 1300, IGE 101, tryptase 4.70, food rast test negative, inhalan and food panel negative, ana ena profile were negative.The patient had no food or drug allergies.Parasite was negative in stool. Colonoscopy was normal hematological pathology was not considered. After exclusion of other diseases in the patient, eosinophilic duedonitis was considered.The patient was recommended a diet restricted from milk, eggs, wheat, soy, fish, and peanuts. Ketotifen treatment was started at a dose of 2*2.It was learned that the patient's complaints regressed at the patient's visit 1 month later.

Conclusion: Normally, the number of eosinophils in the duodenum is lower than 20, but in eosinophilic gastrointestinal diseases, the number of eosinophils is between 20-80 or 2 times the normal number. In patients with dyspepsia, endoscopic examination should be performed for eosinophilic gastrointestinal system diseases.

Keywords: eosinophilic gastrointestinal disease,eosinophilic duedonitis,



PP-165

CURRENT US PARENT/CAREGIVER PRACTICES REGARDING INTRODUCTION OF PEANUT-CONTAINING FOODS DURING INFANCY

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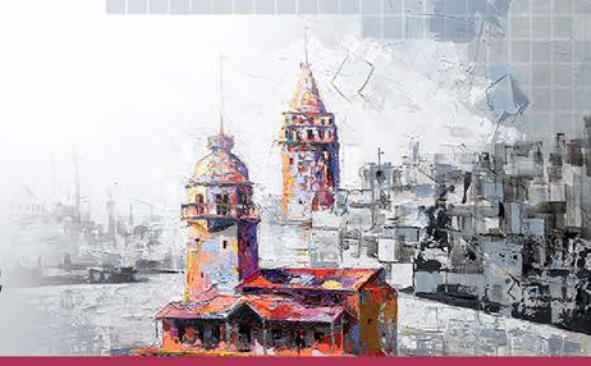
Background And Objective: Peanut allergy imposes substantial burden on affected families. NIAID-sponsored guidelines for Primary Prevention of Peanut Allergy were released in 2017, and recommend earlier introduction of peanut—particularly among eczematous infants. However, current guideline adherence and feeding practices remain unknown.

Materials-Methods: Surveys were administered to a US population-based sample of parents/caregivers of children aged 7-42 months.

Results: Responses were obtained from 3062 households. Overall, 58% of parents/caregivers reported their child's primary care doctor (PCP) discussed peanut introduction vs. 69% of parents/caregivers of eczematous children. Among parents whose PCP discussed peanut introduction, 40% reported receiving a recommendation to introduce peanut by 11 months vs. 46% of parents of eczematous children. Only 45% of parents/caregivers reported introducing peanut protein by 11 months. However, parents who reported receiving PCP guidance to introduce peanut by 11 months of age were more likely to introduce than parents who did not [OR=18.94(12.96-27.70)]. Parents/caregivers who believe feeding peanut-containing foods will decrease their child's peanut allergy risk were also much more likely to introduce peanut by 11 months of age (71%) compared to those who did not (33%) or did not know (31%). When introduction practices during the first month of peanut feeding were queried, parents who reported feeding smaller quantities per feeding were less likely to report peanut-allergic reactions (F=2.3; p=.01), but only among families introducing peanut in the first year of life.

Conclusions: PPA guideline implementation is suboptimal in the US. Introducing peanut protein via smaller feedings may reduce risk of peanut-allergic reactions.

Keywords: food allergy prevention, food hypersensitivity, infant nutrition, guideline adherence, survey research



PP-166

IgE MEDIATED LEGUME ALLERGY IN EAST MEDITERRANEAN CHILDREN: A REFLECTION OF MULTIPLE FOOD ALLERGIES

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Hacettepe University School of Medicine, Department of Pediatric Allergy, Ankara, Turkey

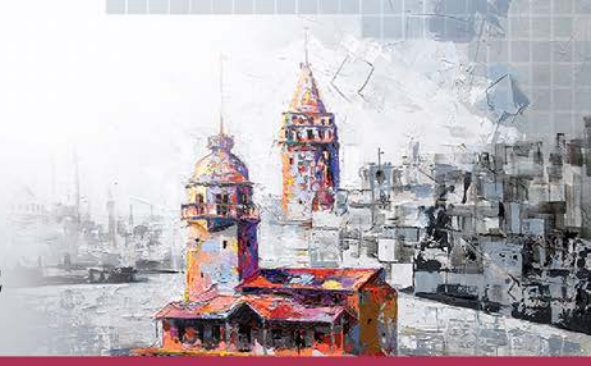
Background and Objectives: Legumes are nutritionally valuable as an inexpensive protein source, but may cause severe allergic reactions. This study aimed to identify the characteristics of legume allergies (LAs) in Turkish children.

Materials-Methods: A total of 87 children (4.9 (3.1-7.0) years) with LAs confirmed by either oral food challenge (OFC) or consistent history were reviewed.

Results: The median age of onset was 19 (12-38) months. The most frequent LA was lentil (n=57, 66%) followed by peanut (n=53, 61%), chickpea (n=24, 28%), pea (n=21, 24%), bean (n=7, 8%) and soybean (n=1, 1%). From these, 60% had multi-legume (≥2) allergies and the age of onset was earlier compared to the single LA subgroup (18(11-30) vs 28(17-42) months, p=0.042). Single LA was present in peanut (51%) and lentil (16%) allergies, but not chickpea, pea and bean. Fifteen patients had tolerated lentils before their first allergic reaction. The majority of children with LA (91.9%) were allergic to multiple foods including tree nuts (71%), hen's egg (66%) and cow's milk (49%). Seventy-eight patients (89.7%) presented with atopic comorbidities concerning atopic dermatitis (70%), asthma (40%) and allergic rhinitis (30%). Patients with anaphylactic type of reaction (20%) had higher frequency of aeroallergen sensitization (p=0.001). Lip dose challenge with legume paste predicted the result of OFC with a diagnostic accuracy of 81.82% and a positive likelihood ratio of 10.8.

Conclusions: In Turkey, LA is a reflection of multiple food allergies. The presence of allergy to a least frequently encountered legume is a sign of multiple LA.

Keywords: legume allergy, lentil allergy, chickpea allergy, bean allergy, peanut allergy, soybean allergy



PP-167

MATERNAL FEEDING ATTITUDE DURING PREGNANCY AND LACTATION FOR NUTS AND SEEDS: THE EASTERN MEDITERRANEAN EXPERIENCE

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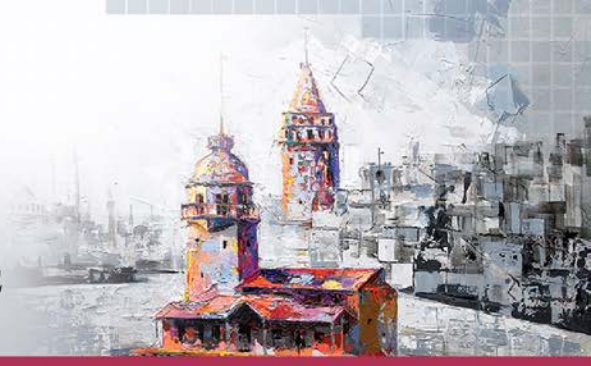
Background: Food allergy (FA) mostly develops during the first months of life and exposures during this period determine its spectrum which is the reason of cultural/geographical diversity.

Method: Face-to-face interviews were conducted with mothers from Turkey to document their nut and seed consumption practices during pregnancy and lactation.

Results: A total of 96 and 72 mothers having a baby with or without FA, respectively, were allocated and the rate of exclusively breast-fed and formula-fed infants were around 60% and 10%, respectively, for both groups. When questioned about family nut and seed consumption habits before pregnancy (baseline), more than 50% of both study groups stated that they consume tree nuts, including walnuts, hazelnuts, and almonds, at least once a week, compared to >65% for tahini and 17% for peanuts. During pregnancy, more than 70% and 8.3% of mothers of both groups reported that they increased their tree nut (mostly walnut) and tahini consumption for their positive health effects, respectively, compared to baseline. The first two foods, reported as galactogogues were tahini and walnut for both groups, followed by other tree nuts, but not peanut. During lactation, >40% and >30% of mothers in both groups reported that they increased their consumption of walnut and tahini compared to baseline, respectively.

Conclusion: In Turkey, tree nut and tahini consumption is common and frequent at homes compared to peanut. Most mothers increase their walnut consumption during pregnancy and, tahini and walnut during lactation with the beliefs of healthy and galactogogues effects.

Keywords: Maternal feeding, food allergy, nuts and seeds



PP-168

USING MHEALTH APPS TO DIGITALIZE FOOD ALLERGY ACTION PLANS FOR APPROPRIATE EPINEPHRINE ADMINISTRATION BY THE LAY PUBLIC

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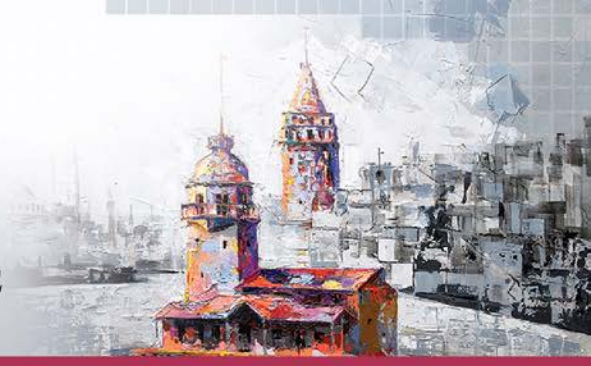
Background and Objectives: In food-induced anaphylaxis timely administration of epinephrine is the treatment of choice and lowers fatalities. Adherence to action plans and epinephrine administration rates by lay people remain low, primarily due to fear of incorrect assessment of symptoms or injecting the medication unnecessarily. Information is lacking about the use mobile health (mHealth) apps to digitalize food allergy action plans.

Materials-Methods: We systematically reviewed commercially available mHealth apps for food allergies in the Apple App Store and Google Play using search terms such as "food allergy", "food allergy action plan", "food allergy reaction", and "anaphylaxis". Apps in English with a decision support tool for anaphylaxis management were included and assessed by two reviewers using Mobile Application Rating Scale (MARS) and the IQVIA functionality score.

Results: One hundred apps were reviewed and three met the inclusion criteria. All apps provided information/education, whereas two included symptom tracking. Overall, the average MARS quality score was high (3.7/5), with apps scoring highest in the Functionality domain (4.2/5). All apps had similar functionalities, but only one provided alerts/reminders. While all apps addressed knowledge on food-allergic reaction management, only two differentiated mild/severe reactions, and when and how to administer epinephrine. None of the apps provided definitive advice on whether to administer epinephrine or not.

Conclusions: Overall, there are high quality mHealth apps for lay treatment of food-induced anaphylaxis, which could replace/supplement paper-based action plans. Areas for future development of food allergy apps include building patient decision support on whether to administer epinephrine.

Keywords: food allergy, anaphylaxis, mHealth, allergic reaction management



PP-169

CHRONIC FOOD PROTEIN-INDUCED ENTEROCOLITIS SYNDROME (FPIES) CAN MIMIC SEVERE SEPSIS IN NEONATES/INFANTS

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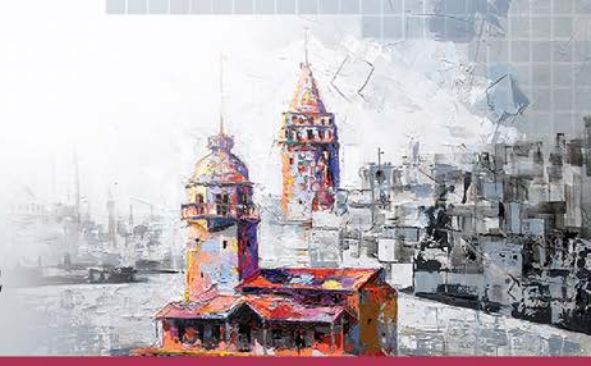
Chronic FPIES is a non-IgE allergic disease that manifests mainly with gastrointestinal symptoms of intermittent emesis, chronic diarrhea, and poor weight gain. This often leads to severe dehydration, hypoalbuminemia, metabolic acidosis, and failure to thrive (FTT). In many cases, the severe clinical presentation in neonates/infants is mistaken as sepsis.

Here we describe 10 cases of neonates/infants with a severe presentation of chronic FPIES mimicking sepsis.

There were 4 male and 6 female infants that presented at an average age of 32 days (range 8-84). All were fed with milk-based formula from birth. Reported symptoms were diarrhea, vomiting, and fever in 9, 8, and 4 patients respectively. All patients had FTT and 5 weighed below birth weight. All patients presented with lethargy, pallor, and dehydration. Lab investigations demonstrated leukocytosis (range 7,000 - 62,000), elevated CRP (range 0-18; normal 0-0.5mg/dl), metabolic acidosis (PH range 6.99 to 7.35), hypernatremia and acute kidney injury in 7, 6, 5 and 6 patients respectively. Seven infants underwent full sepsis workup for their age and the severe clinical presentation. All patients were admitted to PICU for initial treatment including fluid resuscitation and antibiotics. All infants were initially changed to extensively hydrolyzed formula and 6 subsequentially changed to amino acid-based formula for continuous symptoms. All infants recovered within a few days.

Chronic FPIES to milk in neonates/infants may be confused with sepsis. Recognizing this severe manifestation of chronic FPIES with a prompt change of formula may lead to earlier resolution of symptoms and prevent unnecessary investigations and complications.

Keywords: FPIES, Food allergy, Milk allergy



PP-170

COW'S MILK AND KIWI-ASSOCIATED IMMUNOLOGICAL CONTACT URTICARIA

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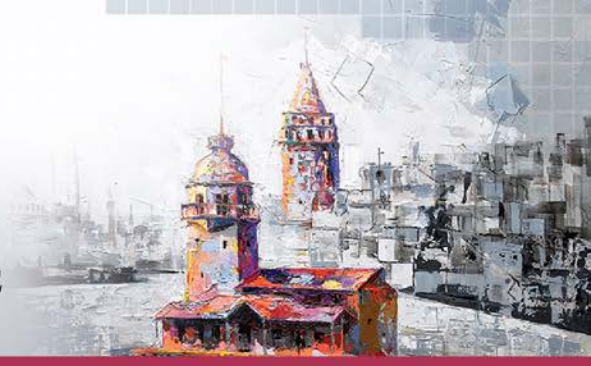
Introduction: A blistering and flashing reaction resulting from direct contact with a chemical or protein agent is known as contact urticaria (CU). CU can be non-immunological (sensitization not required) or immunological (sensitization required).

Case: A 3.5-year-old male patient presented with urticarial lesions on his face for two months where ever the cow's milk came into contact with the skin. There was no reaction after oral intake of milk using a pipette. Similar symptoms were reported when mother tried to introduce kiwi to his diet. He had no history of atopy, food allergy or eczema. Skin prick test with commercial cow's milk allergen extract was found to be 6-15 mm. The prick to prick test with kiwi was measured as 4-12 mm. The patient underwent a finger test with cow's milk and kiwi. The test was interpreted as positive since swelling and redness was observed in the contact areas within 20 minutes. To show that there is no systemic reaction, oral provocation with pasteurized milk was performed using a pipette, and it was seen that the patient completed the steps without any problem.

Discussion: In food-induced CU, the area in contact with the offending substance will react with transient wheals and pruritus. Erythema and edema develop immediately at the site of contact and subside within 45 min. In patients with suspected CU, "finger testing" should be part of the evaluation to find the culprit food.

Keywords: contact urticaria, food allergy, immunological contact urticaria



PP-171

CLASSIFICATION OF MOST COMMON FOOD ALLERGENS' FREQUENCIES BY AGE

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[2]Istinye University/ Allergy and Immunology/ Maltepe, Istinye University Topkapi Campus, Teyyareci Sami Street, No.3, 34010 Zeytinburnu, Istanbul/Turkiye
[3]Istanbul Yeniyuzyil University/ Pediatric Allergy and Immunology/ Maltepe Neighbourhood, Yilanli Ayazma Street, No: 26, 34010 Cevizlibag /Zeytinburnu, Istanbul/Turkiye
[4]Okan University/ Pediatric Allergy and Immunology/Istanbul Okan University Tuzla Campus, 34959 Akfirat – Tuzla, Istanbul/Turkiye

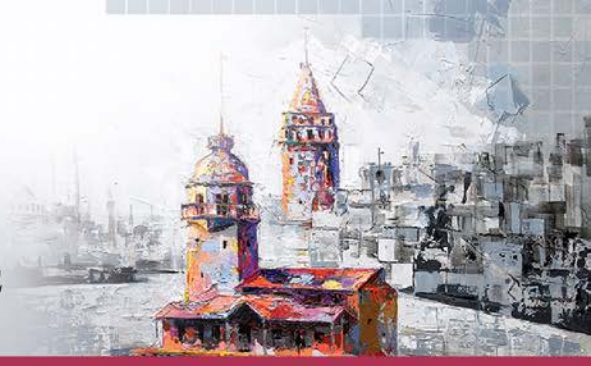
Background and Objectives: Food Allergy (FA) is a public health problem that's caused by adverse effects to specific food antigens. Infants and children have a higher risk of improving food allergies compared to adults. Foods that most commonly cause an allergic reaction are milk, egg, wheat, soy, peanut, tree nuts, sea products and fish. The aim of this study was to examine the most common foods that cause an allergic reaction among different age groups according to Molecular Multiplex Test ALEX2 results.

Materials-Methods: Food allergic patients examined by Molecular Multiplex Test ALEX2 and arranged by the frequency of the foods' main food allergen.

Results: 247 patients' data were analysed. While the foods that most commonly cause an allergic reaction to patients that are 0-2 years were egg white(n:31,33.7%),tree nuts (hazelnut; n:21,22.8%, walnut;n:21,22.8%, cashew;n:20,21.7%) and chickpeas (n:17,18.5%); 2-6 years were tree nuts (cashew; n:26,32.5%, hazelnut; n:22,27.5%), pumpkin seeds (n:21,26.3%) and egg white (n:21, 26.3%), 6-12 years were potato (n:7,25%), tree nuts (hazelnut; n:7,25%, pecan nuts; n:6,21.4%), sunflower (n:6, 21.4%), 12-18 years were sea products (lobster; n:2,20%), haricot bean (n:1,10%) and potato (n:1,10%), older than 18 years were sea products (crab; n:2,5.4%, lobster;n:2,5.4%), peanut (n:1,2.7%) and wheat (n:1,2.7%) respectively.

Conclusions: The most common food allergens' frequencies were different by ages. The tree nuts were the one of the most seen food allergy in infant and toddler age groups. The sea products were the one of the most common food allergy in 6-12 years and in adult group.

Keywords: Food allergy, food allergens, tree nuts allergy, sea products allergy



PP-172

A CASE OF SYSTEMIC LUPUS ERYTHEMATOSUS PRESENTING WITH URTICARIA

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Health Sciences University, Süreyyapaşa Training and Research Hospital, Allergy and Immunology Clinic

Case: 28y,F

The patient has complaints of swelling and itching, swelling of the throat and face that started a month ago. Lesions are compatible with urticaria+angioderm. The patient, who applied to the emergency department with these complaints, continued to have complaints despite 10 days of methyl prednizolone + cetirizine treatment.

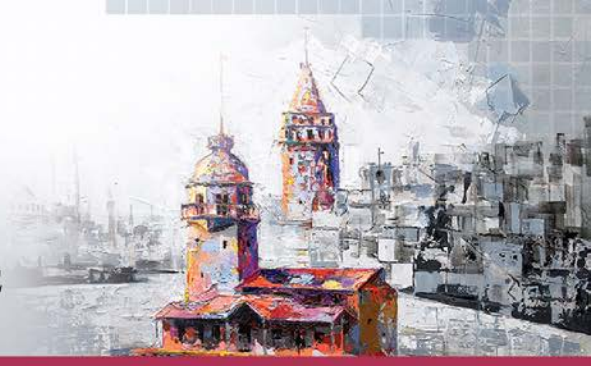
In the patient's history, there is no concomitant drug use, no medication used continuously, no additional disease. The patient has no complaints with food and no signs of infection.

The patient's WBC is 21490 and CRP is 1. AST and ALT are high.

Steroid and antihistamine treatment was continued and further investigations were requested. In the control, when headache persisting for two days and fever occurred at 38', infectious diseases consultation was requested and no focus of infection could be detected.

In control examinations; C3, C4 low; When ANA Positive, Anti-SM-RNP Positive, rheumatology consultation was also requested. Plaquenil, deltacortril treatment was started for the patient who was diagnosed with SL, and it was observed that his complaints regressed when antihistamine treatment was continued.

Keywords: swellıng, urtıcarıa, SLE



PP-173

ANTIHISTAMINE ALLERGY IN A PATIENT WITH MILK ALLERGY

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Health Sciences University, Süreyyapaşa Training and Research Hospital, Allergy and Immunology Clinic

27 years, F.

The patient had abdominal pain, diarrhea, itching and blistering (consistent with urticaria), a feeling of stuck in the throat, and shortness of breath half an hour after consuming milk and dairy products four months ago. Fifteen minutes after using the antihistamine levocetrizin given for treatment, redness, itching and shortness of breath developed in the neck area.

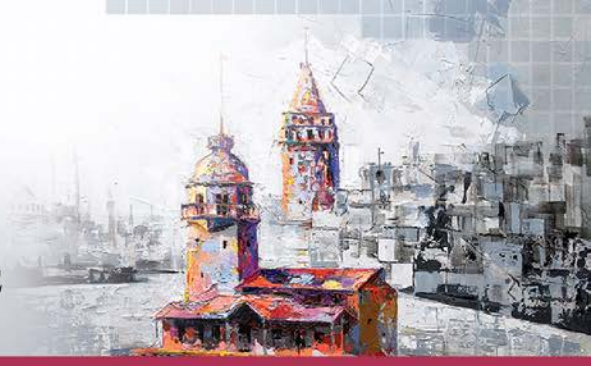
In the patient's history, there is no concomitant drug use, no medication used continuously, no additional disease.

Prick-to-prick test was performed with milk to the patient who did not have any complaints about other foods. When looking at Xyzal additives, it was determined that they contain lactose. Thereupon, an oral provocation test was performed with another antihistamine that does not contain lactose as an additive, and no allergic reaction was detected in the patient.

Milk prick to prick: 5x5 (Negative(-), Positive (5x5) (Picture1)

It was recommended to exclude milk and dairy products from the diet, as well as to use lactose-free antihistamines.

Keywords: levocetrizin, milk, food, allergy



PP-174

SPONTANEOUS PNEUMOMEDASTINUM IN A PATIENT WITH ALLERGIC BRONCHOPULMONARY MYCOSIS

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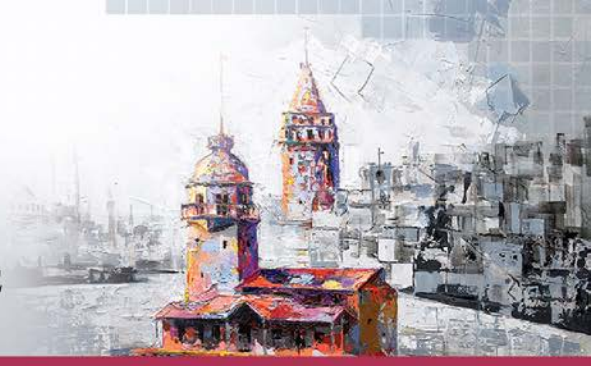
Background: Fungal sensitizations are significantly relevant with more severe asthma phenotypes. It have almost 10-fold greater risk of fatal asthma exacerbations. Spontaneous pneumomediastinum (SPM) is one of rare, but might be fatal complications of those asthma attacks(1–3).

Case: A 63-year-old female asthmatic patient admitted to emergency department with symptoms suggestive of an acute moderate/severe exacerbation of asthma. Tachypnea with 28/min breath rate and expiratory rhonchi on physical examination had been detected. Arterial blood gas revealed mild hypoxemic respiratory alkalosis. IV magnesium was administered to the patient who did not respond to steroid and 2-3 lt/min oxygen therapy. Thorax ct was planned due to progressive dyspnea unresponsive to treatment. CT analyze displays that there was at the prevascular level, free air densities in favor of pneumomediastinum were observed in the mediastinum and in the traces of both main bronchi.

Patient had high type 2 inflammation with eosinophilia 910 /mm3, total IgE: 2560 kU/L, feNO: 35 ppb, mold and yeast mixture allergen specific IgE was 4.01(+++) kUA/L. Skin tests were positive for candida (3x3 mm in prick test and 9x9 mm in intradermal 1/1000 test). A diagnosis of Allergic Bronchopulmonary Mycosis (ABPM) was made. SPM was completely healed with conservative treatment.

Conclusions: SPM is a relatively rare complication of moderate-severe asthma exacerbations. This is caused by a specific mechanism called the 'air-leaking effect. It might be more frequent in mold sensitive severe asthma patients due to more serious airway and parenchyma damage, and require more attention during uncontrolled asthma attack.

Keywords: spontaneous pneumomediastinum; mold sensitivity, severe asthma, allergic bronchopulmonary mycosis ABPM



PP-175

KOUNIS SYNDROME: INDUCED BY ORAL INTAKE OF AMOXICILLIN CLAVULANIC ACID: CASE REPORT

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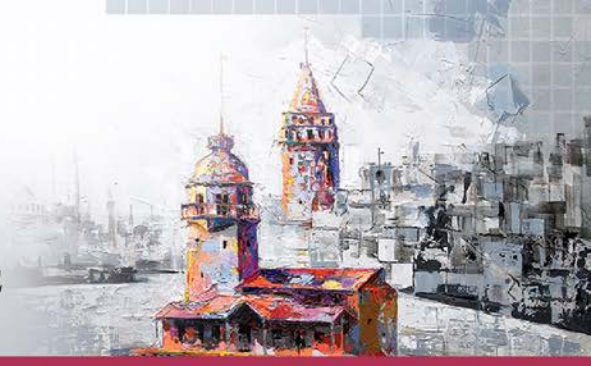
Background and Objectives: Kounis syndrome(KS) is an acute coronary syndrome that happens following an allergic reaction. Various chemokines and cytokines, histamine, arachidonic acid products cause this disease(2). The most common triggering factor is drugs. KS is not a rare illness and every physician should be aware of the wide range of triggers. It should be known that it can be fatal if not diagnosed early(3,4).

Case: A 51-year-old male patient appealed to the emergency department with nausea, swelling and redness on the hands, approximately 15 minutes after ingesting amoxicillin-clavulanate due to dental abscess. He was a patient previously diagnosed with hypertension, diabetes mellitus. The patient did not have angina or shortness of breath. Vital signs were normal. He was discharged without checking ECG and troponin 30 minutes after infusion of steroid and antihistamine. The patient has syncope 3-5 minutes after discharge. The patient didn't have chest pain or shortness of breath at the second admission. But, ECG revealed ST elevation in the inferior leads. In the first and second determination, troponin I was found within the normal range.

Results: Coronary artery occlusion wasn't detected after urgent coronary angiography. The patient, whose ECG had normal sinus rhythm during the follow-ups, was discharged after medical treatment was arranged. We presented a case of type 1(spasm of coronary arteries) variant KS.

Conclusions: This case emphasizes the importance of studying ECG and cardiac marker in patients presenting to the emergency department with a hypersensitivity reaction even without angina symptoms, especially in diabetic patients.

Keywords: Kounis Syndrome, hypersensitivity reactions, Coronary vasospasm



PP-176

AN UNUSUAL REACTION DUE TO PARAPHENYLENDIAMINE: ANAPHYLAXIS

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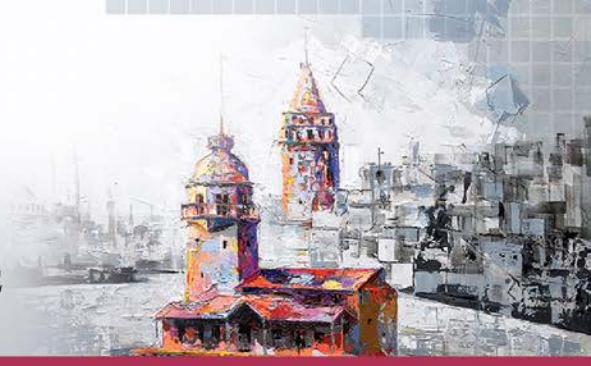
Introduction: Chemicals in some cosmetic products are known to be a strong allergen for the skin and they are responsible for complications such as contact dermatitis, temporary or permanent pigmentation (1). More rarely, type 1 hypersensitivity reactions such as urticaria, angioedema or anaphylaxis have been reported (2). In this report, we wanted to present a patient who developed due to paraphenylenediamine (PPD) after hair dyeing, which started with diffuse facial angioedema and developed anaphylaxis.

Case: A sixteen-year-old female patient developed swelling on her face on the second day of hair dyeing for 2 consecutive days, 2-3 hours after the application. She was admitted to the hospital due to swelling on her face and shortness of breath. She had a history of contact dermatitis with henna tattoo 6 months ago. Due to skin and respiratory system involvement, anaphylaxis was considered and intramuscular adrenaline and intravenous antihistamine were administered in the emergency department. Topical steroid was applied to the scalp and regular washing done to reduce exposure. 'ALK True® test' was done for diagnosis after 6 weeks. First, early reaction was evaluated at the 15th minute and it was found to be negative. At the end of 72 hours, a positive reaction to PPD was observed in the patch test.

Conclusion:PPD is a chemical compound that found in many substances such as hair dye, black henna tattoos, cosmetics, leather clothes. Generally causes delayed type of hypersensitivity reactions. The interesting aspect of our case is that our patient had anaphylaxis with angioedema.

Keywords: Anaphylaxis, hair dye, henna tattoo, paraphenylendiamine, PPD



PP-177

PHOTOSENSITIVITY REACTION DUE TO FENOFIBRATE - A CASE PRESENTATION

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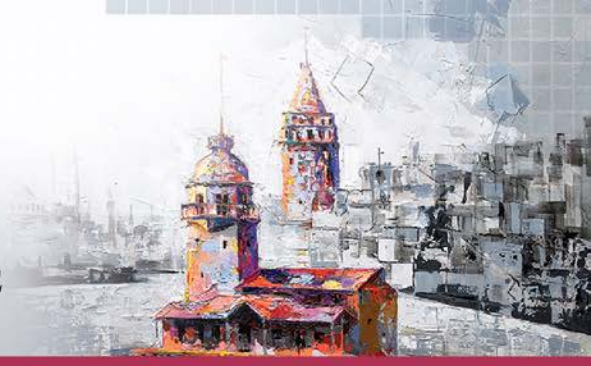
Background and Objectives: Although most of the photosensitivity reactions are phototoxic reactions, photoallergic reactions which are lymphocyte mediated immune reactions following UVA exposure may also be seen. Photosensitivity due to fenofibrates has rarely been reported.

Materials-Methods: Herein, we report a case of fenofibrate induced photosensitization.

Results: Fifty two year old female patient admitted to our outpatient clinic with the complaint of itching, redness and a rash on face, hands and neck which had started one week ago. She didn't have any chronic disease other than hyperlipidemia for which she was using fenofibrate for 6 weeks. She didn't report any other triggering factor or medication use. Her physical examination revealed erythema on face and neck and edema on hands which were limited to sun exposed areas. She was advised to stop using fenofibrate. Two months later, after her symptoms resolved with topical steroids and antihistamines, patch tests with fenofibrate at 5% concentration were applied both to the forearm and to her back. The patch test on her arm was opened at 24 hours and left in sunlight for 15 minutes. At 48 hours, patch tests were removed. At 72 hours the patch test on the forearm was strong positive. The patch test on her back was negative. The patient was diagnosed as photoallergy due to fenofibrate. Fenofibrate together with other fibrates and ketoprofen which may cross react with fenofibrate were forbidden.

Conclusion: Photoallergic reactions may be seen due to fenofibrate and photopatch test is helpful in diagnosis.

Keywords: Drug hypersensitivity, fenofibrate, photosensitivity, photoallergic reaction



PP-178

PRE-TREATMENT WITH OMALIZUMAB IN PATIENTS WITH SUBLINGUAL ALLERGEN IMMUNOTHERAPY INTOLERANCE

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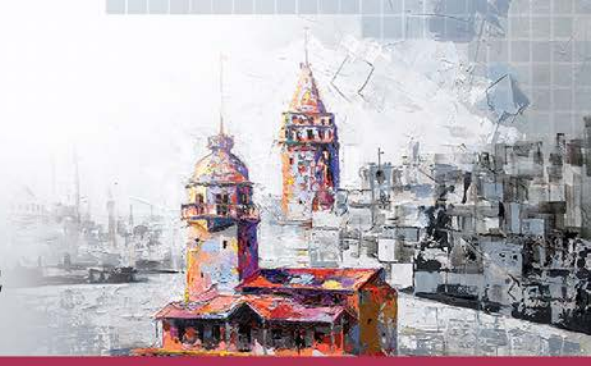
Report: A 12 y.o. boy suffered from atopic dermatitis (AD), allergic rhinoconjunctivitis (RC) and moderate asthma during the pollen season in spring. Topical corticosteroids, calcineurin inhibitors, antihistamines, nasal topical steroids, medium doses of inhaled corticosteroids and broncholytics were used with insufficient effect. At 10 years he had total IgE - 546,75 U/ml, specific IgE (kUA/l) to the birch 81.2, to alder 67.4 (class VI), to hazel 33.8 (IV) according to ImmunoCAP results. 2 courses of sublingual allergen immunotherapy (SLIT) with birch pollen allergen have been carried out. During 2-d course of SLIT from January till early May he suffered from nasal congestion, severe exacerbation of atopic dermatitis was noted. His treatment was mometasone, levocetirizine, montelukast, inhaled corticosteroids. In May severe symptoms of rhinoconjunctivitis were noted and SLIT was discontinued. At 12 years he had total IgE - 1043 U/ml, specific IgE (kUA/l) to the birch, alder, rBet v1 >100 (class VI); hazel 87; negative rBet v2, rBet v4. At 12 years, since October the pre-treatment with omalizumab 450 mg SC monthly was started. His 3-d course of SLIT with birch pollen was from the end of January till the middle of May, maintenance dose was maximal. In the spring he had light symptoms of RC, no asthma and AD symptoms. His therapy was montelukast, mometasone, levocetirizine

Conclusion: Combination of SLIT and pre-treatment with anti-IgE (omalizumab) therapy was safe and effective in reducing symptoms of hay fever, AD and adverse reactions to SLIT.

Keywords: SLIT, omalizumab, severe allergic rhinitis



PP-179

LIKE FATHER, LIKE SON - A CASE OF HEREDITARY INTERSTITIAL LUNG DISEASE

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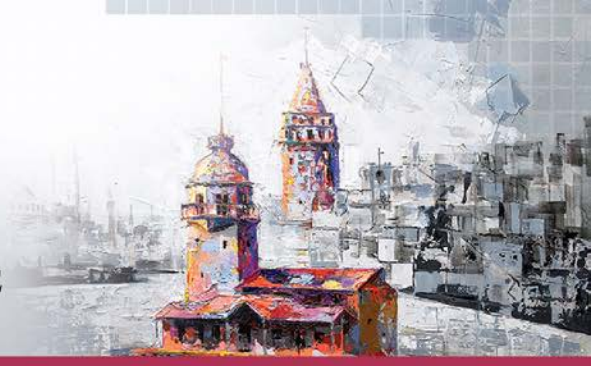
[3]California Pacific Medical Center, San Francisco CA

45 year old male with no PMH presented with cough and intermittent exertional dyspnea for one year. He denied prior respiratory symptoms or any prior exposures. Family history was positive for a 5 year old son who was diagnosed with Surfactant Protein C gene (SFTPC) mutation positive surfactant deficiency at 6 months of age. Physical exam was notable for diffuse rhonchi. PFTs showed reduced FEV1 and FVC, increased FEV1/FVC ratio, decreased TLC, decreased DLCO consistent with ILD. High resolution CT chest was suggestive of nonspecific interstitial pneumonia or familial interstitial pneumonia. Given his son's condition, he underwent genetic testing that showed he was heterozygous for his son's SFTPC mutation. He was referred for potential lung transplant, which he declined. Given several studies demonstrating a benefit of hydroxychloroquine with SFTPC ILD, treatment with hydroxychloroquine was initiated. He developed a drug reaction rash to hydroxychloroquine for which he underwent successful desensitization. Despite being classically considered a diagnosis of premature neonates leading to neonatal death, surfactant deficiency can also be genetic and lead to familial ILD. Genetic disorders of surfactant deficiency include mutations in SFTPB (surfactant protein B gene), SFTPC (surfactant protein C gene), ABCA3 (member A3 of ATP-binding cassette family of proteins), and NKX2-1/TTF1 (thyroid transcription factor 1). SFTPC gene mutation is autosomal dominant and is the only surfactant gene mutation with highly varied presentation including adult ILD. Unlike most lethal surfactant gene mutations, patients with SFTPC gene mutation can survive into the 6th decade of life.

Keywords: Genetic mutation, interstitial lung disease, surfactant deficiency, hereditary



PP-180

ALLERGY TO PINE PURSE CATERPILLAR (THAUMETOPOEA PITYOCAMPA) IN FOREST FIRE WORKER

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[2]Cyprus International University, North Cuprus, Chest Disease

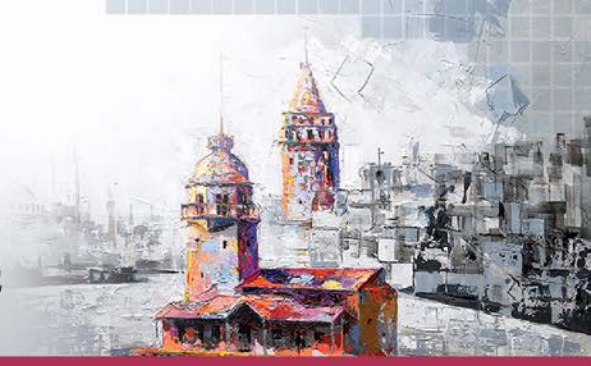
Thaumetopoea Pityocampa (TP) is frequent in the Mediterranean region especially affecting forest workers in pinewood areas. It is known for the irritating hairs of its caterpillars and their processions. If they come in contact with skin, they can cause a variety of reactions, notably contact urticaria and papular rashes.

Recently, a big forest fire has occurred in our country. We went to fire area and examined the workers who exposed to smoke. Many of them were exposed to smoke almost 90 hours and they all had respiratory complaints. We would like to present a case who developed respiratory distress due to smoke inhalation and had cutaneous lesions caused by TP.

The 34-year-old male forest fire worker was examined after 96 hours of smoke exposure. It was observed that the patient had widespread maculopapular rashes, especially in the cervical and dorsal regions. Biphasic rhonchi were present in the respiratory system examination. Oxygen saturation was 94%. The patient had no additional disease and had a smoking history of 15 pact/year. When questioned, it was learned that his complaints of shortness of breath and rashes started simultaneously after touching the pine trees. The patient was referred to the nearest health institution as soon as possible and antihistaminic, steroid, oxygen and inhaler treatment was started.

Thaumetopoea Pityocampa (TP) is an important allergen especially in endemic areas like Cyprus. The IgE-mediated reaction occurs as a result of mast cell degranulation. Besides contact urticaria, angioedema (60%), papular lesions (30%) and anaphylactic reactions (40%) were also detected.

Keywords: Thaumetopoea Pityocampa (TP), fire smoke exposure, urticaria



PP-181

ERYTHEMA MULTIFORME ERUPTION REVEALING COVID-19 INFECTION: CASE REPORT

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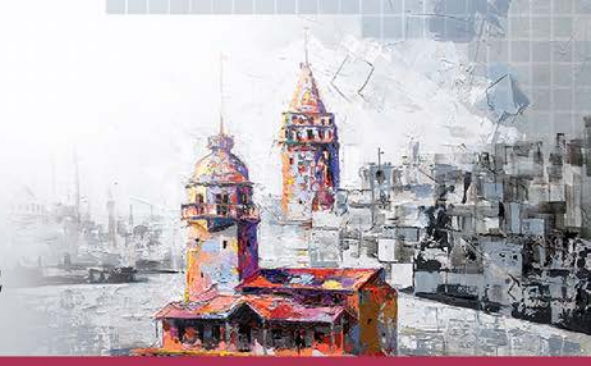
Background And Aim: The clinical spectrum of COVID-19 associated cutaneous manifestations is heterogeneous and complex. It has become important for the primary care physicians to be aware of such manifestations of COVID-19 to prevent misdiagnosis and missing the cases, if skin involvement precedes other symptoms. This case brings additional data implementing the knowledge on the dermatological signs during COVID-19.

Case presentation: A 52-year-old female healthcare worker, with no medical history, developed an erythematous maculopapular atypical targetoid eruption distributed over the arms and the forearms. On the third day of the onset of symptoms, she had been diagnosed with COVID-19. Lesions were painless and mild itching. There was no mucosal involvement. No recent episode of recurrent herpes was reported. The patient had no previous medical history of a similar eruption and there were no similar cases in the patient's family. The patient was clinically diagnosed with Erythema multiforme. On the 5th day of the eruption, the cutaneous lesions regressed considerably, and the patient didn't have any complications. Two months later, the same lesions reappeared on the arms, forearms, low members and on the trunk.

Conclusion: In this patient, the Erythema multiforme eruption might be another pattern of exanthem associated with COVID19 infection.

Keywords: COVID 19, Erythema multiforme, SARS-Cov 2



PP-182

FAILURE OF OMALIZUMAB IN CHRONIC SPONTANEOUS URTICARIA- REAL WORLD EXPERIENCE FROM SOUTH INDIA

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Background and Objectives: Chronic urticaria afflicts nearly 1% of the population and tends to be chronic for 1 - 5 years, but aggressively recurring for longer in some. Here, GA2LEN /WAO guidelines recommend Omalizumab when updosing of Antihistamines fail. This case series wishes to highlight failure of even Omalizumab in 2 patients who eventually were steroid dependent.

Materials-Methods: Patient 1: 42 year old female with steroid dependent chronic urticaria, with episodic angioedema and bowel colic. To note, her Ig E was moderately increased, Autologous serum test (AST) was negative on steroids, and ANA negative. Even after 6 doses of 300mg Omalizumab, she developed episodic urticaria which responded only to oral steroids. Cyclosporine could not be added as she developed accelerated hypertension on the same. Patient 2: 44 year old male with urticaria localised to head and neck area, with previous h/o Asperigillosis lung, was administered 3 doses of 300mg Omalizumab with partial improvement,but developed exacerbated disease after a short travel. He then responded only to oral steroids, with an 4 fold antihistamine coverage. He had moderately high IgE, Negative AST on steroid and ANA negative.

Results: Omalizumab failed in recurrent urticaria in individuals with systemic (bowel) involvement and past h/o fungal lung disease.

Conclusions: Omalizumab failure can be expected in patients with recurring disease with low IgE. In addition, a history of bowel angina like symptoms during attacks and a history of Aspergillosis could indicate poor response to the drug.

Keywords: Omalizumab failure, steroid dependent urticaria, angioedema, bowel, aspergillosis

PP-183

CHICKEN MEAT ALLERGY AFTER EGG ALLERGY

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31 years, F

She had abdominal pain, nausea, vomiting, diarrhea, itching and blistering (consistent with urticaria) after consuming eggs 10 years ago. Eggs were excluded from the diet for therapeutic purposes.

The patient, who touched the broken egg, developed swelling in the palms of the hands, itching and swelling in the body 10 minutes after the contact.

While he was able to consume chicken meat before, the patient's abdominal pain, nausea, vomiting and diarrhea have been added to the complaints for five years.

In the patient's history, there is no concomitant medication use, no medication used regularly, and no additional disease.

A prick test was performed on the patient who had a complaint with chicken meat and eggs. The patient developed anaphylaxis and 0.5 mg adrenaline was administered intramuscularly. In the follow-ups, the reaction regressed and he was discharged.

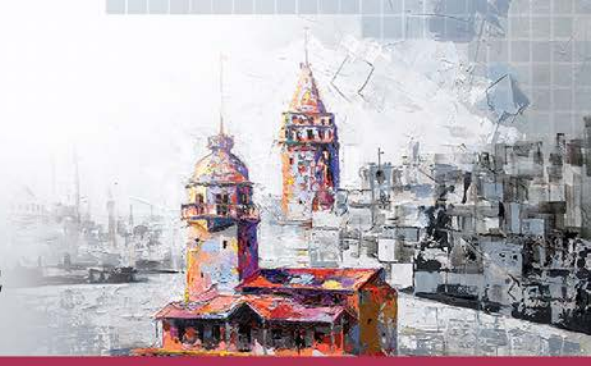
Egg yolk prick: 18x20 (Negative(-), Positive (5x5)

Egg white prick: 12x16 (Negative(-), Positive (5x5)

Chicken meat prick: 10x8 (Negative(-), Positive (5x5) (Picture1)

Adrenaline autoinjector was reported to the patient and it was recommended that eggs and chicken meat be excluded from his diet and not be in contact with them.

Keywords: Chicken allergy, Egg allergy, Food allergy



PP-184

RARE EGG ALLERGY IN ADULT PATIENTS: ADULT CLINIC REAL-LIFE DATA

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Health Sciences University, Süreyyapaşa Training and Research Hospital, Allergy and Immunology Clinic

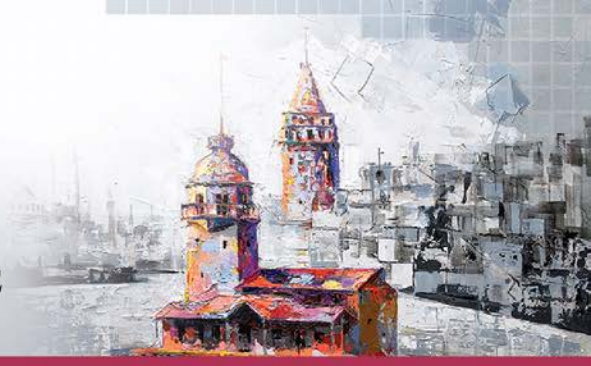
Introduction: Egg allergy in adults is extremely rare. However, due to the presence of a large number of foods, it both restricts the patient's life and may cause serious problems in case of contact.

Material-Method: The files of the patients who applied to our clinic with food allergy between January 2017 and June 2022 were reviewed retrospectively. The prevalence of egg allergy, demographic and clinical characteristics of the patients were examined.

Results: Among the 19,300 patients, there were 21 patients with egg allergy. The prevalence of egg allergy was calculated as 0.1%. 80.9% (n:17) women, mean age was 39.2 ± 1.4 years. She had any allergic complaints when she ate eggs for an average of 3.8 ± 4.3 years. When we evaluated the admission complaints, 23.8% (n: 5) patients had urticaria and angioedema, 19% (n: 4) patients had rhinitis; 14.3% (n: 3) patients had anaphylaxis and rhinitis; the remaining patients applied to the outpatient clinic with dry itching and urticaria. When the allergic reaction is examined according to gender, in rhinitis and urticaria+angioedema in female gender; urticaria+angioedema developed more in male patients. Elimination was recommended to all patients; The adrenaline autoinjector report was issued and training was given to 23.8% (n: 5) patients.

Conclusion: Egg allergy is rare, especially in adults. Elimination and label reading should be taught to all patients. Adrenaline autoinjectors should be prescribed and training should be given to suitable patients.

Keywords: Egg allergy, Adult, Food



PP-185

COW'S MILK PROTEIN ALLERGY IS NOT A RISK FACTOR FOR EARLY CHILDHOOD CARIES

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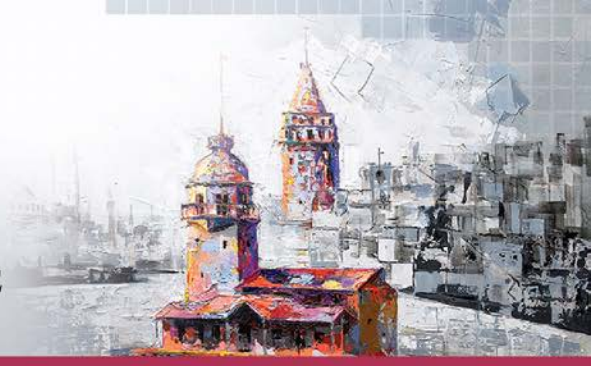
Background: Epidemiological studies have reported that cow's milk consumption is associated with a lower incidence of caries. There is a lack of data on the effect of cow's milk protein allergy (CMPA) on oral health.

Method: Clinical oral examination including tooth decay and gingival health were evaluated; nutritional habits and risk factors for oral health were questioned. Sugar intake, free sugar percentage in energy intake, cariogenic food contact, calcium, phosphorus and vitamin D intake were calculated from the three-day food record, and blood results were recorded.

Results: Sixty-six patients of with CMPA older than two years [56.1% male, median age 39.3 months, 39.4% with multiple food allergy] and 44 healthy controls, [61.4% male, median age 42.5 months] were included. The duration of breastfeeding (p=0.015) and formula feeding (p=0.002) were significantly longer in the group with CMPA. The percentage of recommended calcium intake by age was lower in the group with CMPA(p<0.001). Existence of early childhood caries (ECC)(p=0.761) and dmft (decayed, missing, filled primary teeth)(p=0.893) were similar in healthy controls and group with CMPA. In the group with CMPA, the presence of asthma [OR 2,889 (%95 GA 1,019-8.194; p=0,046)], low maternal education level [OR 14,571 (%95 GA 1,721-123,404; p=0,014)], and increased amount of sugar intake [OR 1,031 (%95 GA 1,002-1.62; p=0,038)] were associated with the presence of dmft.

Conclusion: The development of ECC is multifactorial. Although the presence of asthma clinically affects the development of ECC in children with CMPA, cow's milk elimination does not seem to be a risk factor.

Keywords: Oral health, tooth decay, cow's milk protein allergy,



PP-186

CLINICAL UTILITY OF BASOPHIL ACTIVATION TEST IN DIAGNOSIS OF WHITELEG SHRIMP (LITOPENAEUS VANNAMEI) ALLERGY

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Background: Shellfish is the predominant allergen among patients with food allergy. Whiteleg shrimp (Litopenaeus vannamei) is frequently consumed by locals in Vietnam. However, there is no commercial diagnostic test yet.

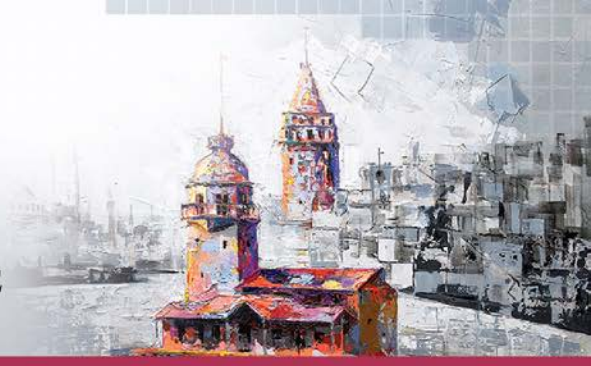
Objectives: We aimed to investigate whether the basophil activation test (BAT) can be applied to diagnose whiteleg shrimp allergy.

Materials-Methods: We recruited patients who reported a definite history of whiteleg shrimp allergy from the University Medical Center (Ho Chi Minh City, Vietnam) from March 2022. The crude extracts of L.vannamei (raw, cooked) were prepared. Skin prick tests (SPT) to house dust mites (Lopharma, South Korea), L.vannamei were conducted. Whole blood was collected, and the leukocytes were used for BAT using the crude extracts, while the plasma were used for IgE (EUROIMMUN, Germany).

Results: Fifteen patients with whiteleg shrimp allergy were recruited, with the median age as 28 (4-66) years old, and 9/15 (60%) of them were female. The positivity rate of SPT to Dermatophagoides pteronyssinus, Dermatophagoides farinae, and L.vannamei were 10/15 (66.67%), 9/15 (60%), and 7/15 (46.67%), respectively. Regarding BAT, 9/15 (60%) patients showed increased levels of CD203c expression, and 6/15 (40%) patients had enhanced levels of CD63. SPT to L.vannamei tended to positively correlate with CD203c expression ($r = 0.448$). All patients reported the symptoms while consuming giant tiger prawn (Penaeus monodon). The CD203c expression induced by L.vannamei positively correlated with the CD203c expression induced by P.monodon ($r=0.714$, $P=0.047$).

Conclusions: BAT seems to be potential in diagnosis of whiteleg shrimp allergy

Keywords: seafood allergy, whiteleg shrimp, basophil activation test



PP-187

ORAL ALLERGY SYNDROME DUE TO PEANUT ALLERGY

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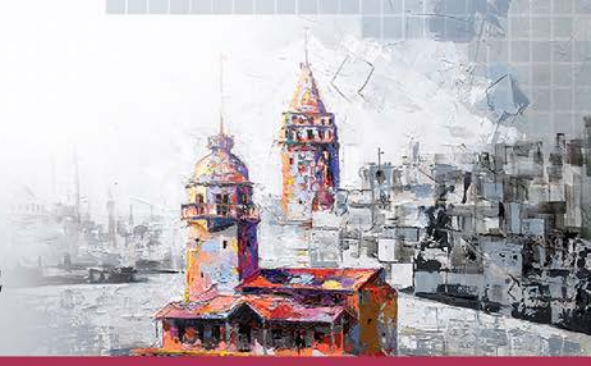
Introduction: Oral allergy syndrome (oas) consists of various symptoms ranging from oropharyngeal symptoms to severe systemic reactions due to ige as a result of the contact of the food to which it is sensitive to the oropharyngeal mucosa. This syndrome is typically seen in atopic individuals who are sensitive to pollen cross-reacting with various fruits.In this study, we wanted to show the clinical image of oral allergy syndrome on the tongue in a patient with peanut allergy and pollen allergy.

Case: a 24-year-old female patient applied to the allergy outpatient clinic because of speckle, blotchy blisters on the tongue, itching and tingling in the throat, which she noticed developed after consuming too much peanuts for the last 6 months. (picture1) the patient also had complaints of increased runny nose, sneezing, and tearing in the eyes in the spring season. In the inhalan and food panel test, olive tree 6x6 barn grass 10x10 artemisfolia 6x6 rye 15x15 pollens 4 20x20,peanut 6x6 mm sensitive in the food panel. Oral allergy syndrome was considered in the patient secondary to cross-sensitivity between peanut and grass polen. antihistamine and nasal steroid treatment was started for allergic rhinitis, and a peanut elimination diet was recommended to the patient.

Conclusion: the frequency of nuts allergies is increasing greater. a detailed history of food allergy should be taken in patients with the complaints of itchy tongue, prominence of tongue papillae. these patients should be examined for oral allergy syndrome.if there was a food allergy,a limited diet should be recommended.

Keywords: oral allergy syndrome,peanut allergy,oral polen allergy syndrome



PP-188

RARE FOOD ALLERGY; A GAL ALLERGY IN A PATIENT WHO DEVELOPED ANAPHYLAXIS AFTER RED MEAT CONSUMPTION

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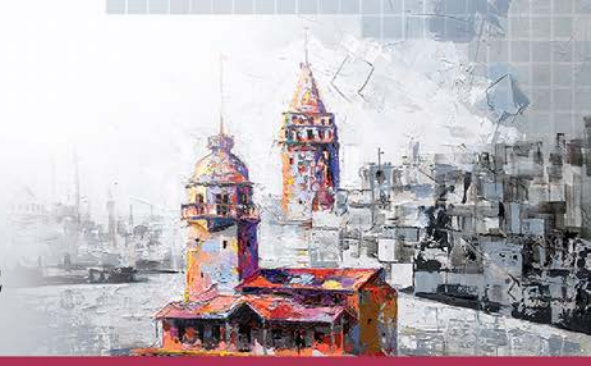
Introduction: Alpha gal allergy is a food allergy that causes delayed anaphylaxis.A gal alergy has been encountered due to cross-reaction to cetuximab,a chemotherapy drug.a thypical allergic reaction to alpha gal may present as gastrointestinal symptoms such as urticaria,abdominal pain or anaphylaxis,which occur 2-6 hours after consuming red meat,unlike most food allergies.also,animal products such as milk and gelatin can occur.It has been observed that an allergic reaction develops after eating red meat when the carbohydrate called alpha gal enters the body after a tick bite.We wanted to present case of a gal allergy, after eating beef.

Case: a 17 -year- old female patient applied to the emergency outpatient clinic due to redness, swelling, itching all over her body, and then abdominal pain and fainting 6 hours after eating the meatballs made from beef and lamb for dinner, she was discharged after being treated for anaphylaxis and was referred to Alergy outpatient clinic.It was learned that 5-6 hours after consuming red meat,his blood group was 0 RH +,his hometown was Ordu,and her uncle had a red meat allergy.Inhalan panel and food panel allergens were negative.Skin prick test was performed with cooked lamb and cooked lamb and cooked beef and it was positive.red meat spesific ige was negative and alpha 1-3 galactose spesific ige:17.4 ku/L(<0.35)were found to be positive.

Conclusion: Due to the possible risk of anaphylaxis, the patient was prescribed an adrenaline auto-injector and elimination mixed meat,dairy products and product containing gelatin diet was recommended.

Keywords: a gal alergy,meat alergy,cetuximab a gal alergy



PP-189

EGG ALLERGY CAUSING ANAPHYLAXIS IN ADULTS; CASE SERIES

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We would like to present our cases of anaphylaxis due to egg allergy in adult patients.

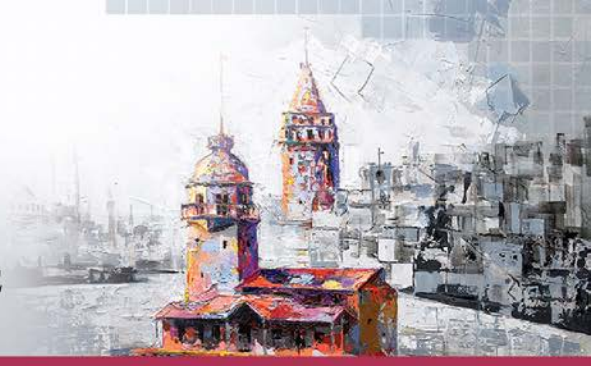
Case 1: Male,26, urticaria, angioedema on face, shortness of breath, hypoxia, hypotension and bradicardia have developed 10 minutes after consuming food containing egg for 2 years. He has atopic dermatitis, drug(metamizol) and nut allergy. Atopy was absent in his family. Diagnostic test results were as follows: EggwholeSPT:10mm, EggWhitesIgE:19kU/L, EggyolksIgE:2.93kU/L.

Case 2: Male,23, stomach ache, cough, angioedema on hands and feet have developed 20 minutes after consuming egg for 2 years. These symptoms were not seen after baked products containing egg. He has atopic dermatitis, chronic urticaria and cow milk sensitization. Atopy was present in his family. Diagnostic test results were as follows: EggwholeSPT:8mm, EggwhitesIgE:4.05kU/L, EggyolksIgE:8.99kU/L, EggwholesIgE:6.22kU/L.

Case 3: Female,31, egg allergy developped when she started taking supplementary food (6 months old). Angioedema on face, shortness of breath, hypotension occured ten minutes after consuming egg. These findings were not seen after baked products containing egg. She had drug allergy(flurbiprofen). One sister also had egg allergy in her family. Diagnostic test results were as follows: eggwhiteSPT:0, eggyolkSPT:12mm, eggwholesIgE:16 kU/L.

Case 4: Female,25, angioedema on tongue and lips, nausea, vomiting and faint have developped 20 minutes after consuming egg for 2 years. Allergic comorbidities history was absent. Atopy was present in the family. Diagnostic test results were as follows: EggwhiteSPT:0, eggyolkSPT:8mm. Since egg allergy in adults is remarkably rare, we wanted to demonstrate the findings in our patients and how anaphylaxis can present in these patients.

Keywords: egg allergy, anaphylaxis, adult, angioedema



PP-190

ASSOCIATION BETWEEN MATERNAL PRENATAL DEPRESSION-ANXIETY AND FOOD ALLERGY IN INFANTS

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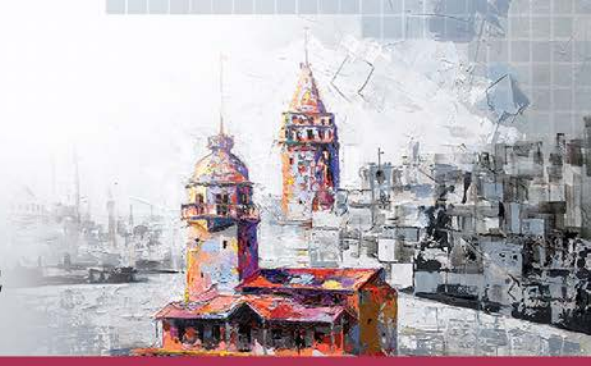
Background: Food allergies are an abnormal IgE or nonIgE related immune response to foods or food additives. The aim of this study was to evaluate the association between prenatal maternal depression-anxiety symptoms and food allergy in infants.

Method: A previous birth cohort which included 697 mother-infant pairs enrolled between 2016 and 2018 formed the population of this study. All subjects were phoned and questioned about the presence of mucus and blood in stool, physician diagnosis of food allergy or proctocolitis during the first year of life. Data of Edinburgh postnatal depression scale (EPDS) and State Trait Anxiety Inventory 1 and 2 (STAI) questionnaires filled in by the mothers during the last trimester were recorded.

Results: 285 subjects were reached. Physician-diagnosed food allergy was detected in 10 (3.5%) patients. History of blood and/or mucus in stool was signifiantly higher in the group with food allergies (50% vs 1.8%, $p<0.001$). Among all mothers, 62 (21.7%) had prenatal depression according to EPDS score; prevalence of depression in mothers of subjects with food allergy was 10% while that in subjects without food allergy was 22.2% ($p = 0.69$). Maternal STAI-1 and 2 scores were not signifiantly different among subjects with and without food allergies ($p = 0.77$ and $p=0.91$ respectively).

Conclusion: We have not found any relationship between prenatal depression or anxiety and food allergies in the infant. However, the incidence of food allergy in our population was low decreasing the power of the negative findings.

Keywords: food allergy, maternal prenatal depression, maternal prenatal anxiety



PP-191

THE ROLE OF miR-19A, miR-98 AND LONG NON-CODING RNA MALAT-1 IN THE PATHOGENESIS OF FOOD ALLERGY

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Background and Objectives: As with other allergic diseases, the frequency of food allergy is increasing all over the world. There are studies showing that one of the reasons for this increase is epigenetic mechanisms. The expression pattern of miRNAs and IncRNAs, one of the epigenetic mechanisms, varies according to different cell types and disease conditions. In this study, it was aimed to investigate the effect of miRNAs and IncRNAs on the development and pathogenesis of food allergy.

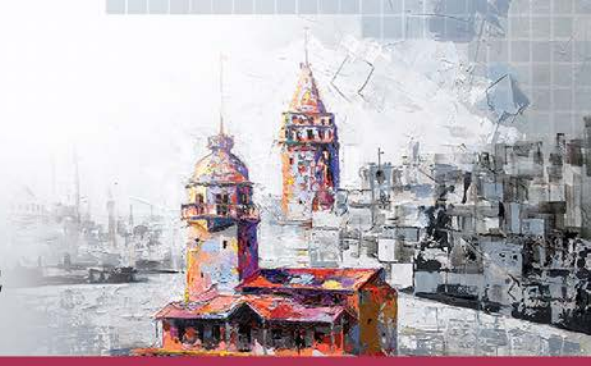
Materials-Methods: The expression of miR-19a and miR-98 and IncRNA MALAT-1 in the serum of 26 food allergy patients and 30 healthy controls was detected by real time polymerase chain reaction (RT-PCR). Serum IL-4, IL-10, IL-13 and TGF-β levels were measured by ELISA.

Results: It was observed that miR-98 was significantly less expressed in children with food allergies compared to healthy children ($p<0.05$). There was no difference in expression levels of miR-19a and MALAT1 between children with food allergic and healthy children, ($p>0,05$). TGF-β levels were found to be significantly higher in healthy children compared to children with food allergies ($p<0.05$).

Conclusions: In our study, only difference in expression levels of miR-98 was observed between the patients and the healthy group. When evaluated together with the data in the literature, it is possible to say that miR-98 may be a biomarker candidate for food allergy.

This study was supported by Hacettepe University Scientific Research Projects Coordinatorship with project number 18798.

Keywords: Food allergy, epigenetic, miRNA, IncRNA, expression analysis, ELISA



PP-192

A VERY RARE FORM OF T CELL LYMPHOPENIA: RHOH DEFICIENCY

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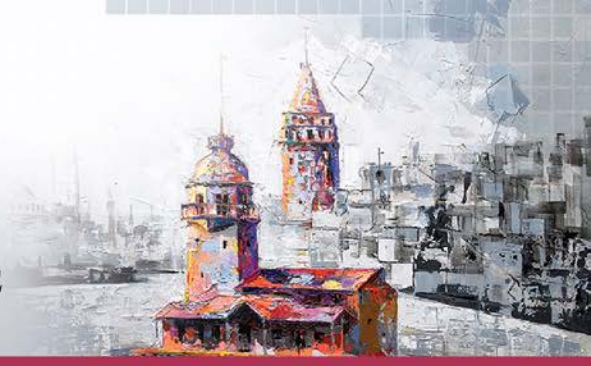
Background And Aims: The Ras homolog gene family member H (RhoH) is an adaptor protein involved in T-cell receptor signaling. Its deficiency leads to T cell defects and persistent human papillomavirus infections. Here, we present a patient with pneumonia and persistent HPV infection, and T cell deficiency.

Methods: Targeted next-generation sequencing was performed with a primary immunodeficiency gene panel comprising 266 genes for genetic analysis. Flow cytometry analysis was performed for lymphocyte subgroups and proliferation.

Results: A 32-year-old male patient whose parents are consanguineous, admitted at 25 of age with recurrent respiratory tract infections started after the age of 4. He had a history of lobectomy at the age of 15 and several cryotherapy sessions since the age of 19 due to multiple warts on his hands and feet. Physical examination was concomitant with obstructive and restrictive pulmonary disease. In the immunological evaluation, atypical form of T cell deficiency was considered. Homozygous missense c.451T<C mutation was detected in the RHOH gene. T cell proliferation was low compared to control, after stimulation with anti-CD3 and anti-CD28.

Conclusions: RhoH is an atypical Rho GTPase expressed in hematopoietic cells. It is responsible for recruiting ZAP70 to the T cell receptor (TCR) complex in T lymphocytes, and its deficiency impairs TCR signaling. RhoH deficiency has been reported in only two siblings with T cell deficiency and HPV infections till now. Treatment involves monthly immunoglobulin replacement and prophylactic antibacterial therapy. Yet, it is not known whether hematopoietic stem cell transplantation is curative in RhoH deficiency.

Keywords: HPV, immunodeficiency, NGS, RHOH



PP-193

A CASE OF HEREDITARY MACROTHROMBOCYTOPENIA: MYH9 DEFICIENCY

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Division of Pediatric Immunology, İhsan Doğramacı Children's Hospital, Hacettepe University, Ankara, Turkey

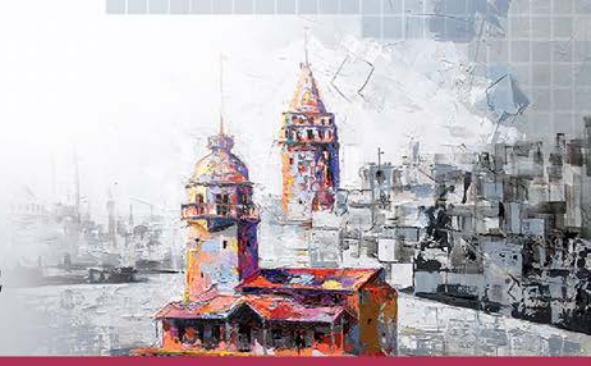
Background And Aims: MYH9-associated disease (MYH9-AD) is a rare autosomal dominant disease caused by mutations in the NMMHC-IIA gene. Although congenital thrombocytopenia is the most prominent clinical finding; many MYH9-AD patients develop sensorineural deafness, presenile cataracts, and/or nephropathy. Here, we present a case who presented with thrombocytopenia and diagnosed as MYH9 deficiency.

Methods: Whole-exome sequencing (WES) was performed.

Results: A 5-year-old male patient with bruises and nosebleeds, whose parents are consanguineous, was diagnosed with thrombocytopenia in the epicenter, and was referred to our department. Lymphadenopathies were detected in the right anterior cervical region on physical examination. High mean platelet volume and rare single thrombocyte in peripheral smear were detected. In abdominal ultrasonography, echogenicity of both kidney parenchyma was found to be compatible with grade 1 nephropathy. Basal immunological evaluations were found to be normal, and thrombocytopenia was found to be resistant to immunomodulatory treatments such as high-dose IVIG, steroids and cyclosporine. A heterozygous missense c.2104C>T/p.R702C variant was detected in MYH9 gene in WES.

Conclusions: Genotype/phenotype studies have shown that individuals with mutations in the motor (head) domain of myosin-9 have more severe thrombocytopenia and have a higher risk of developing nephropathy and deafness. Since the variant we described in the patient affected the same domain, the patient was planned to be followed closely in terms of these clinical findings. The effect of this gene on immune dysregulation needs to be investigated in further studies since it is involved in cytokinesis similar to some other PID causative protein defects, such as DOCK8, WASP, RLTPR, etc.

Keywords: Immune dysregulation, thrombocytopenia, whole-exome sequencing



PP-194

IMPORTANCE OF EARLY DIAGNOSIS OF INBORN ERROR OF IMMUNITY: A COMPLICATED CASE OF LRBA DEFICIENCY

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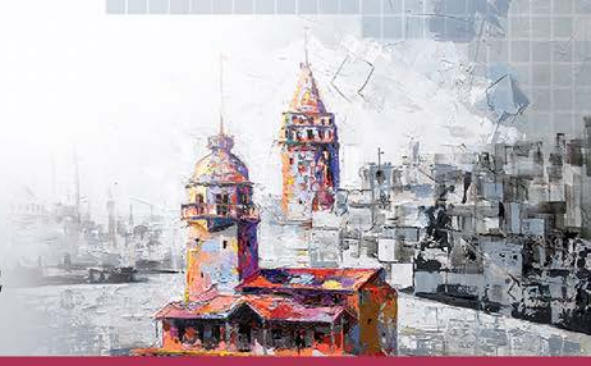
Background And Aim: LPS responsive beige-like anchor (LRBA) deficiency is an inborn error of immunity (IEI) with a wide range of heterogenous manifestations including autoimmunity, enteropathy, lymphoproliferation, hypogammaglobulinemia, recurrent infections and malignancy. Early diagnosis is important to determine the treatment strategy Here, we aimed to present a complicated patient with organ dysfunctions due to delayed diagnosis of LRBA deficiency.

Case: A forty year-old male patient was diagnosed with pernicious anemia and Hashimoto thyroiditis at the age of 10 and 18, respectively. At the age of 22, gastric adenocarcinoma was detected in his evaluation performed due to diarrhea and weight loss. Total gastrectomy, splenectomy and distal pancreatomy in addition to chemotherapy and radiotherapy were performed. At the age of 30, he had pneumonia and hypogammaglobulinemia was detected. He was diagnosed as common variable immunodeficiency and intravenous immunoglobulin (IVIG) replacement treatment was started. At the age of 33, he had lymphoma and received chemotherapy. At the age of 36, esophageal varices were observed. At the age of 39, he presented with bleeding of esophageal varices and liver cirrhosis was detected. Although he was under IVIG replacement treatment, pulmonary infections recurred, bronchiectasis was developed and lung functions deteriorated. After consultation with our immunology clinic, we detected the low level of LRBA expression in flow cytometry. Genetic analysis was confirmed the diagnosis and treatment strategy was accordingly planned.
Conclusion: This case indicated the importance of early diagnosis of IEI so that the mortality and morbidity can be decreased with accurate treatment.

Keywords: Inborn errors of immunity, LRBA deficiency, immunodeficiency



PP-195

PID PATIENTS WITH MONOGENIC IMMUNE DYSREGULATION DISEASES

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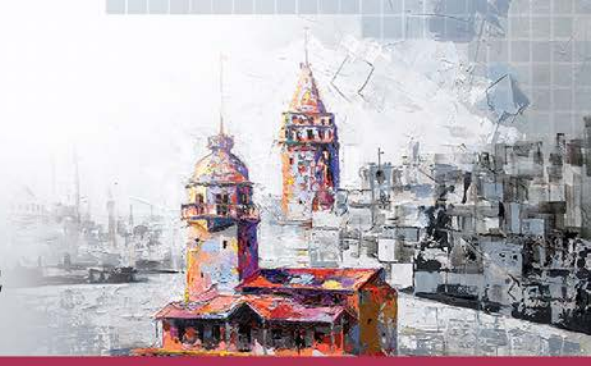
Primary immunodeficiencies (PIDs) constitute a large group of inherited disorders that affect the function of the immune system. A specific group of PIDs entitled"diseases of immune dysregulation"are developed due to mutation in the genes which have critical roles in the regulation of immune responses and immunological tolerance.. In this study, we aimed to identify the clinical aspects of immune dysregulatory patterns associated with PIDs Thirty-one patients with primary immunodeficiencies who developed immundisregulation manifestations were included in the study. The data was obtained from the electronic files of the patients retrospectively. Twenty-five percent of patients presented with hepatosplenomegaly (n= 8), %13 patients developed hemophagocytic lymphohistiocytosis (HLH) and followed by % 6,5 massive splenomegaly(n=2), and %3 Hodking lymphoma(n=1) respectively.

Hashimato thyroditis' the most common autoimmune phenotype', was founded in 2 patients with" LPS responsive beige-like anchor protein" deficiency (LRBA), 1 patient with CD 27 deficiency (when combined with hodking lymphoma), or 2 patients with AIRE deficiency (when it was the initial symptom of immune dysregulation). Asthma was reported in one patient (%3).

Thrombocytopenia was found in %10 of patients(n=2) JIA (juvenile idiopathic arthritis)and infertility was detected in %6.5 of patients. Autoimmune adrenalitis (n=1, %3), 3% hypoparathyroidism(n=1-%3) neutropenia (n=1, %3), myasthenia gravis (n=1, %3) were the other manifestations of the patients. Nineteen percent of the patients(n=6) were treated with immunomodulatory drugs(abatacept, sirolimus, omalizumab). One patient underwent HSCT (haematopoietic stem cell transplantation). Patterns of immune dysregulation may help the physician to recognize specific PIDs.

Keywords: pid, immundisregulation, gene



PP-196

FATAL COVID-19 IN A GIRL WITH STAT1 GAIN-OF-FUNCTION VARIANT

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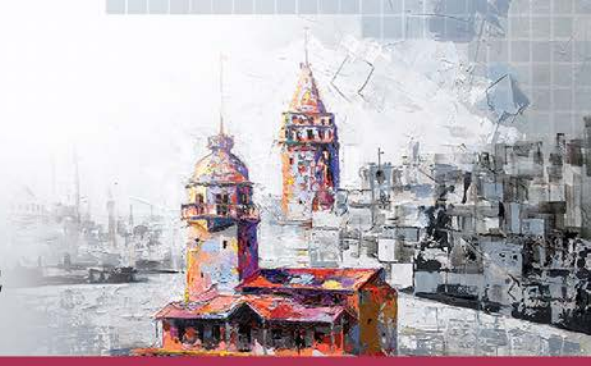
COVID-19 is an easily transmissible infectious disease caused by a second severe acute respiratory syndrome coronavirus. Well-established risk factors for severe disease include advanced age and chronic-degenerative comorbidities. However, few pediatric patients develop severe disease, usually due to hyper-inflammation. While STAT1-GOF variants susceptibility to infection is attributed to defective Th1 and Th17 responses, they also produce an enhanced response to IFN-I associated with STAT1 hyperphosphorylation, characteristic of type I interferonopathies.

A 7-year-old female from Monterrey, Mexico, who began at three months with chronic diarrhea, recurrent upper respiratory infections, bronchiolitis, and oral candidiasis. On physical examination, she had short stature, acropaquia, and subtle facial dysmorphisms. Presented with sudden deterioration, fever, dyspnea, elevated acute phase reactants, and pancytopenia; a bone marrow aspiration documented hemophagocytosis, RT-PCR confirmed SARS-CoV-2 infection, despite management with intravenous high-dose gammaglobulin, pulses of methylprednisolone, cyclosporine, and etoposide, she died in less than a week.

An exome-wide analysis identified a novel, likely pathogenic heterozygous missense variant in exon 20 of STAT1 (c.1687G>C, p.Glu563Gln) in a linker domain between DBD and SH2. A luciferase reporter assay confirmed gain of function in response to IFN-γ stimulation for that variant.

To our knowledge, this is the first report relating STAT1-GOF to fatal COVID-19, we were able to document the gain of function of STAT1 in response to IFN-γ through functional assays. IFN-I is essential against viral infections, in the case of STAT1-GOF, there is an excessive production of IFN-I, suggesting that any imbalance in this pathway, can lead to a catastrophic scenario.

Keywords: Hemophagocytic syndrome, STAT1-GOF, COVID-19, Fatal COVID-19, Pediatrics



PP-197

FREQUENCY OF ALLERGIC DISEASES IN PATIENTS WITH SELECTIVE IMMUNOGLOBULIN A DEFICIENCY

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SBU Dr. Behçet Uz Pediatric Diseases and Surgery E.A.H / Pediatric Immunology and Allergy Clinic / İzmir, Turkey

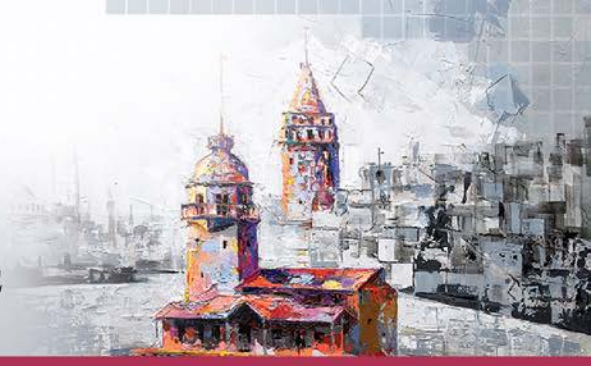
Introduction: Selective IgA deficiency is the most common immunoglobulin disorder. While some patients are asymptomatic, some patients have autoimmunity and allergic diseases. In our study, we aimed to determine the relationship between allergic diseases and IgA deficiency in patients with IgA deficiency.

Methods: 52 patients aged 4-18 years, who were followed up in the pediatric immunology outpatient clinic of our hospital with the diagnosis of selective Ig A, were included in our study. Of these 51 patients, those with allergic symptoms were previously referred to our pediatric allergy outpatient clinic. The diagnosis, laboratory, and treatment information of these patients in the pediatric allergy outpatient clinic were recorded in our immunology follow-up files. The information obtained by retrospective scanning of our recorded files was used as study data.

Results: Of the patients, 34 (65.3%) were male and 18 (34.6%) were female. The mean age was 8.3 years. 53.8% of the patients had an allergic disease. While the frequency of allergy was 64.7% in male patients, this rate was 44.4% in female patients. 38% of the patients had asthma, 15.3% had allergic rhinitis and 3.8% had atopic dermatitis. A significant correlation was found between the Ig E and eosinophilia levels of the patients and their allergic diseases. Skin tests and blood-specific allergy tests were performed on symptomatic cases and allergen sensitivity was found to be 26.9%.

Discussion-Conclusion: In selective Ig A deficiency, male gender, eosinophilia and high Ig E increase the frequency of allergy, which is increased compared to the normal population.

Keywords: Selective Ig A deficiency, asthma, allergic rhinitis, Ig E elevation, eosinophilia



PP-198

INVESTIGATION OF NEUTROPHIL FUNCTIONS IN PSEUDOMONAS-COLONIZED CYSTIC FIBROSIS PATIENTS

Handan Duman Şenol[1], Meral Barlık[2], Ezgi Topyıldız[1], Figen Gülen[1], Güzide Aksu[1], Necil Kütükçüler[1], Esen Demir[1], Neslihan Edeer Karaca[1]
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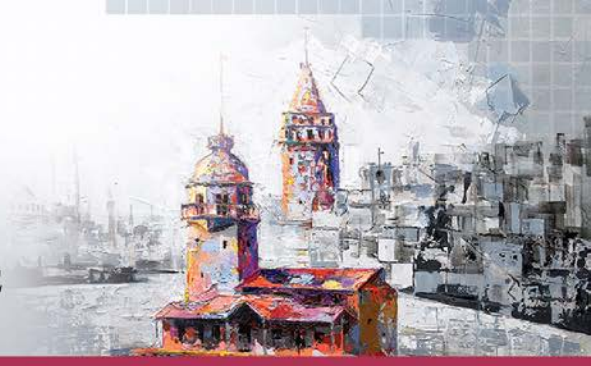
Introduction: Cystic fibrosis (CF) is an autosomal recessive disorder which is characterized by chronic lung infections. Although CF is considered as an epithelial disease due to impaired chloride transport, its pathogenesis is not clear. In recent human inborn errors of immunity classification, CF is classified as a syndrome with congenital defects of phagocyte. Neutrophils are the most effective cells in the eradication of bacterial infections such as Pseudomonas aeruginosa. The aim of this study was to investigate the neutrophil and monocyte functions in pseudomonas colonized cystic fibrosis patients.

Material-Method: A total number of 26 patients with cystic fibrosis who were Pseudomonas colonized and 21 healthy controls (sex and age matched) were included in the study. Absolute neutrophil counts(ANC), immunoglobulin values(Ig), Migratest (to evaluate chemotaxis in neutrophils and monocytes), CD11A/CD18/CD15 S (β2 integrin) adhesion molecules, Phagoburst test for intracellular bacterial killing were analyzed by flowcytometer.

Results: Absolute neutrophil counts (ANC), CD15S expression on neutrophils and IgG, IgA and IgM levels were higher in CF patients than control group($p<0.01$, 0,018). ANC, IgG and IgA levels were significantly higher in patients with homozygous for F508(p respectively:0,03, 0,03,0,001). The neutrophils and monocytes' oxidative burst activity and chemotactic ability of CF patients did not differ from that of controls.

Conclusion: Our results does not support impaired functions such as migration and phagocytosis of monocytes and neutrophils in patients with CF. Further studies involving more CF patients are needed to make a definitive interpretation.

Keywords: Cystic fibrosis,Chemotaxis, neutrophil function, monocytes,



PP-199

DESCRIPTIVE STUDY OF 123 SYMPTOMATIC PATIENTS WITH IgA DEFICIENCY, A RETROSPECTIVE CASE SERIES STUDY

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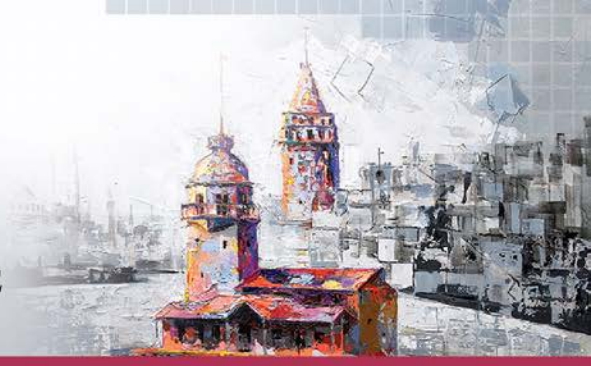
Background: IgA deficiency (IgAD) is the most common primary immunodeficiency, which is caused by a defect in IgA antibody production. Most of the patients are asymptomatic. However, patients can present various manifestations. This study was designed to assess the clinical and laboratory manifestations of symptomatic patients with IgA deficiency.

Methods: A group of 123 patients with IgA deficiency referred from all over the country to the national immunodeficiency registration center were entered and followed in this study. The data including demographic characteristics, clinical manifestations and laboratory findings recorded at the registry and also the follow-up visits were extracted.

Results: The mean age of studied patients was 17.1 years old. Regarding gender, 45 patients (36.5%) were female. The most common clinical presentations included upper respiratory tract infections in 22 (17.9%), enteropathy in 9 (7.9%), allergic rhinitis in 11 (8.9%), sepsis in 4 (3.3%) patients. Four cases of leukopenia with white blood cell (WBC)<4,000/µl and 21 cases of leukocytosis with WBC> 10,000/µl were observed based on the laboratory results. Also, IgG2 and IgG4 in 2 and 11 patients were less than normal rate for their age, respectively.

Conclusion: Although IgA deficient patients are almost always asymptomatic, clinical manifestations such as recurrent sinopulmonary infections, multiple autoimmune diseases, allergic respiratory and skin disorders, gastrointestinal diseases, and rarely severe life-threatening infections could occur.

Keywords: IgA deficiency,Primary immunodeficiency,Clinical manifestations



PP-200

COMPUTATIONAL ANALYSIS OF VARIANT OF UNCERTAIN SIGNIFICANCE (VUS) T315A MUTATION ON PIK3R1

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The PIK3R1 gene mutation c.943A>G, p.T315A is classified as VUS. We aimed to predict the pathogenicity of the p.T315A mutation using structural biology and bioinformatics methods.

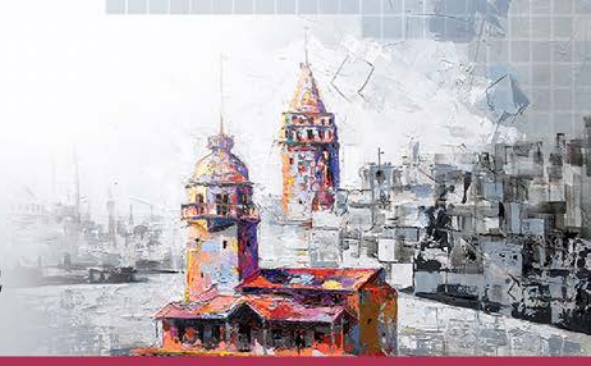
The tertiary structure of PIK3R1 was retrieved from RCSB:PDB(5M6U). T315 mutation modeled on Chimera 1.15/Tools/Structure editing/Rotamer local server. Mutated PIK3R1 protein structure refined in GalaxyRefine web tool. Refinement process made for mutated structure validation. Wild type and mutated PIK3R1 proteins molecular dynamics analyses made in GoogleCOLAB AMBER MD (molecular dynamics) simulation tool. We used the DynaMut2 web program to analyze how the T315A mutation in the PIK3R1 protein causes a physicochemical change in the protein.

When the physicochemical properties of wild-type and mutated PIK3R1 proteins were examined, we calculated that mutated PIK3R1 lost stability at ΔΔG=-1.29. As a result of four molecular dynamics analyses, we obtained RMSD and RMSF graphs to investigate the solidity, flexibility, and atomic level mobility of wild-type and mutated PIK3R1 proteins. We did not detect any concordant variation between the RSMD plots of wild-type and mutated proteins. We calculated that the number of peaks in the graph and the area under the peaks increased after the mutation in the RMSF graphs.

According to the physicochemical analyzes we performed, we calculated that the protein stability was impaired when the ΔΔG(Stability index) was calculated. We analyzed the deterioration of the alpha-helix and beta-strands, which are essential for protein function, using MD analysis.

The classification of the mutation as likely pathogenic or pathogenic is what we recommend based on the analyses performed.

Keywords: PIK3R1, Molecular dynamics, Structural biology, Bioinformatics, VUS



PP-201

PATCH TEST RESULTS OF THE DENTAL PERSONNEL WITH CONTACT DERMATITIS

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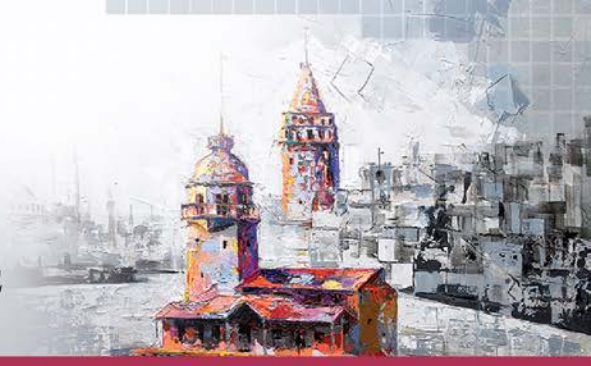
Objectives: Dental personnel have high risk of occupational contact dermatitis. The aim of this study is to detect the materials which cause contact sensitization and the frequency of contact dermatitis by using patch tests with European standard series and dental screening series in dental personnel.

Methods: 461 dental personnel working in Ankara (Türkiye) were examined and age, gender, previous history of dermatitis, area of the skin affected and clinical diagnosis were noted. About 198 (43%) of the dental personnel were diagnosed contact dermatitis. Sixty-five of the dental personnel accepted to be patch tested.

Results: Dental technicians, dentists and dental nurses constitute 69.2%, 24.6% and 6.2% of patch tested 65 patients, respectively. Positive reactions to at least one allergen were detected with European standard series at 20% and with dental series at 10.8% among the dental personnel. The most common allergens were nickel sulfate (12.3%), acrylates (6.1%) and para-tertiary-butylphenol-formaldehyde resin (4.6%). The most common acrylate was ethyleneglycol dimethacrylate (3.1%).

Conclusions: We believe our study will be helpful to dermatologists about frequency of contact dermatitis among dental personnel and allergens that cause contact sensitivity for developing new methods to protect the personnel in dentistry against sensitization

Keywords: Dental personnel, European standard series, occupational contact dermatitis, patch test



PP-202

OCCUPATIONAL RHINITIS IN BAKERS: A SINGLE CENTER EXPERIENCE FROM TURKEY

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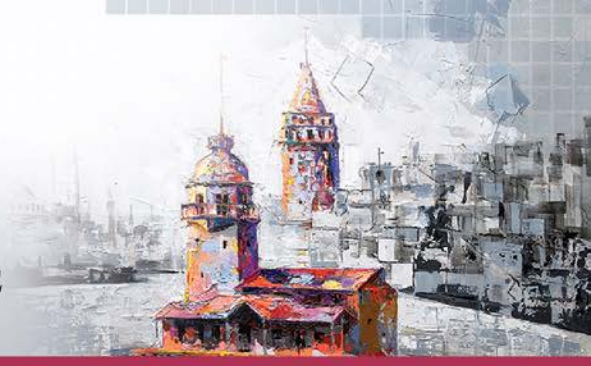
Background and Objectives: Baker's rhinitis is one of the most common causes of occupational nasal diseases. However, there is lack of data on baker's rhinitis in our country. We aimed to investigate the incidence of occupational rhinitis in bakery workers in a bread factory.

Materials-Methods: This is a cross-sectional study in bakers who were previously investigated for occupational asthma. Workers were invited to complete a questionnaire on the relationship between nasal symptoms and occupation. Nasal symptoms were evaluated with several scoring systems. Skin prick test (SPT) results were extracted from their previous records.

Results: Among 162 workers 60(37%) subjects with nasal symptoms were enrolled to the study (Male,n:58, mean age:36.25±7.28 years). The most common nasal symptom was sneezing in 38(63.8%) followed by rhinorrhea in 24(40%), nasal obstruction in 24(40%), and nasal itching in 22(36.7%) bakers. Nasal symptoms started after working at the bread factory in 42(70%) workers. Thirty bakers (50%) reported worsening symptoms at work and improvement at holidays. SPTs were positive in 10 bakers with wheat flour. Overall, 10(16.6%) bakers were diagnosed as probable baker's rhinitis according to compatible history and presence of wheat flour sensitivity. Mean scores for RQLQ, VAS, TNSS, and SNOT-22 were 59.5±39.74, 4±3.36, 4.10±2.47, and 1.95±1.19 in those patients, respectively. Six of them were also provocated with wheat flour and had positive test.

Conclusions: In this study, the prevalence of baker's rhinitis was found as 16.6% which was compatible with previous data. The scores for nasal symptoms indicate moderate to severe clinical presentation.

Keywords: Occupational rhinitis, baker rhinitis, wheat allergy



PP-203

Chemical product exposure in professional cleaners and its relationship with asthma

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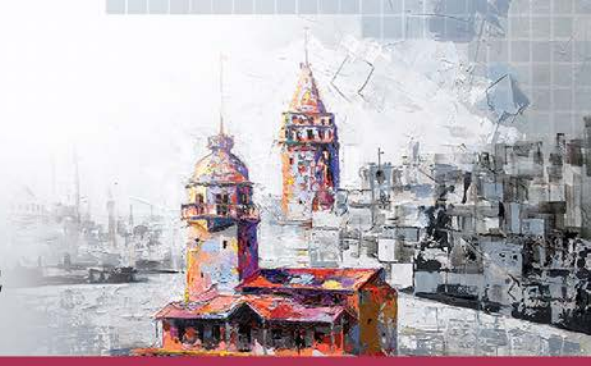
Background and Objective: Exposure to cleaning products is one of the causes of occupational asthma. In this study, we aimed to reveal the respiratory symptoms and the frequency of occupational asthma in professional cleaners.

Materials and Methods: Volunteers among the cleaning staff working in the hospital were included by filling out a questionnaire. According to the questionnaire results, symptomatic subjects were evaluated by telephone interviews and outpatient clinic visits. In subjects with suspected asthma, peak expiratory flow follow-up, pulmonary function and reversibilty tests, skin prick test and non-specific bronchial provocation tests were done.

Results: 308 cleaners (143M/165F, mean age:40.2±10 years) were included. The median working time was 10 (1-27) years and 5.5% of the workers stated that they had asthma before. Respiratory symptoms were present in 44.8% and symptoms started after beginning work in 39% of workers. As cleaning products, general floor cleaner, wc cleaner and chlorine tablets have been used in 13.6%, 12.9% and 12.8% of the subjects respectively. Respiratory symptoms were more common in subjects using wc cleaner and chlorine tablets ($p<0.001$). As a result of telephone interviews with symptomatic workers, asthma was suspected in 47 subjects and 10 of the 25 workers who accepted to visit the clinic and completed the tests were diagnosed as asthma.

Conclusions: Preliminary data of this study show that cleaning product exposure frequently causes respiratory symptoms and may be an important cause of occupational asthma. Professional cleaners should be followed regularly for respiratory symptoms for early diagnosis and prevention of exposure.

Keywords: cleaning products, respiratory symptoms, occupational asthma



PP-204

OCCUPATIONAL CONTACT ALLERGY IN WIND TURBINE INDUSTRY WORKERS IN TURKEY

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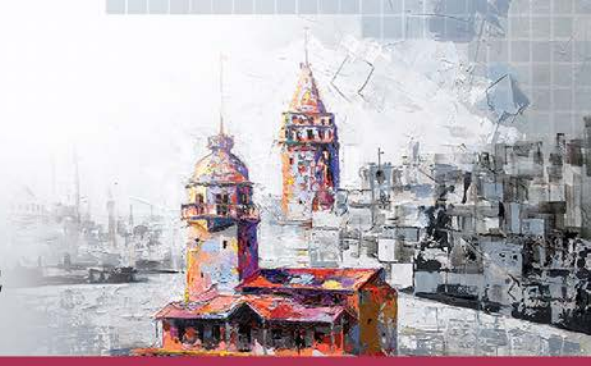
Background And Objective: Occupational contact dermatitis can cause significant morbidity in wind turbine industry workers producing rotor blades for wind turbines with epoxy-based techniques. The aim of this study is to present the characteristics of occupational contact allergy in wind turbine industry workers in Izmir, Turkey.

Materials-Methods: We retrospectively reviewed the clinical records of suspected contact dermatitis patients who were wind turbine industry workers. All wind turbine industry workers who underwent patch testing with a standard European panel of 35 allergens and a negative control between January 2016 and January 2022 in our allergy clinic were included to the study.

Results: Patch tests were performed in a total of 65 patients (median (min-max) 30 (20 - 49) years, all patients were male). The median symptom duration was 5 months (min-max 0,5 – 60 months). The median duration of employment in the workplace was 24 months (min-max 2-144 months). The most frequently affected areas were hands (55.4%), trunk (29.2%) and face/neck (26.2%). At least one positive patch test result was detected in 50.8% of the patients (n=33). The most common positive allergens were epoxy resin (29.2%), thimerosal (9.2%), nickel sulphate (4.6%) and formaldehyde resin (4.6%). Symptom duration, symptom severity and frequency, duration of employment in the workplace, affected body areas and atopy rates were similar in patients with or without patch test positivity ($p>0.05$).

Conclusions: This study indicates a high prevalence of contact allergic reactions to epoxy resin in symptomatic wind turbine industry workers.

Keywords: Occupational allergy, contact dermatitis, industry workers



PP-205

QUALITY OF LIFE AND ITS PREDICTIVE FACTORS AMONG HEALTHCARE WORKERS WITH OCCUPATIONAL CONTACT DERMATITIS

Amira Omrane[1], Olfa Jelassi[1], Asma Kheder[1], Chayma Harrathi[1], Malek Ben Abdelkader[2], Maher Maoua[2], Taoufik Khalfallah[1], Najib Mrizak[2], Mohamed Akrout[3], Mohamed Adnen Henchi[3], Hichem Bel Hadj Ali[4]
[1]Department of Occupational Medicine and Pathologies, Mahdia University Hospital Tunisia
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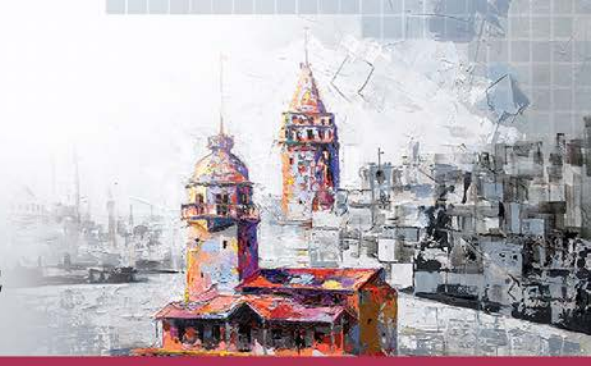
Background and Objectives: Healthcare workers (HCWs) are particularly at risk of developing occupational contact dermatitis (OCD). OCD is not a life-threatening disease, nevertheless, it has a negative impact on workers' quality of life (QoL) and work achievement. The aim of this study was to identify factors affecting QoL among HCWs suffering from OCD.

Materials-Methods: A cross-sectional and exhaustive study was carried out among HCWs in four public hospitals in Tunisia, over a 25-year period. All OCD recognized as an occupational disease were included. Dermatological-related QoL was assessed using the validated Tunisian version of the "Dermatology Life Quality Index" (DLQI).

Results: A total of 37 OCD patients were collected. The study population was made mainly by female (73%) with a mean age of 44.7±9.4 years. The majority of participants were married (91.1%). Nurses were more likely to experience OCD (36.8%). Allergic contact dermatitis was found to be the most frequent diagnosis (96%). The median DLQI score was 4 [0.5-13.5] and 59.5% of patients had low to extremely high effect on their QoL. After multiple linear regression, marital status (p=0.013, β=0.374) and experiencing relapses (p=0.004, β=0.440) were associated with a high DLQI score.

Conclusions: Over half of this study population was found to experience a low to extremely high impairment in QoL. Being divorced or widowed and having more frequent disease exacerbations had negative QoL impacts. Preventive actions to avoid and manage OCD occurrence are of crucial importance.

Keywords: occupational dermatitis, healthcare workers, quality of life, DLQI.



PP-206

OCCUPATIONAL CONTACT DERMATITIS: COURSE OF THE DISEASE AND RELAPSES PREDICTIVE FACTORS

Amira Omrane[1], Olfa Jelassi[1], Asma Kheder[1], Chayma Harrathi[1], Malek Ben Abdelkader[2], Maher Maoua[2], Taoufik Khalfallah[1], Najib Mrizak[2], Mohamed Akrout[3], Mohamed Adnen Henchi[3], Hichem Bel Hadj Ali[4]
[1]Department of Occupational Medicine and Pathologies, Mahdia University Hospital Tunisia
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[4]Dermatology Department, Monastir University Hospital Tunisia

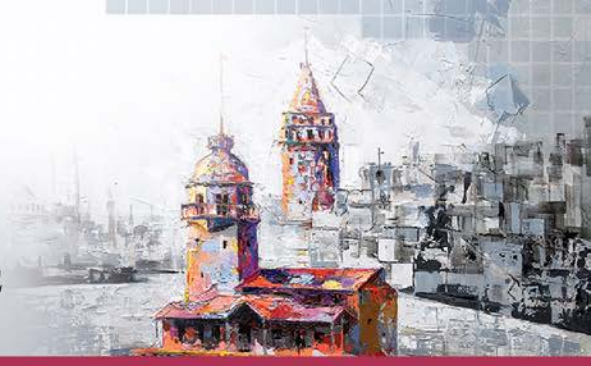
Background and Objectives: Occupational contact dermatitis (OCD) are often chronic with relapses, involving irritating and allergenic factors. They affect daily, professional health related quality of life and work productivity. These conditions are exacerbated by occupational exposure to allergens or chemicals and difficulties to avoid it. The aim of the present study was to assess the rate of OCD relapses of OCD and to determine its predictive factors.

Materials-Methods: A retrospective study of patients with OCD diagnosed and declared in four public hospitals in Tunisia between 2006 and 2019 was performed.

Results: The participants were predominantly female (73%). The mean age was 44.7±9.4 years. Allergic Contact Dermatitis (ACD) was diagnosed in 94.7% of patients. Patch test was positive in 93% of patients. Of these, 27% of patients had one relapse, 8.1% of patients had two relapses and 5.4% of patients had three relapses. The median time to first relapse was 60.5 days [ranging from 18.5 to 171 days]. The mean sick leave time was 13.1±4.33 days, 19±9.64 days and 38.5±13.43 days, respectively for the first, second and third relapse. Allergen avoidance was indicated in 51% of patients. Of all participants, 40% considered their OCD unchanged or worsened. After multivariate analysis, the absence of avoidance measures was found to be an independent factor of OCD relapse (OR=7.2, IC[1.68-30.8], p=0.008).

Conclusions: High relapse rate of OCD is mainly attributable to avoidance difficulties. Multidisciplined follow-up after diagnosis is essential to educate patients and manage relapse occurrence.

Keywords: Allergic contact dermatitis, Healthcare workers, exposure, prognosis, follow-up



PP-207

CLINICAL PROFILE OF ALLERGIC CONTACT DERMATITIS AND PATCH RESPONSE IN HEALTHCARE WORKERS

Amira Omrane[1], Olfa Jelassi[1], Asma Kheder[1], Chayma Harrathi[1], Malek Ben Abdelkader[2], Maher Maoua[2], Taoufik Khalfallah[1], Najib Mrizak[2], Mohamed Akrout[3], Mohamed Adnen Henchi[3], Hichem Bel Hadj Ali[4]
[1]Department of Occupational Medicine and Pathologies, Mahdia University Hospital Tunisia
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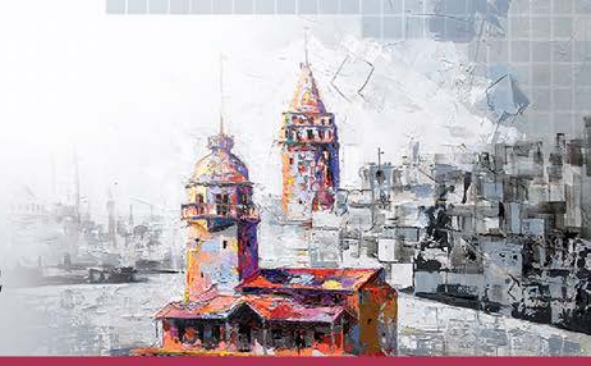
Background and Objectives: Allergic contact dermatitis (ACD) is a delayed allergic reaction from a multifactorial cause which may be endogenous, exogenous, or a combination of both. Patch testing is an important tool to identify the main allergen responsible and help improve disease management. The aim of this study was to evaluate the clinical and etiologic profile of ACD patients and to review their patch responses.

Materials-Methods: A cross-sectional and retrospective study was carried out among healthcare workers (HCWs) with occupational ACD in four hospitals in Tunisia. Medical and administrative records of ACD patients were collected. A synoptic sheet in medical and socio-professional characteristics and patch test results (European baseline series (ESS) and additional series) has been fulfilled.

Results: Of the 37 ACD patients, 73% were female. The mean age was 44.7±9.4 years. Nurses were more likely to experience ACD (36.8%). The most frequent occupational hazards reported were protective gloves (86%), soaps and using alcohol gel (73.7%), and repetitive hand washing (71.1%). The median time of onset of skin lesions was 2 years. Among the 34 HCWs who were patch tested using ESS, 31 had at least one positive reaction (91%). The rubber series test was performed in 13 patients and was positive in 11 patients. The most common allergens were Thiuram-mix (38%), 1,3-Diphenylguanidine (38%), Nickel sulfate (35%), Potassium dichromate (23%) and N-Cyclohexylbenzothiazyl Sulphenamide (52%).

Conclusions: Thiurams, Nickel sulfate, and 1,3-Diphenylguanidine were the most common allergens among HCWs. Legal regulations should be made to decrease exposure to these allergens.

Keywords: Contact dermatitis, Healthcare workers, European standard series, Patch test



PP-208

OCCUPATIONAL ASTHMA: EPIDEMIOLOGY AND OCCUPATIONAL OUTCOME

Malek Ben Abdelkader, Asma Aloui, Maher Maoua, Marwa Bouhoula, Asma Chouchane, Imen Kacem, Aicha Brahem, Houda Kalboussi, Souhail Chatti, Nejib Mrizek
Department of Occupational Medicine, University Hospital Farhat Hached, Sousse, Tunisia

Background and Objectives: to analyse factors associated with the occupational outcome among patients suffering from occupational asthma.

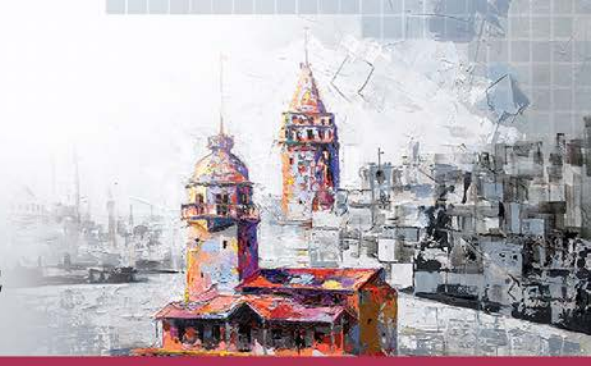
Materials-Methods: It is a cross-sectional study among workers with occupational asthma recognized in the central region of Tunisia. A synoptic sheet related to socio-medical and administrative data was completed. Occupational characteristics were completed via phone interviews.

Results: The study involved 74 workers affected by occupational asthma. The mean age was 44 ± 8 with a female predominance (66%). Half of the patients worked in the textile industry, 13% in the metallurgy sector and 8 % in the construction industry. The most important etiological agents were textile dust (21%) and isocyanates (20%). The average job tenure was 18 ± 9 years.

A professional reclassification was introduced among 13 workers (17%). Workstation adaptation was requested in 43 cases (58%). Eviction of causal allergens was realized in 18 cases (24%). After eviction, a worsening of symptoms was repoted in 25% cases, improvement in 9% cases and persistent symptomes in 13% cases. Four patients were transferred to other departments (5.4%), six others were retired (8.1%) and 13% losed their jobs. A statistically significant association was found between occupational outcome and a history of allergic manifestations (p <[10]^(-3)), the allergic agent (p <[10]^(-3)), comorbidities (p = 0.003) and asthma control (p <[10]^(-3)).

Conclusions: This study identified the main factors influencing the occupational outcome of workers suffering from occupational asthma.

Keywords: Occupational asthma, Asthma outcome, work



PP-209

OCCUPATIONAL ASTHMA CASES EVALUATED WITH SPECIFIC INHALATION CHALLENGE TESTS: A SINGLE-CENTER STUDY

Reyhan Yildiz, Esra Ünsay Metan, Ömür Aydın, Zeynep Çelebi Sözener, Yavuz Selim Demirel, Vesile Dilşad Mungan
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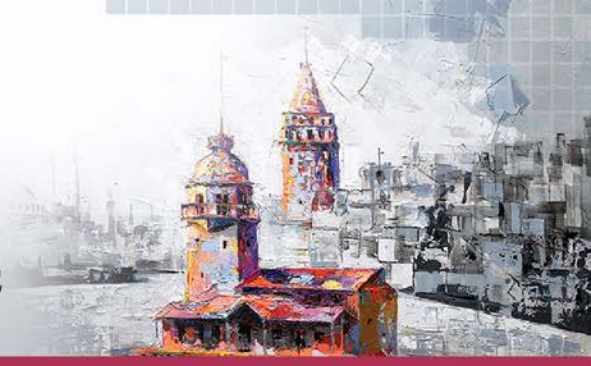
Background and Objectives: Occupational asthma (OA) is the most common group of occupational lung diseases. Specific inhalation challenge (SIC) test is the gold standart for OA diagnosis. In this study we aimed to determine the clinical features of the patients who were evaluated for probable OA and performed SIC test in our clinic.

Materials-Methods: This study was conducted between 2015-2022. The demographic characteristics were recorded from patient files. OA was diagnosed by history, pulmonary function tests, serial PEF records and SIC tests.

Results: Twenty-three cases (Male, n:21) with a mean age of 43± 8,5 years(min-max:30-60 years) were included in the study. Painters (n:11) and bakers (n:6) were in the majority. Patients had shortness of breath (n:23), cough (n:6), rhinitis symptoms (n:7) and eczema (n:1). The mean time to development of dyspnea was 12± 8 (min-max:1-25) years. During the evaluation, SIC test was performed in 23 cases and positive results were obtained in 16 (70%) patients. Among bakers 67% patients had also wheat flour sensitivity. One patient was diagnosed as work-induced asthma. In 3 patients asthma was not related with occupation. As a result 70% of patients were confirmed as having OA with positive SIC test.

Conclusions: Diagnosis of OA is an important issue due to its socio-economic aspects and partially preventable nature, and SIC test remains the most crucial and reliable test. We think that health policies should be proposed for the widespread use of SIC test.

Keywords: Occupational exposure, asthma, specific inhalation challenge tests



PP-210

HOW WELL IS THE OUTCOME OF PATCH TESTING REMEMBERED?A STUDY AMONG HEALTHCARE WORKERS WITH OCCUPATIONAL CONTACT DERMATITIS

Amira Omrane[1], Olfa Jlassi[1], Asma Khedher[1], Chayma Harrathi[1], Malek Ben Abelkaer[2], Maher Maoua[2], Taoufik Khalfallah[1], Najib Mrizak[2], Mohamed El Akrout[3], Mohamed Adnene El Henchi[3], Hichem Bel Hadj Ali[4]
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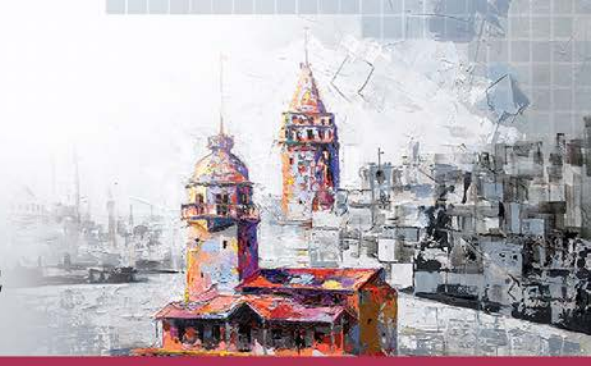
Background and Objectives: Patch testing is an effective tool to diagnose contact allergy, providing information about allergen exposure. Several studies have addressed patient satisfaction with patch testing and the improvement of skin conditions after testing, but little is known about patient recall of specific allergens. The aim of the present study was to evaluate how well patients remember the outcome of their tests.

Materials-Methods: A cross-sectional and exhaustive study was carried out among healthcare workers (HCWs) in four public hospitals in Tunisia. All occupational contact dermatitis (OCD) recognized as an occupational disease were included. A self-administered questionnaire was given to all patients tested.

Results: Among 37 HCWs with recognized OCD, 98.5% of patient were patch tested. A positive test was found in 94.1% of patients. Over two-thirds of patients (68.4%) were diagnosed with more than allergen. The mean time since patch testing was 5.91±3.41 years. Among those with positive test, 100% remembered a positive result, 61.8% thought remembered the diagnosed allergen and 38.1% reported the correct allergen. After univariate analysis, the ability to recall allergens was associated with educational status (p=0.008) and the number of years after patch testing (p=0.027). No significant difference was found after multivariate analysis.

Conclusion: Our results indicate that improved information for HCWs following patch testing is required. Further studies are needed to identify factors influencing allergen recall and to improve the prognosis of OCD.

Keywords: Contact allergy, Patch testing, Outcome, Information, Recall



PP-211

IN CHRONIC SPONTANEOUS URTICARIA, COMPLETE RESPONSE TO ANTIHISTAMINE TREATMENT IS LINKED TO LOW DISEASE ACTIVITY

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Background: The use of predictors of response to a specific treatment in patients with chronic spontaneous urticaria (CSU) can improve disease management, help to prevent unnecessary healthcare costs, and save time. In this study we aimed to identify predictors of complete response to standard-dosed and high-dosed antihistamine treatments in patients with CSU.

Methods: Medical records of 465 CSU patients, 120 of them <18 years old, from 3 different centers were analyzed. We used 15 machine learning (ML) models as well as traditional statistical methods to predict complete response to standard-dosed and high-dosed antihistamine treatment, based on 17 clinical parameters.

Results: CSU disease activity was the only clinical parameter that predicted complete response to standard-dosed and high-dosed antihistamine treatment, with ML models and traditional statistics, for all age groups. Based on ROC analyses, optimal cut off values for complete response-predicting disease activity were 3 of 6 and 4 of 6 for standard-dosed and high-dosed antihistamine treatments, respectively. Also, ML models identified total IgE as a predictor of complete response to a standard-dosed antihistamine and CRP as a predictor of complete response to high-dose antihistamine treatment.

Conclusions: Low CSU disease activity is the only universal predictor of complete response to AH treatment. Measurements of disease activity can help to identify patients at risk of needing their treatment stepped up to omalizumab.

Keywords: Chronic spontaneous urticaria, antihistamine, predictors, disease activity

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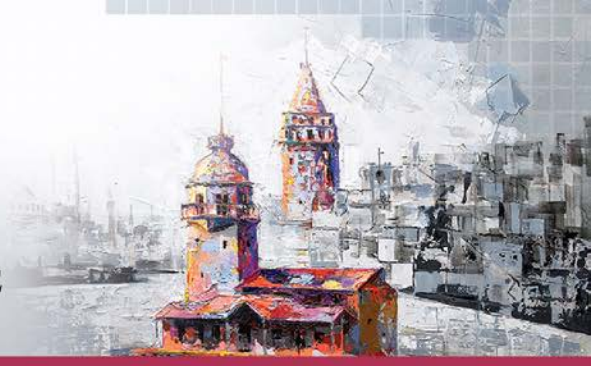

PP-212

STATISTICAL MODEL–INFORMED DESIGN OF THE PHASE 3 TRIAL OF SEBETRALSTAT FOR ON-DEMAND TREATMENT OF HEREDITARY ANGIOEDEMA ATTACKS USING SIMULATIONS FROM OBSERVED PHASE 2 DATA

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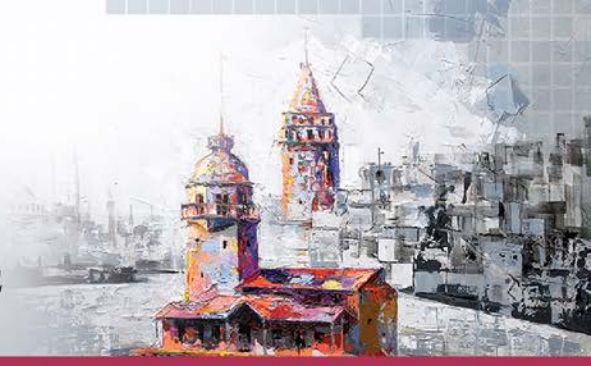
Background-Objective: Hereditary angioedema (HAE) is characterized by recurrent, unpredictable episodes of swelling caused by overactivity of the kallikrein-kinin system. Sebetralstat, an investigational oral plasma kallikrein inhibitor, showed favorable pharmacokinetics and efficacy in a phase 2, two-way crossover trial. We describe the statistical model used to inform the design of the ongoing phase 3 KONFIDENT trial (NCT05259917) of sebetralstat for on-demand treatment of HAE.

Materials-Methods: In KONFIDENT, patients ≥12 years old will receive sebetralstat (300 or 600 mg) or placebo in a three-way crossover design. Primary endpoint is time to beginning of symptom relief defined as Patient Global Impression of Change rating of at least "A Little Better" at 2 consecutive timepoints. A conservative, simulation-based approach was used to estimate the sample size that would provide ≥90% power for testing each pairwise comparison (sebetralstat vs placebo) in the Gehan-Wilcoxon test (2-sided α=0.025). Based on phase 2 data, it was assumed that median time to symptom relief is 1.6 hours for sebetralstat and 9 hours for placebo, with a noncompleter rate of ≈30%. A hierarchical, fixed-sequence, closed-testing procedure will be used to test the primary and key secondary endpoints.

Results: It was estimated that 84 patients will provide ≥90% power for testing the primary endpoint. Accounting for noncompleters, the target enrollment is 114 patients.

Conclusions: Based on this model analysis, KONFIDENT is appropriately powered to evaluate the efficacy of sebetralstat, which has the potential to be the first oral on-demand treatment for HAE.

Keywords: hereditary angioedema, sebetralstat, on-demand treatment, phase 3, study design



PP-213

THROMBOPHLEBITIS IN THE DIFFERENTIAL DIAGNOSIS OF AQUAGENIC URTICARIA

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A thirteen year-old female patient was admitted to our clinic with complaints of redness, burning on her feet and bruising on her toes. The patient stated that her complaints increased intermittently for the last 1.5 years after contact with water and went away spontaneously in 10 minutes.She stated that itching did not accompany every lesion, and that she did not have pain. There was no feature in her personal history, but her parents had 2nd degree consanguineous marriages and her father had aquagenic urticaria complaints. In her physical examination, no additional feature was found except dermographism. No additional features were found in the laboratory tests performed with the diagnosis of chronic urticaria. In terms of cholinergic urticaria, the exercise provocation test applied with effort appropriate for her age was found to be negative.The ice cube test for cold urticaria was negative, and the provocation test for aquagenic urticaria at body temperature was negative. Because the patient's complaints were localized to the feet and accompanied by burning, her feet were kept in 36 °C water for 15 minutes. When the lower extremity Doppler ultrasonography was requested for possible venous stasis due to bruising and burning sensation in the fingertips, subcutaneous tissue edema in the right lower extremity, the patient was referred to the hematology outpatient clinic and anticoagulant treatment was started with the diagnosis of thrombophlebitis. Thrombophlebitis, although rare, should be kept in mind in the differential diagnosis of aquagenic urticaria if there are suspicious findings in the history.

Keywords: urticaria, children, thrombophlebitis

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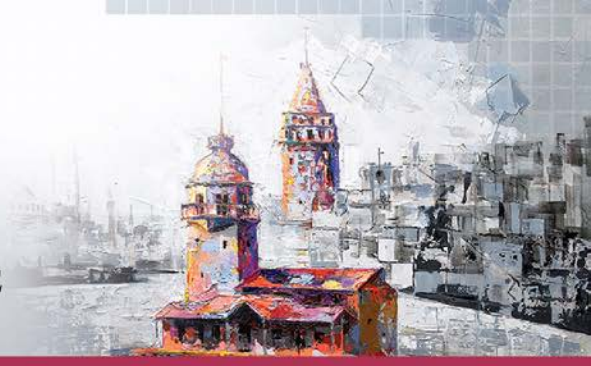

PP-214

INDIRECT COMPARISON OF LANADELUMAB AND BEROTRALSTAT USING DATA FROM THE HELP AND APeX-2 STUDIES IN A NETWORK META-ANALYSIS

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Background: There are no head-to-head studies comparing the efficacy of lanadelumab and berotralstat for prevention of hereditary angioedema (HAE) attacks. A network meta-analysis (NMA) allowed an indirect treatment comparison between these therapies.

Methods: The aim of this NMA was to assess comparative effectiveness (HAE attack rate/28 days and ≥90% reduction in the number of monthly HAE attacks) of therapies for HAE attack prevention, including lanadelumab (300 mg every 2 weeks [Q2W] and every 4 weeks [Q4W]) and berotralstat (150 mg once daily [QD]). The data originated from the HELP, APeX-2, and CHANGE studies. Frequentist weighted regression-based approach by Rücker et al allowed the indirect comparison between treatments through their relative effectiveness versus the common placebo comparator.

Results: In this NMA, both lanadelumab doses were associated with statistically significant lower HAE attack rates/28 days versus berotralstat 150 mg QD (lanadelumab 300 mg Q2W: rate ratio [RR] 0.23 [95% CI 0.10, 0.55], p=0.0009; lanadelumab 300 mg Q4W: RR 0.48 [95% CI 0.25, 0.94], p=0.0311). Higher number of patients with ≥90% reductions in the number of monthly HAE attacks was estimated after treatment with lanadelumab 300 mg Q2W (47 additional patients/100 treated patients; absolute risk reduction [ARR] –0.47 [95% CI –0.72, –0.21], p=0.0004) and lanadelumab 300 mg Q4W (35 additional patients/100 treated patients; ARR –0.35 [95% CI –0.62; –0.09], p=0.0087) versus berotralstat 150 mg QD.

Conclusion: Results of this NMA suggest statistically significantly higher effectiveness with both doses of lanadelumab versus berotralstat 150 mg QD for the efficacy outcomes assessed.

Keywords: berotralstat, comparative effectiveness, hereditary angioedema, indirect treatment comparison, lanadelumab, prophylaxis

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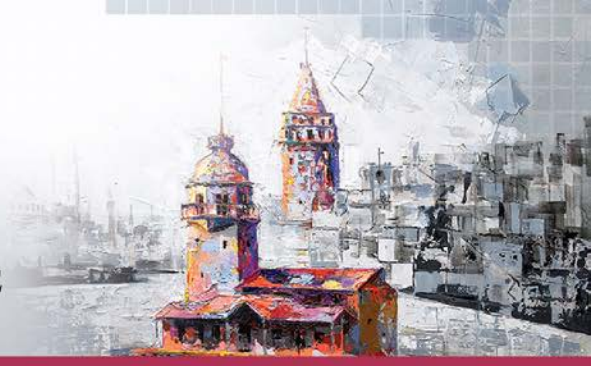

PP-215

IMPROVEMENT IN HEALTH-RELATED QUALITY OF LIFE WITH LONG-TERM LANADELUMAB TREATMENT BY BASELINE ATTACK RATE AND PRIOR USE OF LONG-TERM PROPHYLAXIS: POST HOC ANALYSIS FROM THE HELP OPEN-LABEL EXTENSION STUDY

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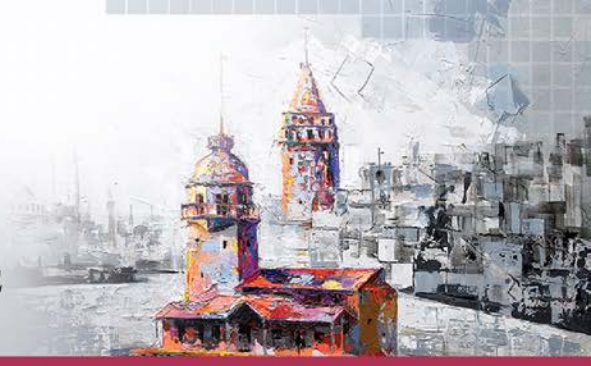
Background: In the phase 3 HELP open-label extension (OLE; NCT02741596) study, lanadelumab 300mg every 2 weeks reduced hereditary angioedema attack rates during 33 months' treatment. This was accompanied by clinically meaningful improvement in patients' health-related quality of life (HRQoL) as assessed using the AE-QoL questionnaire. We analysed AE-QoL scores by patients' baseline attack rates and by their prior use of long-term prophylaxis (LTP).

Methods: The HELP OLE enrolled patients who completed the 26-week phase 3 HELP study (rollovers) and newly enrolled patients (nonrollovers); results for nonrollovers are described herein. Patients completed the AE-QoL questionnaire at baseline and every 4–8 weeks to end-of-study (EOS). Patients answered 17 items covering 4 domains (functioning, fatigue/mood, fear/shame, nutrition) and a total score was calculated; lower scores indicate less impairment or better HRQoL. The minimal clinically important difference was defined as a change of 6 points in total AE-QoL score.

Results: For nonrollovers (n=103), total AE-QoL scores for patients with baseline attack rates of <1 (n=25), 1–<2 (n=39), 2–<3 (n=11), and ≥3 (n=27) attacks/month were reduced from a mean(SD) of 29.1(20.3), 40.3(13.6), 29.2(24.5), and 51.5(21.1), respectively, at baseline, to 20.8(21.0), 16.8(15.3), 19.9(17.8), and 18.8(16.5), respectively, at EOS. Total AE-QoL scores for nonrollovers who previously used androgens (n=9), C1-inhibitor (n=52), or no LTP (n=39) were reduced from 36.1(23.5), 36.9(21.1), and 42.8(19.1), respectively, at baseline, to 21.6(21.0), 19.0(16.5), and 19.1(18.3), respectively, at EOS.

Conclusions: A clinically meaningful improvement in AE-QoL total score was observed in nonrollover patients regardless of baseline attack rate and prior use of LTP.

Keywords: hereditary angioedema, quality of life, lanadelumab, long-term prophylaxis



PP-216

CHRONIC SPONTANEOUS URTICARIA IN INFANTS; CLINICAL CHARACTERISTICS AND OUTCOME

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Background and Objectives: Chronic spontaneous urticaria (CSU) is characterized by recurrent migrating wheals or hives which usually disappear in 24 hours. The aim of the present study is to assess the clinical features, management and prognosis of the infants with CSU.

Materials-Methods: This is a retrospective study including infants (0-24 month) with CSU examined between 2016 and 2019 at a tertiary children's hospital.

Results: In a 3-year period, a hundred and ten children were diagnosed with CSU and followed-up at the outpatient pediatric allergy clinic. 18.1% of those children with CSU were infants (n=20, 70% female; mean age of symptom onset; 11.7 months). Among patients 15% of the patients had co-existing angioedema, 35% had symptomatic dermographism, 10% had cold urticaria, 30% had an accompanying atopic disease. Ten percent of the patients reported systemic symptoms, including fever and seizure. Among patients 90% entered remission following a treatment of antihistamine. Seventy five percent of the patients were found to be in remission within 18 months. Overall 20% of the patients required higher than standard doses of antihistamine for control of urticarial symptoms. Infections and food allergy were associated with 30% and 15% of cases respectively.

Conclusions: The prognosis of the disease was favorable with a spontaneous tolerance in most infants. Although food allergy and infections are rare causes of CSU, these are particularly important aggravating conditions for infants and should be evaluated in detail. Skin prick tests against to food allergens are valuable for infants with CSU unlike adults.

Keywords: allergy, children, chronic spontaneous urticaria, Infant, skin

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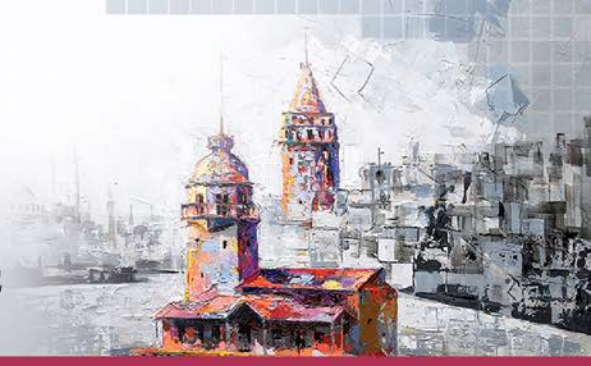

PP-217

REDUCTION IN ATTACKS IN HEREDITARY ANGIOEDEMA (HAE) WITH BEROTRALSTAT IS CONSISTENT REGARDLESS OF PRIOR PROPHYLACTIC TREATMENT: A SUBGROUP ANALYSIS OF THE PHASE 3 APeX-2 TRIAL

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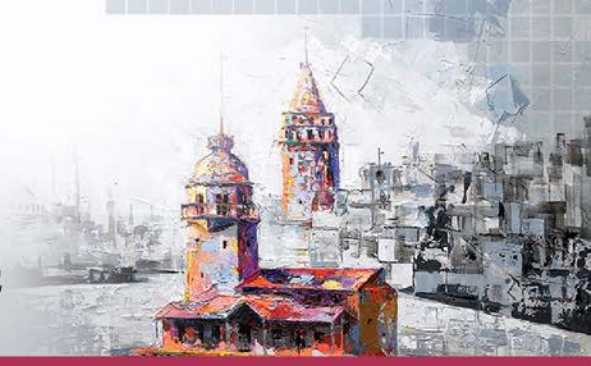
Rationale: Prophylactic treatment in the management of HAE is common. Berotralstat is an oral once-daily selective plasma kallikrein inhibitor that was shown to reduce HAE attack rates in a Phase 3 study (NCT03485911). This post hoc analysis evaluated the efficacy of berotralstat in patients previously treated with prophylactic medications.

Methods: A total of 121 patients were randomized to berotralstat 110 mg:150 mg:placebo daily for 24 weeks. Investigator-confirmed attacks were analyzed for patients grouped by type of prior prophylaxis: prior C1 esterase inhibitor (C1-INH), prior androgen, and no prior prophylaxis. Prior C1-INH and prior androgen categories were not mutually exclusive.

Results: Overall, 75% of patients in the berotralstat 150 mg dose group and 73% in the placebo group had prior prophylactic treatment. Among patients with prior C1-INH prophylaxis or prior androgen use, berotralstat 150 mg significantly reduced attacks compared to placebo during the treatment period (C1-INH, 1.58 attacks/month vs placebo 2.84 attacks/month, $p = 0.012$; androgens, 1.35 attacks/month vs placebo 2.60 attacks/month, $p < 0.001$). Lastly, patients without prior prophylaxis had a reduction in attacks (0.86 attacks/month compared with 1.78 attacks/month in placebo; $p = 0.056$).

Conclusion: In this subgroup analysis, patients with prior C1-INH prophylaxis or prior androgen use treated with berotralstat demonstrated a significant reduction in attacks vs. placebo, making oral berotralstat a valuable potential preventive treatment option for patients with HAE.

Keywords: berotralstat, hereditary angioedema, prophylaxis, HAE, kallikrein inhibitor, oral therapy



PP-218

ORAL BEROTRALSTAT TREATMENT FOR 96 WEEKS CONSISTENTLY REDUCES HEREDITARY ANGIOEDEMA (HAE) ATTACK RATES REGARDLESS OF BASELINE ATTACK RATE

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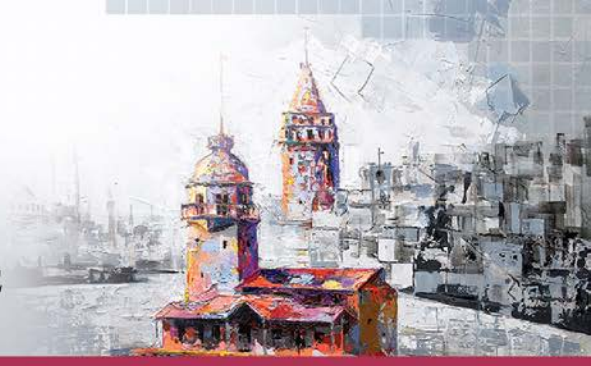
Rationale: A goal of prophylactic HAE treatment is to reduce disease burden by decreasing attack rates. Berotralstat is a once daily(QD) prophylactic treatment for HAE. Here we report the long-term efficacy of berotralstat 150mg in patients who completed 96 weeks of treatment in the APeX-2 trial(NCT03485911), stratified by baseline attack rate.

Methods: Patients were randomized to berotralstat (110mg or 150mg) or placebo QD for 24 weeks. At Week 24, patients randomized to berotralstat continued on the same dose and placebo patients were re-randomized to berotralstat for an additional 24 weeks; after Week 48, all patients continued on berotralstat 150mg. Twenty-one patients completed a total of 96 weeks of berotralstat 150mg. This analysis evaluated patients by tertiles of baseline attack rate: Group 1: <2 attacks/month; Group 2: ≥2 to <3 attacks/month; Group 3: ≥3 attacks/month.

Results: In Group 1 (n=7), mean (SEM) monthly attack rate declined from 1.2(0.1) at baseline to 0.3(0.2) at Week 24, 0.1(0.1) at Week 48, and 0 at Week 96. In Group 2 (n=7), mean monthly attack rate declined from baseline 2.6(0.2) to 1.1(0.5) at Week 24, 0.1(0.1) at Week 48, and 0.3(0.2) at Week 96. In Group 3 (n=7), the mean attack rate declined from a baseline 4.6(0.6) to 1.7(0.8) at Week 24, 1.6(0.6) at Week 48, and 0.7(0.4) at Week 96. Over 70% of patients in each tertile had a ≥70% relative reduction in attack rate.

Conclusion: Regardless of baseline attack rate, berotralstat is an effective oral prophylactic treatment option that can reduce disease burden.

Keywords: berotralstat, hereditary angioedema, prophylaxis, HAE, kallikrein inhibitor, oral therapy



PP-219

MARKERS OF COURSE OF CHRONIC SPONTANEOUS URTICARIA IN THE GROUP OF PEDIATRIC PATIENTS RECEIVED OMALIZUMAB TREATMENT

Vera Kalugina[1], Leyla Namazova Baranova[1], Elena Vishneva[1], Julia Levina[1], Anna Alekseeva[1], Kamilla Efendieva[1], Leyla Namazova Baranova[2], Elena Vishneva[2], Julia Levina[2], Kamilla Efendieva[2]
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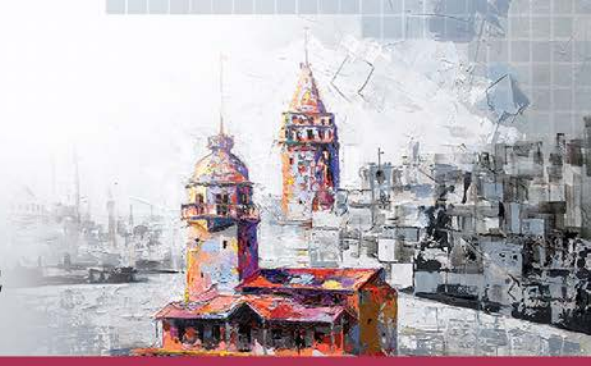
The aim was to analyze the clinical and laboratory biomarkers (LB) – low level of total IgE, eosinophils and basophils counts, level of TTH, anty-TPO and anty-TG – of response to omalizumab and the risk of chronical spontaneous urticaria (CSU) relapse in adolescents.

Method: The long-term prospective observation study of 17 children with CSU 55% girls, average age 15 y. o. [12; 17,11] was conducted. All patients received second-generation H1-antihistamines and omalizumab 300 mg/mo during 6 mo subcutaneously. The efficacy of the treatment was assessed with weakly Urticaria Activity Score (UAS7) after 6 and 36 mo.

Results: 88% (15) patients had at least 1 of 6 LB. There was no link found between LB and the response on omalizumab. Total IgE demonstrated weak indirect relationship with UAS7 level. 53% patients had good and quick response to omalizumab without relapse within 36 mo after the end of treatment. 86% (6) with a slow response to omalizumab developed a relapse of CSU within 3 years of follow-up after completion of the course of therapy ($p<0.001$). The response to omalizumab in 2 patients with both CSU and chronic induced urticaria was late and remission was short-lived. 31% (3) whose mothers suffered from chronic urticaria noted a relapse e after completing the course of omalizumab within 36 mo ($p = 0.029$).

Conclusion: Our results indicate that the slow response to omalizumab, heredity with CSU, chronic induced urticaria are seems to be clinical markers of the severity and relapse of the disease.

Keywords: chronical spontaneous urticaria, omalizumab, biomarkers



PP-220

ARTIFICIAL INTELLIGENCE METHODS IN PREDICTING THE RESPONSE TO OMALIZUMAB IN ADOLESCENTS WITH CHRONIC SPONTANEOUS URTICARIA

Vera Kalugina[1], Leyla Namazova Baranova[1], Elena Vishneva[1], Julia Levina[1], Anna Alekseeva[1], Kamilla Efendieva[1], Leyla Namazova Baranova[2], Elena Vishneva[2], Julia Levina[2], Kamilla Efendieva[2], Margarita Soloshenko[1]
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Background: Artificial intelligence (AI) may be helpful for clinical decision-making in the treatment of chronic spontaneous urticaria (CSU).

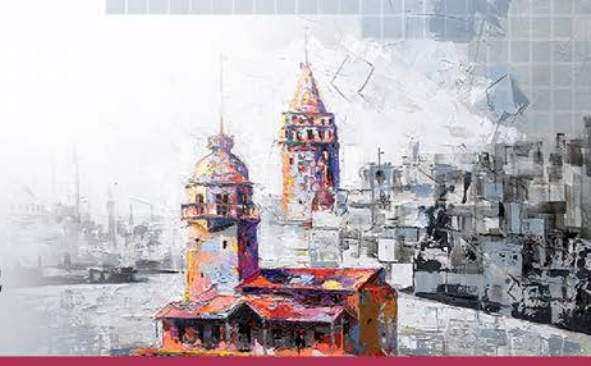
Aim: To identify predictive laboratory biomarkers of response to omalizumab by AI and to develop a response prognosis model.

Methods: The prospective observational study of 17 children with CSU 55% girls, average age 15 y. o. [12; 17,11] was conducted. All patients received second-generation H1-antihistamines and omalizumab 300 mg/mo for 6 mo subcutaneously. The Python programming language with the sklearn library was used to build a decision tree.

Results: We have built a discriminant model for predicting response to omalizumab therapy. The most significant attributes (highest weight) were selected from a number of laboratory markers: D-dimer (weight - 0.419853), anti-TG (0.320894), TTG (0.259253). The accuracy and quality of the model were confirmed by the results of the evaluation using an error matrix and F1-measure. The model allows to predict the response to omalizumab therapy in a patient with CSU with a D-dimer value below 0.2 mg/l, an AT-TG level less than 12.8 IU/mL, and TTG greater than 1.62 IU/mL – in this case response to omalizumab therapy is most likely to be rapid and effective.

Conclusion: AI helped to develop predictive model of response to omalizumab therapy included - D-dimer, AT-TG, and TTH.

Keywords: Artificial intelligence, chronic spontaneous urticaria, response to omalizumab



PP-221

THE LINGUISTIC VALIDATION OF THE TURKISH VERSION OF THE ANGIOEDEMA CONTROL TEST

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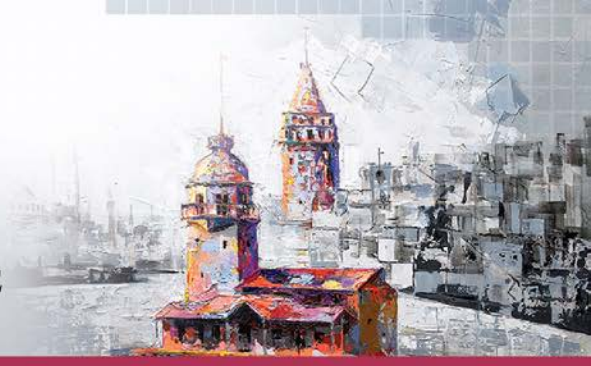
Background And Objective: Determination of disease control in angioedema patients is very important,since treatment strategies are decided accordingly.Recently,a simple, practical, and standardised tool, the angioedema control test(AECT), was developed and validated. The AECT retrospectively evaluates disease control,during the last 4 weeks or 3 months, in patients with recurrent angioedema. Our aim was to linguistically validate the 4 weeks and 3 months Turkish version of the AECT.

Method And Results: Following a structured translation process, two independent translations of the AECT,from German to Turkish, were generated by professional translators one of whom was a physician.These two translations were reconciled by the authors, and a back translation to German of this version was performed by a native German speaker bilingual in Turkish.This back translation was reviewed against the original German version by the original developers of the AECT and adjusted according to their suggestions, with the help of consensus finding. The Turkish consensus versions of the 4 weeks and 3 months AECT were cognitively debriefed in 7 patients with recurrent angioedema. Of these, 4 were female, and 4 and 3 had mast cell-mediated and bradykinin-mediated angioedema, respectively. As a result, one word was changed (question 3), to improve understandability.This final version was consented by the original developers.

Conclusion: The Turkish version of the AECT,both for 4 weeks and 3 months, are ready for use in clinical practice and should be implemented in the routine clinical care for patients with recurrent angioedema.Studies aimed at content validation of the Turkish AECT are currently ongoing.

Keywords: Angioedema, angioedema control test, Turkish validation



PP-222

TREATMENT FAILURE WITH OMALIZUMAB AND RESISTANCE TO ANTIHISTAMINES IN A PATIENT WITH CHOLINERGIC URTICARIA

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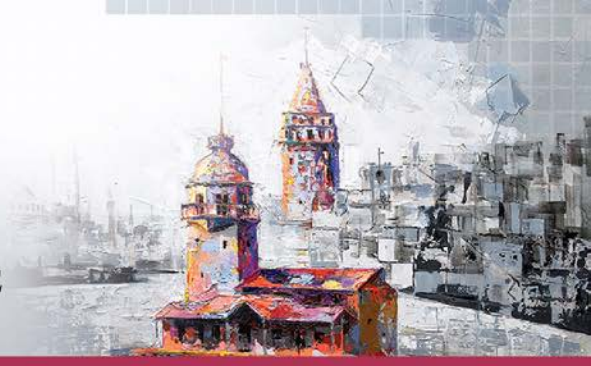
Background and Objectives: Cholinergic urticaria is characterized by erythema, pruritic wheals, induced by an increase in body temperature that occurs after hot baths, exercise, or emotional stress (1). In patients who do not respond to antihistamines, omalizumab, an anti-IgE, can be used. However, there are cases where patients are unresponsive. (2,3) **C**

ase: A 17-years-old male patient began his condition at 15 years of age with episodes of dermatosis characterized by pruritic erythematous papules associated with exposure to the sun, heat, sweat and nervousness, that resolved in 24 hours. Rupatadine and montelukast were prescribed and indicated laboratories presented normal results. He had major depression, agoraphobia and generalized anxiety diagnosed by psychiatrist, however, he continued with hives and pruritus interfering with quality of life. Quadruple dose of antihistamine and a short course of oral corticosteroid was started without improvement, modifying to bilastine, ebastine and difenhidramine. Omalizumab 300mg subcutaneously every 4 weeks was prescribed, completing 6 months of treatment, with no improvement. Cyclosporine was considered, but was rejected by the patient and his family. Results and

Conclusions: Chronic spontaneous urticaria has been found in various clinical trials to have a delayed response to omalizumab (2). Other alternatives for these patients may be desensitization protocols that involve regular physical exercise or treatment with autologous sweat. (4) Mood disorders may also be a common trigger and associated with poor responders. Further studies are needed for patients with refractory cholinergic urticaria.

Keywords: urticaria, treatment, refractory.



PP-224

SUCCESSFUL WITHDRAWAL IN OMALIZUMAB TREATMENT IN CHRONIC AUTOIMMUNE URTICARIA

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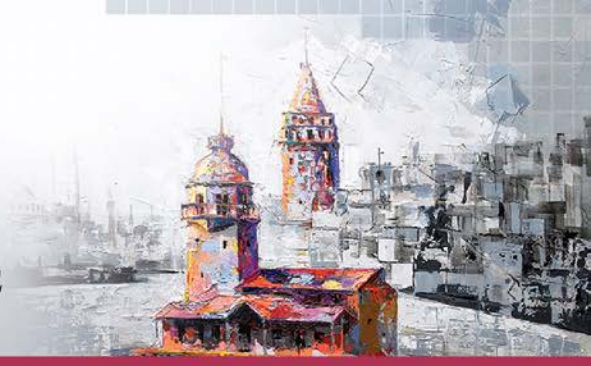
Background and Objectives: The urticaria guidelines recommend omalizumab as an add-on third-line treatment option for patients with chronic spontaneous urticaria (CSU). (1) Omalizumab is effective in controlling antihistamine-refractory CSU. (2) There is no consensus on how to discontinue treatment when patients show complete response. (1)

Case: A 59-year-old woman diagnosed with uncontrolled diabetes mellitus, vitiligo, and euthyroid disease with a 3-year history of generalized, evanescent, and pruritic intermittent urticaria accompanied by angioedema of the eyelids and lips, without response with quadruple doses of antihistamines. Tests revealed hyperglycemia with elevated ESR, antithyroid and antinuclear antibodies. Due to positive autologous serum and plasma test, CSU was classified as autoimmune. Treatment with omalizumab 300 mg subcutaneously every 4 weeks was started, with progressive improvement until complete remission was achieved in 2 years, with maintenance for 2 more years, extending the application interval up to 8 weeks, successfully suspending without relapses.

Discussion: Probability of CSU remission after omalizumab is about 50% over an observation period up to 4 years. (2) After discontinuation, 21.7% of patients reinitiate omalizumab due to relapse. (3) In some patients, omalizumab treatment is abruptly stopped; alternatively, discontinuation by prolonging the treatment interval may reduce relapse rates and limit the duration of relapse before re-initiation of treatment. The intervals used effectively in clinical trials range from 8 to 12 weeks. (1)

Conclusions: Periodic suspension of treatment is an effective strategy for successful weaning from omalizumab in CSU, managing to detect reactivation of the disease in a timely manner.

Keywords: biologics, omalizumab, urticaria autoimmune



PP-225

OMALIZUMAB TREATMENT IN PEDIATRIC PATIENTS WITH CHRONIC SPONTANEOUS URTICARIA: REAL-LIFE DATA

Ozgen Soyoz, Figen Celebi Celik, Ayca Demir, Idil Akay Haci, Mehmet Sirin Kaya, Canan Sule Karkiner, Ozlem Sancakli, Demet Can
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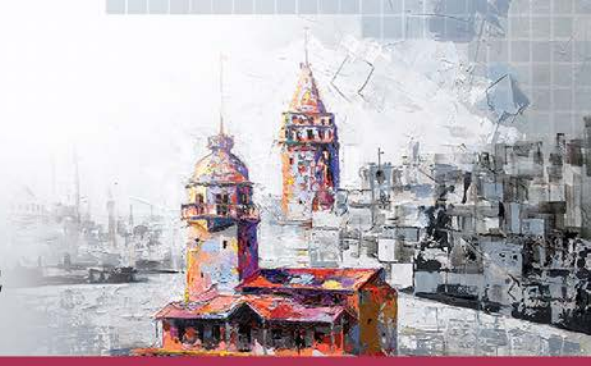
Background and Objectives: Chronic spontaneous urticaria (CSU) is urticaria and/or angioedema lasting more than six weeks for unknown reasons, and most cases are resistant to treatment. The use of omalizumab in treatment has become increasingly common in recent years. The aim of this study was to evaluate efficacy and safety of omalizumab therapy in pediatric patients.

Materials-Methods: Patients with CSU aged 12-18 years who did not respond to regular high-dose antihistamines in the pediatric allergy outpatient clinic were included in the study. CSU treatment was administered according to the recommendation of guidelines. Demographic data, clinical findings, laboratory and skin test results were recorded. Urticaria Activity Score (UAS7) and Urticaria Control Test (UCT) were performed in the 0th, 1st and 3rd months of omalizumab treatment.

Results: Of the 14 patients treated with omalizumab, 8 were girls and the mean age of diseases was 13.9±2.2 years. In two cases, CSU was accompanied by dermographism. 57.1% of the patients had concomitant atopic disease and the most common was allergic rhinitis (37.5%). On the first evaluation, the UAS7 score was 36.0±4.0 and the UCT score was 5.5±1.9. After completing 3 doses, the UAS7 score decreased to 11.5±6.0. And the UCT score was 12.5±1.4 (p=0.001). After the first 3 doses of Omalizumab treatment, the patients were re-evaluated. It was decided to discontinue treatment in 3 patients without symptoms, to continue treatment in 7 patients with mild urticaria and in 4 patients with moderate urticaria.

Conclusions: In this study, it was found that omalizumab is an effective treatment for children with resistant CSU.

Keywords: Omalizumab, Urticaria, Pediatric



PP-226

RARE CHOLINERGIC URTICARIA AND DIAGNOSTIC TEST: METACHOLINE SKIN PROVOCATION TEST

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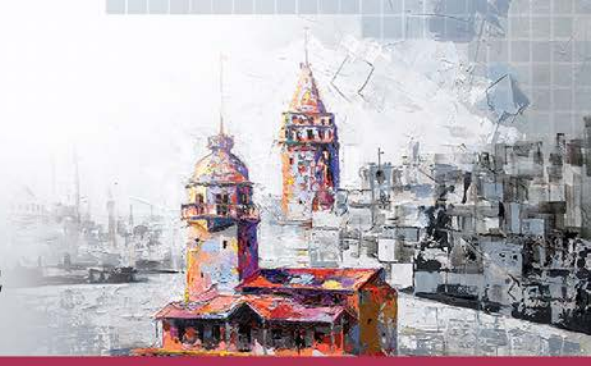
Introduction: Urticaria is a disease characterized by temporary redness,swelling and itching on the skin.Urticaria lasting longer than 6 weeks is called acute urticaria.Cholinergic urticaria typically begins in the second or third decade of life and is more common in male patients.we wanted to Show methacoline skin test positivity.

Case: A 22-year-old male patient applied to the allergy outpatient clinic with the complaint of multiple raised small itchy rashes that started on the set and trunk after each exercise for 2 years.There was no known disease history,drug allergy or food allergy couldn't be described.An exercise test was performed by monitoring for 15 minutes with a diagnosis of ten.Te patients's body and back had 1-3 mm scalling and erythema.Also,in accordance with the literatüre, the patient was administered the methacholine skin test, in accordance with the literature, by intradermal injection of 0.01 mg methacholine in 0.1 mL saline. The patient's methacholine skin test was positive.The patient was advised to avoid hot environment and heavy exercise, anthistamine treatment were given.

Conclusion: The clinical manifestation of cholinergic urticaria is different from typical urticaria plaques and consists of small blisters of 1-3 mm in size. Exercise test and methacholine skin test may be required in the diagnosis of this urticaria. Identifying known triggers and avoiding them are the first steps in the control of cholinergic urticaria. Bathing in hot water and strenuous exercise in hot weather should be avoided. Mast cell stabilizers such as antihistamines and ketotifen should be used in the treatment of cholinergic urticaria.

Keywords: cholinergic urtıcaria,metacolin provocation test,urtıcaria



PP-227

REAL WORLD EXPERIENCE OF OMALIZUMAB DOWN-DOSING IN CHRONIC SPONTANEOUS URTICARIA

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Background: Omalizumab is an effective and well-tolerated treatment option for severe chronic spontaneous urticaria (CSU). Guidelines recommend an approach based on "as much as needed and as little as possible" in treating CSU. This study looks at the down-dosing of subsequent courses of omalizumab in CSU, exploring the impact on disease severity and characteristics of patients with good response after down dosing.

Materials-Methods: This is a retrospective review of the patients on Omalizumab therapy in the department since 2016. Disease control was assessed using urticarial activity score (UAS7). Demographic characteristics, atopy status, weight, total IgE values were also noted.

Results: Total of 43 patients have received Omalizumab for CSU, 17 (39.5%) patients have received only one course (6 injections) and 26 (60.5%) have received more than one course. Out of 26 with multiple courses, dose reduction was not trialled in 10 as UAS7 scores at the end of the course were ≥6 on standard dose of 300 mgs. Dose reduction was tried in 16 patients, 6 of them failed the dose reduction as symptoms relapsed and went back to standard dose. Down-dosing was successful in 10 patients, 9 were down-dosed to 150 mgs and one to 75mgs with adequate symptom control.

Conclusions: Reducing regular omalizumab dose in CSU is possible while maintaining adequate disease control. Consideration of down-dosing of omalizumab in CSU treatment pathway can be considered as a safe and personalized approach. Further research can help to understand the factors that help in identifying appropriate patients.

Keywords: Chronic spontanious urticaria, omalizumab, dosing, biological treatment

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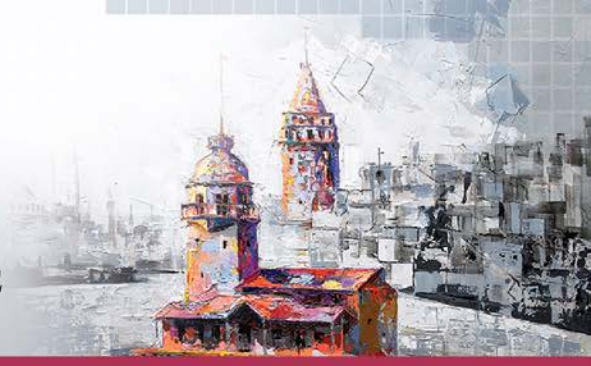

PP-228

EFFICACY OF DUPILUMAB IN QUADRANTS OF ELEVATED- VS LOW- TYPE 2 BIOMARKERS IN CHILDREN WITH UNCONTROLLED, MODERATE-TO-SEVERE ASTHMA: LIBERTY ASTHMA VOYAGE

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[10]Sanofi, Turkey

Background and OBJECTIVE: Dupilumab, a human mAb, blocks the shared receptor component for IL-4/13, key and central drivers of type 2 inflammation. In VOYAGE (NCT02948959), dupilumab 100/200mg vs placebo every 2 weeks for 52 weeks reduced severe asthma annualized exacerbation rate (AER) and improved percent predicted pre-bronchodilator FEV1 (ppFEV1) in children aged 6-11 years with uncontrolled, moderate-to-severe asthma. We evaluated the predictive value of baseline blood eosinophil and FeNO levels as biomarkers for dupilumab response.

Materials-Methods: The population was clustered into quadrants based on baseline blood eosinophil (< vs ≥150cells/μL) and FeNO levels (< vs ≥20ppb). The relative risk (RR) for AER and change from baseline in ppFEV1 at Week 12 were evaluated.

Results: AER was reduced in the high eosinophils/low FeNO (N=137, RR: 0.473; 95%CI: 0.262–0.851) and high eosinophils/high FeNO (N=184; RR: 0.351; 95%CI: 0.204–0.605) quadrants, and was numerically lower in the high FeNO/Low eosinophils (N=19; RR: 0.449; 95%CI: 0.051–3.989) quadrant, but not in the low eosinophils/low FeNO (N=56; RR: 1.295; 95%CI: 0.357–4.690) quadrant. Values for ppFEV1 were numerically higher in dupilumab- vs placebo-treated patients at Week 12 in all quadrants: high eosinophils/low FeNO (LS mean difference [LSMD]: 2.90; 95%CI: -1.51–7.31), high eosinophils/high FeNO (LSMD: 6.44; 95%CI: 2.01–10.87), high FeNO/low eosinophils (LSMD: 3.61; 95%CI: -22.71–29.92), low eosinophils/low FeNO (LSMD: 1.38; 95%CI: -6.13–8.90).

Conclusions: Dupilumab reduced exacerbations and led to numeric improvements in lung function among children with either elevated blood eosinophils and/or FeNO.

Keywords: dupilumab, asthma, inflammation, biomarkers

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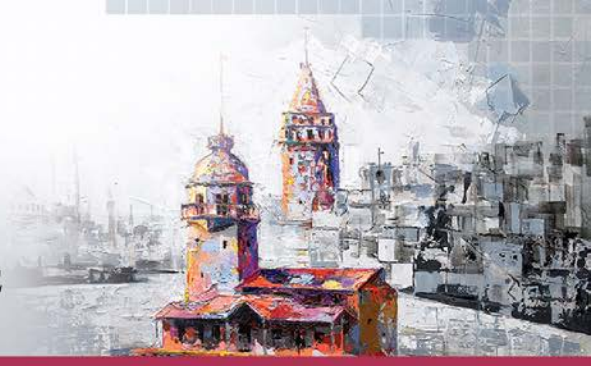

PP-229

PERSISTENT REDUCTIONS IN OCS USE IN PATIENTS WITH SEVERE, OCS-DEPENDENT ASTHMA TREATED WITH DUPILUMAB: LIBERTY ASTHMA TRAVERSE STUDY

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[3]LungenClinic Grosshansdorf (member of the German Center for Lung Research [DZL]), Airway Research Center North (ARCN), Grosshansdorf, Germany, Christian-Albrechts University (member of the German Center for Lung Research [DZL])
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[7]National Jewish Health, Denver, CO, USA
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Background And Objective: Liberty Asthma Traverse extension study (NCT02134028) evaluated the long-term safety, tolerability, and efficacy of add-on dupilumab in patients rolled over from previous dupilumab studies.

Materials-Methods: Patients with oral corticosteroid (OCS) dependent asthma received add-on dupilumab 300mg q2w or placebo for 24 weeks during VENTURE (parent study), followed by add-on dupilumab 300mg q2w (dupilumab/dupilumab and placebo/dupilumab groups, respectively) for up to 96 weeks in TRAVERSE. Patients were stratified based on their VENTURE baseline OCS dose (≤10 or >10 mg/day). OCS dose percentage reduction from parent study baseline at TRAVERSE Weeks 0 and 48, annualized rate of severe asthma exacerbations (AER) during VENTURE and TRAVERSE, and pre-bronchodilator FEV1 at TRAVERSE Weeks 0 and 48 were assessed.

Results: Analyses included 187 patients (≤10 mg/day, placebo/dupilumab: n=61; dupilumab/dupilumab: n=60; >10 mg/day, placebo/dupilumab: n=36; dupilumab/dupilumab: n=30). The greater reductions in daily OCS use observed at VENTURE study end (TRAVERSE Week 0) in dupilumab patients continued during TRAVERSE in dupilumab/dupilumab patients (≤10 mg/day: −82.8%, >10 mg/day: −74.7%, at TRAVERSE Week 48). In VENTURE placebo patients who switched to dupilumab in TRAVERSE, OCS dose was further reduced, irrespective of baseline use (≤10 mg/day: −49.6%, >10 mg/day: −66.5%, at TRAVERSE Week 48). AER declined during TRAVERSE (range: 0.284–0.599) and pre-bronchodilator FEV1 greatly improved (range at TRAVERSE Week 48: 1.83–1.92L).

Conclusions: Dupilumab reduced OCS dose and improved/maintained clinical efficacy outcomes of asthma, regardless of baseline OCS starting dose. As observed during VENTURE, dupilumab demonstrated persistently high reduction in OCS use in TRAVERSE.

Keywords: dupilumab, asthma, inflammation, corticosteroid

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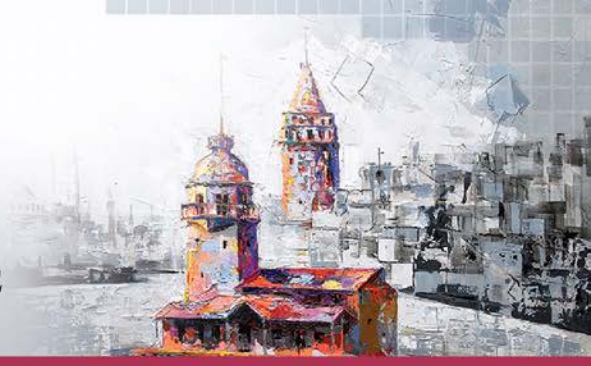

PP-230

BASELINE CHARACTERISTICS AND MEDICAL HISTORIES OF PARTICIPANTS ENROLLED IN A PHASE 3B TRIAL OF GEFAPIXANT FOR RECENT-ONSET CHRONIC COUGH

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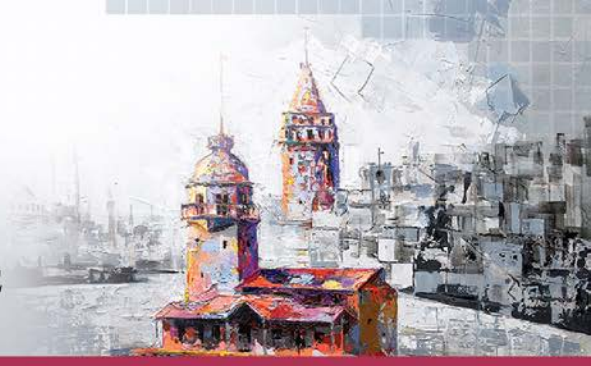
Background and Objectives: Gefapixant is a P2X3-receptor antagonist under investigation for refractory or unexplained chronic cough (RCC or UCC, respectively). To ensure adequate prior diagnostic and treatment workup, previous phase 3 trials required a cough duration ≥1 year; however, a 1-year cough duration is not required for diagnosis. Here, we describe baseline characteristics and medical histories of participants with recent-onset RCC or UCC enrolled in a phase 3b gefapixant trial.

Materials-Methods: Eligible adults had chronic cough (>8 weeks) persisting for <12 months before screening (ie, <14 months after cough onset), diagnosis of RCC or UCC, and cough severity visual analog scale (VAS) ≥40 mm (VAS range: 0 mm, no cough; 100 mm, extremely severe cough). Participants were randomized 1:1 to receive twice-daily gefapixant 45 mg or placebo. Primary endpoint was change in Leicester Cough Questionnaire total score from baseline to Week 12.

Results: Of 415 randomized and treated participants, 65% were female. Median (range) age was 55 (18-83) years. Mean (standard deviation [SD]) chronic cough duration was 7.2 (2.7) months and mean (SD) cough severity VAS was 67 (15) mm; 71% had RCC. Most frequently reported medical conditions included asthma (41%), hypertension (34%), gastroesophageal reflux disease (30%), and allergic rhinitis (17%). Prior medications included drugs for obstructive airway diseases (68%), nasal preparations (60%), cough/cold preparations (51%), and drugs for acid reflux–related disorders (43%).

Conclusions: Participants with recent-onset RCC or UCC had baseline characteristics and medical histories consistent with those enrolled in prior phase 3 trials of gefapixant.

Keywords: comorbidities, cough, persistent cough, P2X3-receptor antagonists, refractory chronic cough, unexplained chronic cough



PP-231

THE VALUE OF AUTOLOGOUS SERUM SKIN TEST IN GLUTEN ENTEROPATHY

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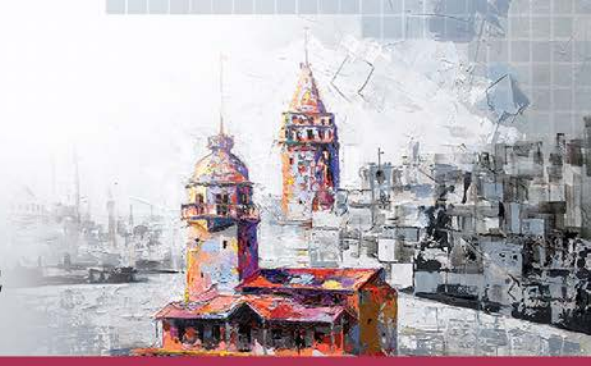
Objective: To determine the importance of autologous serum skin test (ASST) in patients with gluten enteropathy.

Method: Forty-one patients with gluten enteropathy (GE) and 19 patients with gluten enteropathy and additional autoimmune diseases namely multiple autoimmunity (MA) as the patient group, 22 patients with functional dyspepsia as the patient control group, and 22 healthy controls were included in the study. OSDT was performed on all participants.

Results: The frequency of ASST positivity was 28.3% in all patients with GE, 17.1% in 41 patients with no additional autoimmune disease, 52.5% in the MA group, 22.7% in the functional dyspepsia group, and 4.5% in healthy controls. ASST positivity was higher in patients with GE than the healthy controls [p=0.032, OR(CI)=8.3(1.03-66.66)]. ASST positivity was also significantly higher in patients with concomitant autoimmunity compared to those with only GE disease [p=0.004, OR(CI)=5.39(1.60-18.16)]. ASST positivity was not associated with age, sex, disease duration, gluten-free diet, ferritin, vitamin B12, folic acid, hemoglobin, transferrin saturation and GE related autoantibodies. In the additional analysis performed in the MO group (n=19); there was no relation between ANA, anti-TPO, anti-TG antibodies with ASST positivity.

Conclusion: Our study showed that ASST positivity in patients with GE is 5.4 times more associated with the presence of additional autoimmune diseases. Considering the wide range of clinical presentation and accompanying autoimmune diseases, ASST should be further analyzed in prospective studies as a possible screening test.

Keywords: autologous serum skin test, autoimmunity, gluten enteropathy



PP-232

"PATIENT-FRIENDLY" IMMUNOTHERAPY: SIDE EFFECT PROFILE OF SUBLINGUAL IMMUNOTHERAPY

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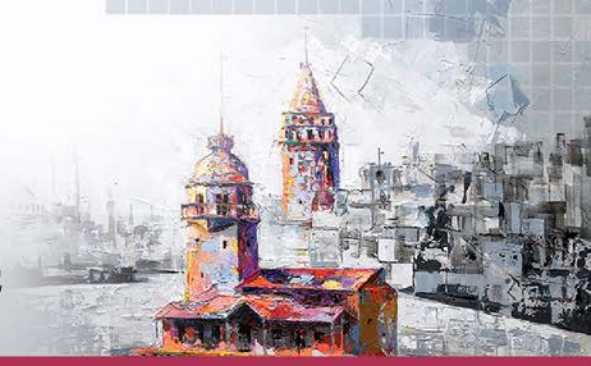
Background and Objectives: Two types of allergen immunotherapy are common worldwide: subcutaneous and sublingual. The undesirable concomitant effects of subcutaneous immunotherapy have led to the development of a more "patient-friendly" formulation: this has become sublingual immunotherapy, which is becoming more common due to its safety profile and simplicity. For this reason, more and more patients are choosing immunotherapy as a solution to allergic rhinitis, and our goal is to further increase this number by promoting sublingual immunotherapy.

Materials-Methods: 181 active patients since 2019., whose condition was assessed at the annual follow-up after the end of the given year during the years of immunotherapy.

Results: 181 patients: 65 female, 116 male
Adverse events: 67 patients (37%), 25 female, 42 male
Local side effects: 67 patients, 25 female, 42 male
Systemic side effect: 0 patient
No adverse events: 114 patents (63%), 40 female, 74 male
Adverse events were well tolerated, anaphylaxis did not occur in any case, immunotherapy had to be discontinued in 1 patient.

Conclusions: More than 60 randomized, double-blind, placebo-controlled trials and the World Allergy Organization states that the safety profile of sublingual immunotherapy is better than that of subcutaneous. Our experience confirms that sublingual immunotherapy has a safe and well-tolerated side effect profile.

Keywords: sublingual immunotherapy, adverse events, safety, patient-friendly



PP-233

A SMALL AND SMART: TRICK OF THE TRADE - " FEEL DEEP [FD]" TO ENSURE 100 % RESULTS IN THE MODIFIED SKIN PRICK TEST METHOD

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ENT centre Indore India

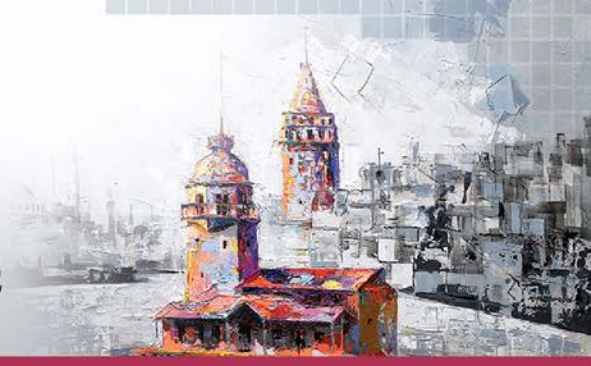
Material-Methods: Patients of moderate to severe persistent allergic rhinitis (sample size, n= 1080) of the age group of 10 years to 50 years were tested by the Modified Skin Prick Test method on the volar aspect of both forearms using a one mm blood lancet. Skin readings were recorded using a small modification, a smart trick named - FEEL DEEP [FD].

Feel deep: In few patients either due to the skin tone or the skin texture, we could not determine the elevated wheal by normal examination methods. On applying a little firm pressure with the tip of the index finger and the margin of the nail, the extent of the deep-seated wheal response could be easily felt and measured. The negative MSPT results were re-assessed and the FD technique was applied for these patients to record any false-negative results.

Result & Conclusion: With FEEL DEEP [FD] Trick we could avoid false-negative results.

Future Guidelines: Short wave Infra red [SWIR] lamp detector with filter[to avoid veins] wave lenghts 1000 nm & 3000 nm can be used to identify deep seated wheal response in thick skin individuals and dark skin individuals. Its of great use in saving time and will be more precise and accurate in reading MSPT readings.

Keywords: Allergy Diagnosis, Modified Skin Prick Test, Feel Deep,Short Wave Infra Red



PP-234

MODIFIED SKIN PRICK TEST RESULTS IN PATIENTS SUFFERING FROM DERMAGRAPHISM

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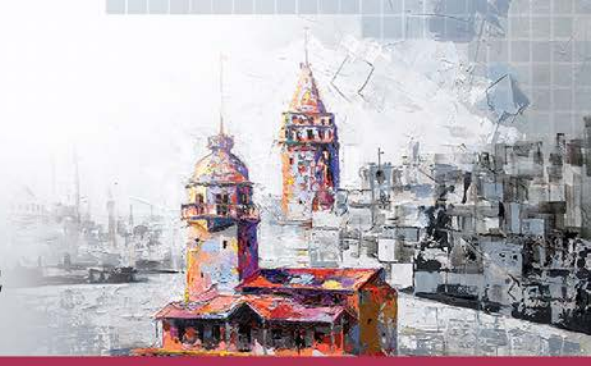
Materials-Methods: In patients of severe persistent allergic rhinitis when we perform modified skin prick test initially we don't know that this particular patient skin has a tendency of dermagraphism. We do all the pricks on volar aspect of both fore arms. After 15 to 20 minutes we want to read the wheal and flare response.All skin pricks are showing positive wheal and flare response. Now dilemma is how to interpret this wheal and flare response? I have derived a smart solution, inspect and feel all wheal and flare response, select the maximum size five to seven response. counter check by serum allergen specific test for only these five to seven allergens. Now retrospectively go to the history correlation and select most relevant three to four allergens to order for immunotherapy.

Results: By this smart trick i could select most relevant allergens for immunotherapy and could help patient in saving money and total dependency on expensive serum allergy test results for all allergens.

Conclusions: Don't get upset when you see dermagraphism in patients subjected to modified skin prick test. Act smart and do justice to the patient in treating severe persistent allergic rhinitis.

Keywords: ALLERGY DIAGNOSIS,MODIFIED SKIN PRICK TEST,DERMAGRAPHISM,



PP-235

ALLERGIC SENSITIZATION DYNAMIC SPT PROFILE BASED ON TEXTURE FEATURES FROM LOW-COST, PORTABLE SMARTPHONE THERMOGRAPHY

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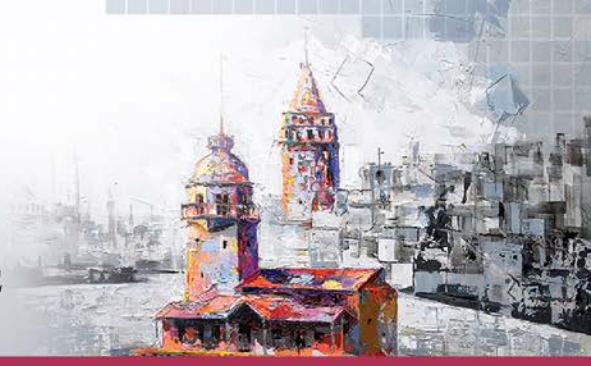
Background and Objectives: Although the skin prick test (SPT) is a reliable test procedure to confirm the IgE-dependent allergic sensitization in patients, the interpretation of the tests is still performed in a completely manual task. The objective of this study is to provide an automated evaluation framework of SPT with the use of explainable artificial intelligence (XAI) method using low-cost, smartphone based thermography, to determine the relevance of the optimal reading time point based on the applied allergic sensitization in patients.

Materials-Methods: We have calculated the gray-level co-occurrence matrix and local binary patterns texture parameters of thermal images for "*histamine*", "*phleum*", "*dermatophagoides*" and "*cat*" diagnosed patients. The explainability of the random forest model is implemented through the Shapley Additive Explanations for understanding the relative feature importance for the assessment of allergen-induced skin reactions over time.

Results: Among all subjects seen at Hacettepe University, Allergy clinics, we enrolled in this study only those reporting symptoms of allergic rhinitis. The explanations are associated with the Shapley values, which provide the average fractional contributions of the particular feature value conceivable feature combinations. The number of false-positive cases (means that the relationship between symptoms and outcome of SPT is not compatible) determined by XAI-enabled thermography assessment increased for the case of phleum and dermatophagoides allergens.

Conclusions: For the first time, we have shown that selection of texture features is a reliable method to discriminate allergic rhinitis' types using the thermography imaging technique with the advent of the low-cost, portable smartphone over time.

Keywords: Allergic rhinitis, SPT, Thermographic imaging, SHAP, XAI.



PP-236

EVALUATION OF CHILDREN REPORTED TO HAVE AN ALLERGIC REACTION FOLLOWING MEASLES-MUMPS-RUBELLA VACCINATION

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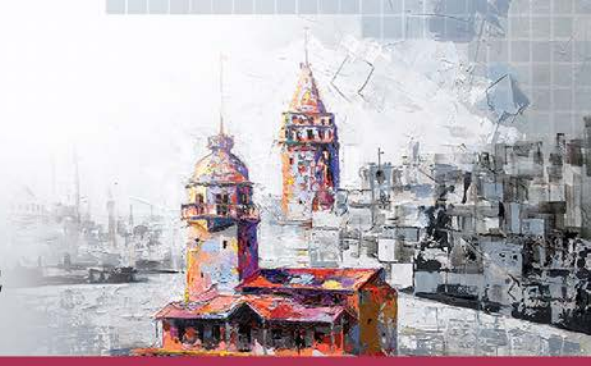
Background and Objectives: Physicians or parents are frequently anxious about administering measles-mumps-rubella (MMR) vaccine in children with food allergy. In our study, we aimed to evaluate the allergic reactions that developed in children who got MMR vaccine in our clinic.

Materials-Methods: The clinical findings and post-vaccination reactions of children who got MMR vaccines in our clinic in the last two years were reviewed retrospectively.

Results: 110 children were included in the study, of which 65 (59.1%) were boys and 45 (40.9%) were girls. The median age of the children was 12.53 (8.94-85.38) months. The most common reason for referral of children for MMR vaccine was egg allergy, in 65 (59.1%) cases. Other causes were multiple food allergies in 34 (30.9%), cow's milk allergy in 6 (5.5%), a history of post-vaccine reaction in 3 (2.7%), and 2 (1.8%) were other reasons. The median delay time to vaccination was 20 (0-271) days. 110 children got a total of 129 doses of MMR vaccine. Allergic reactions were detected in 4 children. Three of them had macular rash. In a child with multiple food allergies and a history of cow's milk-related anaphylaxis, anaphylaxis developed during rapid desensitization to the MMR vaccine.

Conclusions: Although the most common reason for referral was egg allergy, MMR vaccine safely administered in most cases in an allergy clinic. In children with severe cow's milk allergy, it is recommended to check the ingredients in the vaccine and to prefer alternative vaccines that do not contain the relevant allergen.

Keywords: allergy, anaphylaxis, children, egg, milk, vaccination



PP-237

HYALURONIC ACID FILLERS AND ADVERSE EVENTS/HYPERSENSITIVITY REACTIONS IN FACIAL AESTHETIC: A DESCRIPTIVE STUDY

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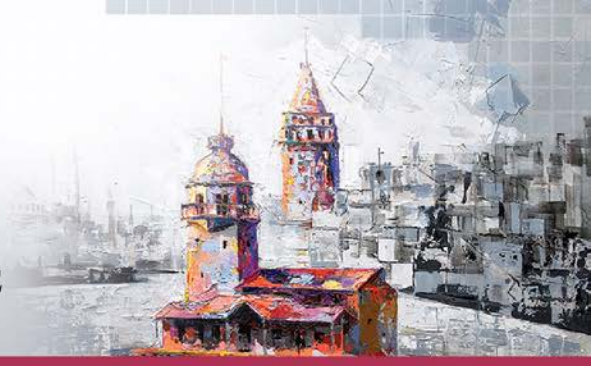
Background-Objectives: Hyaluronic acid (HA) is an absorbable material used in dermal fillers, which represents 90% of the filler market, with a growing demand. Even though, the indications and the number of procedures performed using dermal injections of hyaluronic acid fillers (HAF) increase, adverse events (AE) and hypersensitivity reactions (HR) of this dermal filler have not been described in our area yet. Hence, the objective of this study was to describe potential AE/HR associated with HAF.

Materials-Methods: This is a descriptive study in which patients treated with facial HAF between 2012-2022 who experienced an AE/HR to HAF were included. Data were collected from patient charts and through presential visits. Recorded data included age, sex, medical history, previously injected products, injection sites/methods, AE/HR and time lag between injection and the first reaction and the course of the reaction/treatment received.

Results: Eight Caucasian female patients with a mean age of 62 years old (range 38-76) were included. Three of them had previously history of allergy. All of them had received a minimum of one previously non-surgical medical aesthetic procedure (range 1-6). The main AE documented were edema (n=5;62.5%) and nodules (n=3;37.5%). All clinical AE were delayed reactions [44,6(2-117) days]. There were no events of immediate HR. All patients experienced a complete resolution after a mean time of 39,5(7-108) days.

Conclusions: We present eight cases of AE/HR to facial HAF, where the immune-mediated delayed HR were the most probable cause. All AE/HR were mild and transient with short recovery time.

Keywords: Dermal Fillers, hyaluronic acid, side effects, allergy, hypersensitivity reactions.



PP-238

ESTABLISHING THE RESPIRATORY DISEASES AND ALLERGY ORGANIZATION IN GHANA

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Backrgound: Respiratory Diseases and allergies are increasing in developing countries, such as Ghana. Massive air pollution and lack of awareness on these diseases contribute to a high morbidity and lead to a high disease burden. However, no official focus has been made towards these conditions.

Aim: To describe the establishment of a non-governmental organization increasing awareness and knowledge on respiratory diseases and allergies in Ghana

Methods: Respiratory Diseases and Allergy Organization is founded in 2022 by Imoru Yazid, a Ghanaian medical student and an aspiring Lung Specialist. His purpose to bring to reality this foundation was also motivated by the increasing rate of respiratory infections and air pollution which contributes to breathing problems, chronic diseases, increased hospitalization and mortality especially, among children and the elderly. The organization was officially registered at Registrar General's Department, Ghana and at the ERS/ELF. First activities were made during the World Tuberculosis Day 2022, where educational programmes were broadcast locally in rural Northern Ghana

Vision: Healthy lungs and clean air for all.

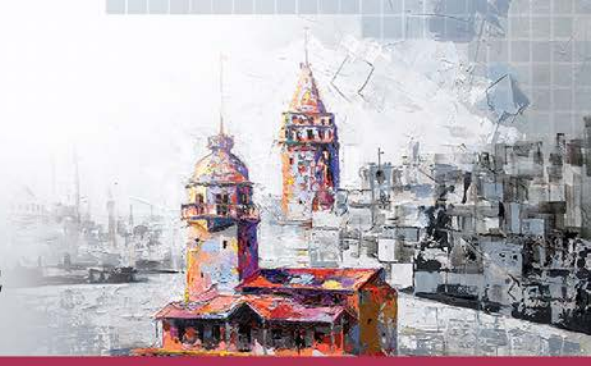
Mission: To improve the respiratory health and well-being of Ghanaians and mankind especially, the lives of vulnerable children, youth and the elderly in deprived communities through education, clinical care and research, human resource development and support of national and international public health activities.

Results:
Our Approach:

- Advocacy
- Education
- Awarenes
- Information
- Research

Conclusion: The Respiratory Diseases and Allergy Organization will enhance awareness and knowledge on lung diseases and allergies by means of education, collaboration, research and clinical work.

Keywords: respiratory, diseases, allergy



PP-239

ADULT ASTHMA WITH SYMPTOMATIC EOSINOPHILIC INFLAMMATION IS ACCOMPANIED BY ALTERATION IN GUT MICROBIOME

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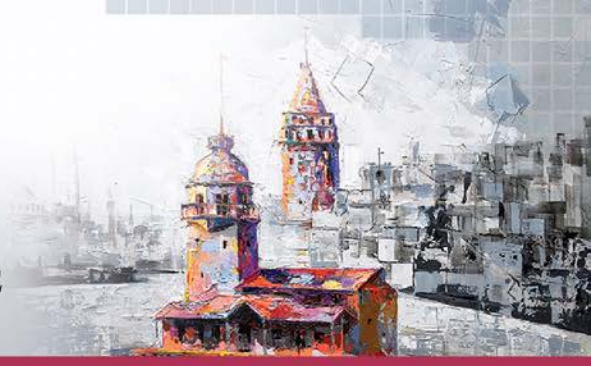
Background and Objectives: A growing body of evidence suggests that altered gut microbiome is associated with the development and progression of asthma. However, altered gut microbiome in adult asthma have not yet been well established. This study aimed to investigate the gut microbiome profile of adult asthma patients with symptomatic eosinophilic inflammation.

Materials-Methods: The 16s rRNA metagenomics analysis for gut bacterial features in patients with symptomatic eosinophilic asthma were performed in comparison with healthy control group and chronic cough patients excluded from type 2 inflammation, respectively. Correlation analysis between individual taxa and clinical markers was performed in asthma group. In addition, changes in gut microbiome were compared in patients with significant symptom improvement in the next follow-up in asthma patients.

Results: The relative abundances of Oscillospiraceae and Lachnospiraceae were significantly decreased in asthma group. Within asthma patients, the correlation between blood eosinophil count and individual taxa showed a positive correlation in Enterocloster, Vellonella, Clostridium, Enterococcus, and Escherichia and negative correlations in genus belonging to Lachnospiraceae (Fusicatenibacter, Kineothrix, and Anaerobutyricum). In addition, the correlation between lung function decline and individual taxa showed a positive correlation in Prevotellaceae and negative correlations in Lachnospiraceae. Asthma patients with symptom improvement after 1month does not showed significant change in the gut microbiome compared to the baseline.

Conclusions: Symptomatic eosinophilic asthma showed significant difference composition in gut microbiome. In particular, a decrease in Oscillospiraceae and Lachnospiraceae was found and a decrease in Lachnospiraceae was correlated with blood eosinophilia and lung function decline.

Keywords: Asthma, Eosinophil, Inflammation, Gut microbiota, Clostridia spp.



PP-240

NEW PARAMETER FOR THERMOGRAFICAL EVALUATION OF SKIN PRICK TESTS: CALORIC ALLERGY INDEX

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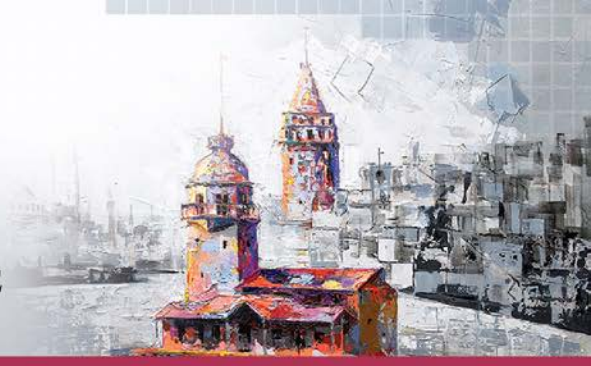
Background: Skin prick tests are frequently used for confirming the prediction of Type 1 hypersensitivity. However, its application, measurement and interpretation may reduce its diagnostic value due to human dependence. Medical thermography can provide non-invasive, objective and quantitative data in allergy tests. In a limited number of adult studies, there is no consensus on which diagnostic parameter to be used in the thermographic analysis of skin prick tests.

Material-Methods: We defined a new parameter as allergen spatial temperature relative to the positive and negative control regarding skin reactivity. With the help of the mobile thermal camera, FLIR One Pro, repetitive thermal images were taken during the skin prick test of 63 children.

Results: New parameter results are consistent with conventional measurements. There is a significant temperature change in test areas, where the mean wheal diameter is more than 3 mm. All positive reactions continued to warm during the test, whereas negative reactions did not show significant warming. Also, warming reaction patterns differ depending on the allergen.

Conclusion: In this study, the diagnostic parameter for thermal analysis is defined, which can be used consistently in routine skin prick test evaluation. With the use of thermography, false results due to subjectivity can be reduced, and a more accurate diagnosis can be made. Changing our point of view can help us see allergies better

Keywords: child, new diagnostic method, medical thermography, skin prick test



PP-241

DIFFERENTIALLY EXPRESSED GENE PROFILES OF HISTOMINE 1 RECEPTOR AND HISTOMINE 2 RECEPTOR ON B CELL SUBSETS

Iris Chang[1], Abhinav Kaushik[2], Pattraporn Satitsuksanoa[1], Laura Bürgi[1], Stephan Raphael Schneider[1], Cezmi Ali Akdis[1], Kari Nadeau[2], Mübeccel Akdis[1]
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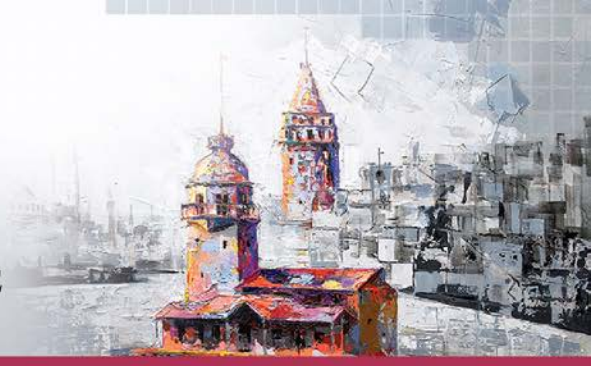
Background: Histamine receptors (HR) show distinct and different expression profile on T helper (TH) cells with H1R on TH1, whereas H2R on TH2 and Tregs. In our preliminary work, histamine receptors (HR) mutually exclusive express H1R or H2R genes in B cell clones. Therefore, we elucidated B cell responses in allergic disease by analyzing G-Protein-Coupled Receptor (GPCR)s expression in H1R and H2R B cell subsets. We hypothesized that different HR play distinct roles like H1R as Ca++ flux-inducing activating receptor and H2R as adenyl cyclase-stimulating suppressive receptor.

Methods: Antigen-specific B cells from bee venom-exposed healthy and allergic participants, were immortalized with retroviral vector containing green fluorescence protein, BLC6, and BCL-XL. Subsequently, cells were enriched by co-culturing with CD40L and IL-21. To investigate the gene expression, B cells were stimulated with or without B cell receptor (BCR) for 4 hours. Next-generation sequencing was performed on Illumina HiSeq 2500.

Results: The differentially expressed (DE) genes analysis of GPCRs across H1R+ vs H2R+ B cell clones highlighted 27 and 35 GPCRs in unstimulated and BCR-stimulated samples, respectively. Higher expressions of SSTR1, C5AR1, P2RY1 and PARD3 genes were observed in unstimulated H2R+ samples. The cAMP signaling pathway genes such as GLP1R, HCAR1 and HTR1A were higher in BCR-stimulated H2R+ samples. Interestingly, PTAFR gene was high in H1R+ samples under BCR stimulated condition. Moreover, 7 genes commonly DE across both stimulated conditions, including genes like GP50, C5AR1 and GPR35.

Conclusion: These data demonstrates that GPCRs may play synergistic or antagonistic suppressor roles in B cells.

Keywords: G-Protein-Coupled Receptor, GPCR, B cell, Histamine Receptor



PP-242

ETIOLOGICAL PROFILE OF PEDIATRIC ECZEMA

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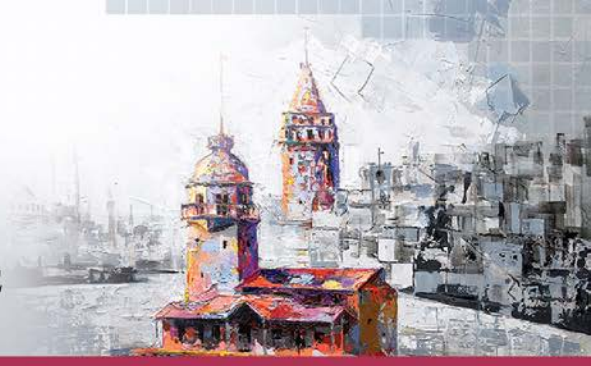
Objectives: to describe the eczema characteristics among children and to determine the common allergens.

Materials-Methods: It's a descriptive epidemiological study of all cases of children eczema reported from 2010 to 2021 in the Dermato-Allergology Unit of the Occupational Medicine Department of the Farhat Hached University Hospital of Sousse Tunisia.

Results: During the study period, 55 case of children eczema was collected. The mean age of the study population was 11,33 ± 4,41 years with a female predominance (65,5%). The history of atopic dermatitis was found in 14,5% of cases. The most affected locations was the hands (43,6%). The itching was the most functional symptoms reported by 87,3% of cases.The erythemato-vesicular lesions (52,7%) and the erythematous squamous lesions (38,2%) were the most frequents. The common allergens were potassium dichromate (9,1%), Cobalt (II) chloride hexahydrate (9%) and the 5-Chloro-2-methyl-4-isothiazolinone (9%).

Conclusions: This study has identified the main characteristics of children eczema, that's why more attention must be taken to identify the causal allergen.

Keywords: Pediatric eczema, allergens, children



PP-243

TEXTILE FIBER-INDUCED LICHEN PLANUS PIGMENTOSUS: A CASE REPORT

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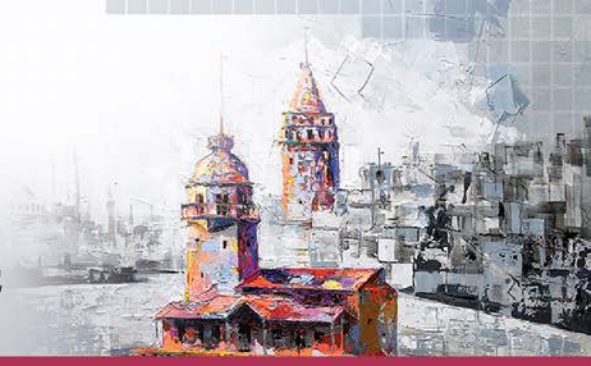
Background and Objectives: Lichen planus pigmentosus (LPP) is a rare variant of lichen planus affecting mainly skin folds. We report an original case of LPP induced by occupational exposure to textile dye.

Case presentation: A 49-year-old female patient of phototype IV, textile manufacturing worker, consulted for pruritic hyperpigmentation affecting the skin folds, the face and the neck. The hyperpigmentation was mainly located in the axillary folds the inguinal folds, elbow folds and inframammary areas. There was no associated mucosal involvement. The allergological investigation revealed the onset of this skin lesions, one year after employment. No medication or cosmetic product were used by the patient. The patient reported an occupational rhythmicity of her skin lesions in particular to dark denim fibers. Dermoscopic analysis showed a brown background, dots and globules distributed in a complete reticular pattern with accentuated perifollicular pigmentation. Histological analysis showed a large inflammatory mononuclear lymphohistiocytic infiltrate of the dermis with pigmentary incontinence and vacuolar degeneration of the basal layer. Patch tests were performed using standard battery and tissue manipulated at work. 48 hours and 72 hours lectures were negative. Two months later, new hyperpigmented macule appeared in the area tested with dark colored denim fabrics. This pigmentation had the same dermoscopic and histological characteristics described above. The diagnosis of lichen pigmentogenesis induced by a textile dye allergen was evoked.

Conclusions: LPP induced by a textile allergen has never been reported in the literature. Occupational avoidance of exposure to this allergen leaded to a completed healing of lesions.

Keywords: Lichen planus pigmentosus, Textile fiber, work



PP-244

EVALUATION OF VENOM ANAPHYLAXIS AND VENOM IMMUNOTHERAPY IN CHILDREN

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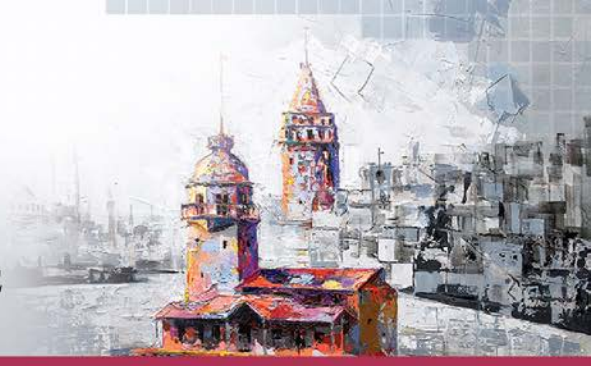
Background And Objective: Venom allergy is an important cause of severe allergic reactions in children, but limited information is available for venom anaphylaxis. We aimed to evaluate the characteristics of our patients diagnosed with venom anaphylaxis and treated with immunotherapy.

Materials-Methods: The patients diagnosed with venom anaphylaxis in our tertiary Pediatric Allergy Clinic between 2007-2022 were included in this study.

Results: Within the 15-year period, 23 patients diagnosed with venom anaphylaxis were registered.The mean age at the time of anaphylaxis was 111.0±37.7 months with a male predominance (87%). The culprit bee detected by skin prick test (SPT) and/or spIgE was Vespula in 12 (52.2%), Apis mellifera in 6 (26.1%) patients. The sensitivity of SPT was 52.9%.The most frequent clinical manifestations were skin and respiratory symptoms.The reactions with Apis mellifera were more severe than Vespula (p=0.01). No significant correlation was determined between asthma, concomitant atopy and severity of anaphylaxis (p=0.18, p=0.43, respectively).The time from exposure to onset of symptoms was shorter, the duration of symptom persistence was longer in severe anaphylaxis (p=0.00, p=0.05, respectively). The ratio of adrenaline administration was 47.8%.Conventional venom immunotherapy (VIT) was started in 43.5% of patients in our center.Although local reactions were observed in 20% of patients during maintenance phase, no systemic reactions developed.Four of them were stung again after VIT was terminated, but no systemic reactions occurred.

Conclusions: Venom allergy can cause anaphylaxis in childhood and may require immunotherapy. VIT is an effective and safe treatment to prevent future systemic reactions in the pediatric group like adults.

Keywords: Venom, anaphylaxis, immunotherapy



PP-245

GUT EPITHELIAL BARRIER DAMAGE CAUSED BY DISHWASHER DETERGENTS AND RINSE AIDS

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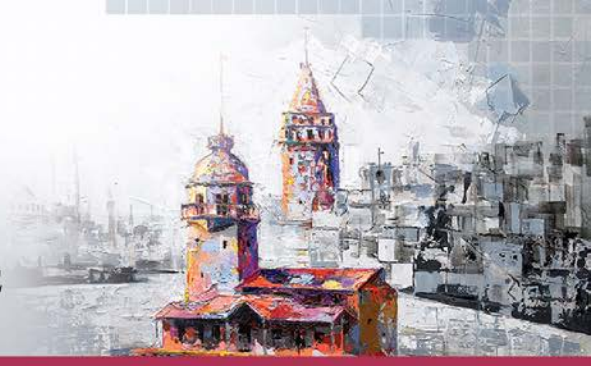
Background and Objectives: The increased prevalence of many chronic inflammatory diseases linked to gut epithelial barrier leakiness has prompted us to investigate the role of extensive use of dishwasher detergents, among other factors. We investigated the effects of professional and household dishwasher and rinse agents on cytotoxicity, barrier function, transcriptome and protein expression in gastrointestinal epithelial cells.

Methods: Enterocytic liquid-liquid interfaces were established on permeable supports, and direct cellular cytotoxicity, transepithelial-electrical-resistance (TEER), paracellular-flux (PF), immunofluorescence staining, RNA-seq transcriptome and targeted proteomics were performed.

Results: The observed detergent toxicity was attributed to exposure to rinse aid in a dose-dependent manner up to 1:20,000 v/v dilution. A disrupted epithelial barrier was demonstrated with decreased TEER, increased PF, and irregular and stratified TJ immunostaining in response to rinse aid. When individual components of the rinse aid were investigated separately, alcohol ethoxylates (C12-15) elicited a strong toxic and barrier damaging effect. RNA-seq transcriptome and proteomics data revealed upregulation in cell death, cell signaling and communication, epithelial cell development, cell proliferation, immune and inflammatory responses. Interestingly, detergent residue from professional dishwashers demonstrated the presence of a significant amount of cytotoxic and epithelial barrier damaging rinse aid remaining on washed and ready to use dishware.

Conclusion: The expression of genes involved in cell survival, epithelial barrier, cytokine signaling, and metabolism were altered upon cell exposure to rinse aid concentrations typically used in professional dishwashers. The alcohol ethoxylates present in the rinse aid were identified as the culprit component causing the epithelial inflammation and barrier damage.

Keywords: Alcohol ethoxylates, Caco-2, cytotoxicity, dishwasher detergents, epithelial barrier, rinse aid



PP-246

DETERMINATION OF NEW CANDIDATE GENES IN PATIENTS DIAGNOSED WITH HEREDITARY ANGIOEDEMA TYPE III BY NEXT GENERATION SEQUENCING

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Background and Objectives: Hereditary angioedema (HAE) is a rare disease characterized by subcutaneous edema in many parts of the body and it can be a life-threatening depending on the area where edema develops. Diagnosis and treatment of HAE is important because of potential morbidity and mortality. Despite the great successes achieved in the last years, the genetics and pathophysiology of the HAE Type III, in which the antigenic and functional levels of C1INH are normal, have not been clarified in the majority of patients. We aimed to identify new genes that may be involved in the pathogenesis of HAE Type III in the Turkish population.

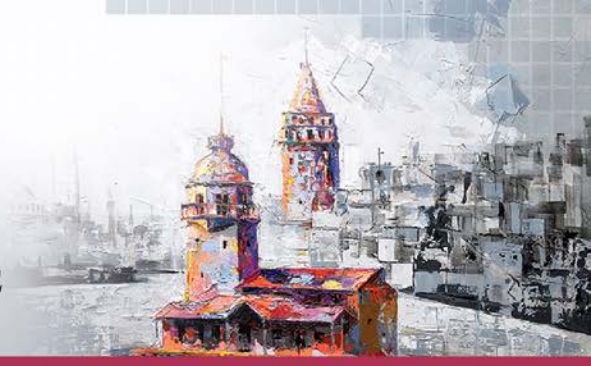
Materials-Methods: Whole exome sequencing was performed in 30 individuals from families of 9 reference patients who were diagnosed with HAE type III at the Pediatric Allergy and Adult Allergy Department of Hacettepe University Hospital, with the complaint of recurrent angioedema, but did not carry the known mutations associated with HAE Type III in the literature. Candidate genes were determined by bioinformatics analyses and variations in these genes and the inheritance patterns in the families were confirmed by Sanger Sequencing.

Results: As a result of this study, MYOB9, LTBP1, KRIT1, AVPR1A, DACT3, KLK15, PTGIR and LRP6 genes stand out among the candidate genes in terms of their functions.

Conclusions: Thanks to the new genes and pathways will be defined within the scope of this study, it might be possible to develop new treatment regimens and prevent life-threatening reactions that may develop in these patients.

Keywords: Hereditary Angioedema Type III, Candidate genes, Next Generation Sequencing, Whole Exome Sequencing.

This study was supported by Hacettepe University Scientific Research Projects Coordination Unit with the project number 15260



PP-247

SOCIO-PROFESSIONAL FACTORS INFLUENCING THE QUALITY OF LIFE OF ASTHMATIC WORKERS IN TUNISIA

Amira Omrane[1], Malek Ben Abdelkader[1], Imen Touil[1], Olfa Jelassi[1], Raja Romdhani[2], Nadia Boudawara[2], Soumaya Bouchereb[2], Taoufik Khalfallah[1], Leila Bousoffara[2], Jalel Knani[2]
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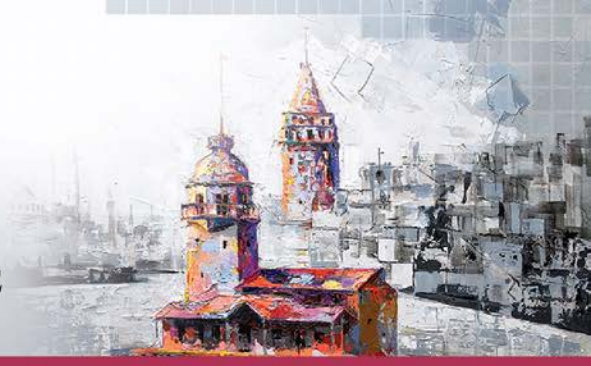
Background and Objectives: Asthma impairs patient's health related quality of life and is associated with substantial health care costs. This study aimed to investigate factors affecting the quality of life of asthmatic patients.

Materials-Methods: In a random sample of employed adults with asthma, sociodemographic, lifestyle and other general informations were collected using a self-administred questionnaire. The Quality of Life was measured by the Asthma Quality of Life Questionnaire (AQLQ(S)).

Results: A total of 101 asthmatic patients were included in our study. Thirty-five patients (34.7%) had comorbidities other than asthma. More than half of the patients (65.3%) had experienced acute exacerbations with a mean number of two acute exacerbations per year. The mean global AQLQ(S) score was 5.08 ± 1.2 (range 1.4 – 6.8). The mean Subscale scores were 5.1±1.3 for symptoms, 5.1±1.1 for activity limitations, 5.2±1.2 for emotional limitations and 4.6±1.3 for environmental factors. Most of the patients (84.2%) had high AQLQ(S) scores. A statistically significant correlation was observed between the global AQLQ(S) score's impairment and the presence of other comorbidities (p=0.04), the number of asthma exacerbations (p=0.04), its severity (p<10-3) and the occupational etiology (p<10-3). Professional reclassification was significantly associated with higher AQLQ(S) score.

Conclusions: The awareness of socio-professional factors influencing asthma can improve the quality of life of asthmatic patients.

Keywords: Asthma, Quality of life, Occupational asthma



PP-248

THE EFFECT OF COMORBIDITIES ON ASTHMA CONTROL AMONG ASTHMATIC PATIENTS

Amira Omrane[1], Malek Ben Abdelkader[1], Imen Touil[2], Olfa Jelassi[1], Raja Romdhani[2], Nadia Boudawara[2], Soumaya Bouchereb[2], Taoufik Khalfallah[1], Leila Bousoffara[2], Jalel Knani[2], Nejib Mrizek[2]
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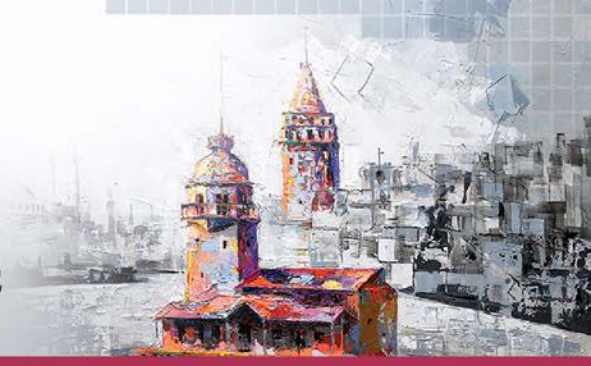
Background and Objectives: Numerous comorbidities can be associated with asthma and are increasingly recognized as important factors to document in asthma patients as they may influence disease management. Our aim was to evaluate the effect of comorbidities on asthma control in patients with asthma.

Materials-Methods: This cross-sectional study was conducted in a teaching Hospital in Tunisia. Basic patient characteristics, the prevalence of comorbidities and data on asthma control and risk factors had been collected and their interactions examined using SPSS version 21. We measured comorbidities using a validated self-administered comorbidity questionnaire (SCQ), as well as asthma control using The Global Initiative for Asthma assessment of asthma control (GINA 2019).

Results: The mean age of our patients was 44.1 ± 13.2 with a female predominance (66.3%). Thirty-eight patients (36.7%) had a well-controlled asthma, 38 (36.7%) had a not well controlled asthma and 25 participants (24.8%) had a poorly controlled asthma. The mean SCQ score was 1 (SD 1, range 0–5). Among well-controlled asthma patients, 55.2% had a SCQ score of zero and 13.1 % had a SCQ of four. Thirty nine percent of patients with not well controlled asthma had a SCQ of zero and 13.7% had an SCQ of four. Forty four percent of patients with poorly controlled asthma had a SCQ of zero and 16 % had an SCQ of four. A statistically significant correlation was observed between GINA scores and SCQ scores (p-value = 0.029).

Conclusions: The management of comorbidities can improve asthma outcomes.

Keywords: Comorbidities, Asthma control, Asthma



PP-249

THE IMPACT OF OBESITY ON ASTHMA SEVERITY IN TUNISIA

Amira Omrane[1], Malek Ben Abdelkader[1], Imen Touil[2], Olfa Jelassi[1], Raja Romdhani[2], Nadia Boudawara[2], Soumaya Bouchereb[2], Taoufik Khalfallah[1], Leila Bousoffara[2], Jalel Knani[2]
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[2]Pneumology department, Public Hospital Mahdia, Tunisia

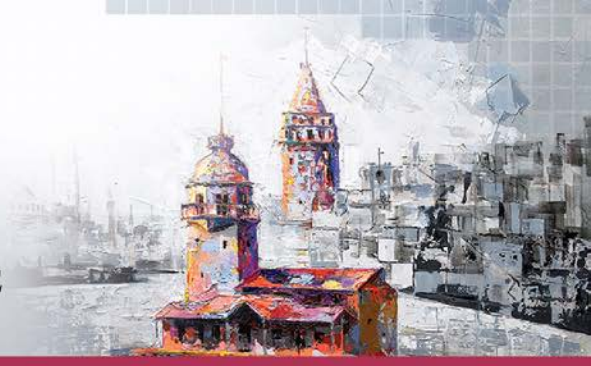
Background and Objectives: The incidence of asthma and obesity has increased dramatically over the past two decade all over the world. The aim of this study was to analyse the impact of obesity on the severity of asthma in Tunisia.

Materials-Methods: In a sample of asthmatic patients from the pneumology departement, sociodemographic and occupational informations were collected using a self-administred questionnaire. Obesity was defined using the classification adopted by the WHO. Thus, a Body mass index (BMI) greater or equal to 30 kg/m2. Asthma severity was assessed according to the level of treatment needed to control symptoms and exacerbations.

Results: In this study, 23.8% of patients had intermittent asthma, 28.7% had mild persistent asthma, 41.6% had moderate persistent asthma and 5.9% had severe persistent asthma. The mean BMI of our population was 25 ± 4 Kg/m2 with extremes of 15.19 and 36 Kg/m2. Half of the population (43 %) had a normal BMI, 3% were underweight, 26% were overweight and 28% were obese. Among obese patients, 17.2% had intermittent asthma and 7.4% had severe persistent asthma. Among patients with normal BMI, 19.5% had intermittent asthma and 4.8% had severe persistent asthma. A statistically significant correlation was observed between BMI scores and asthma severity (p-value <[10]^(-3)).

Conclusions: Obese asthmatic patients tend to have more severe asthma then asthmatic patients with normal BMI.

Keywords: Obesity, Asthma severity, Asthma



PP-250

EXCESSIVE FATIGUE AND ASTHMA MEDICATION ADHERENCE AMONG ASTHMATIC WORKERS

Amira Omrane[1], Malek Ben Abdelkader[1], Imen Touil[2], Olfa Jelassi[1], Raja Romdhani[2], Nadia Boudawara[2], Soumaya Bouchereb[2], Taoufik Khalfallah[1], Leila Bousoffara[2], Jalel Knani[2]
[1]Occupational Medicine department, Public hospital Mahdia, Tunisia
[2]Pneumology department, Public Hospital Mahdia, Tunisia

Background and Objectives: The benefits of drug therapy for asthma have been well established, but adherence to treatment remain poor. This might be associated with an increased risk of asthma exacerbations. In this study, we aimed to evaluate the effect of fatigue on asthma medication adherence among asthmatic workers.

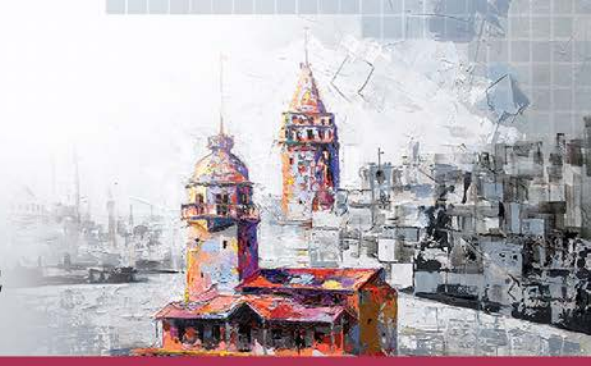
Mterials and Methods: A cross-sectional study was conducted. The patients were enrolled from the Teaching Hospital of Mahdia (Tunisia), composed of patients diagnosed with asthma. Adherence to asthma medication was assessed using the simplified medication adherence questionnaire (SMAQ) and fatigue was assesed using the Pichot's fatigue scale.

Results: On average, patients worked 43.5 ± 12.5 hours per week. More than a half of patients (54.4%) had received inhaled corticosteroids (ICS) and long-acting beta-agonists (LABA) in combination with short-acting beta2-agonists as rescue medication. More than thirty pour cent of patients (30.7%) were adherent to asthma medication and 69.3% were nonadherent to treatment.

The mean Pichot score was 13.5±7.6 meaning than 18.8% of patients had excessive fatigue. An excessive fatigue (Pichot score > 22) was revealed among 16.1% of adherent patients and among 14.2% of nonadherent patients. A statistically significant correlation was observed between asthma medication adherence and Pichot's fatigue scores (p-value =[10]^(-3)).

Conclusions: Factors unrelated to medications like fatigue, can impact adherence to asthma treatment.

Keywords: Fatigue, Asthma medication adherence, Asthma



PP-251

RISK FACTORS FOR NEW ASTHMA DEVELOPMENT DURING PREGNANCY

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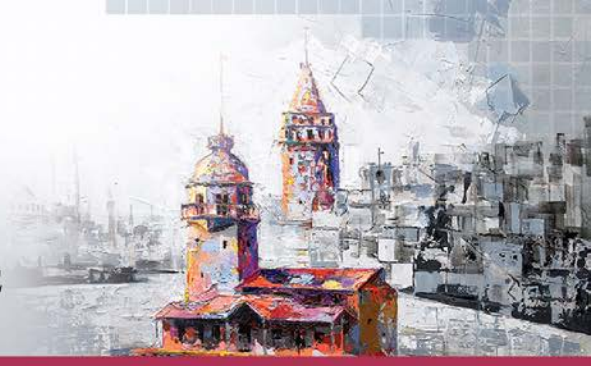
Background and Objectives: Pregnancy increases the risk of asthma exacerbations for one third of patients with asthma. There may be patients with newly developed asthma during pregnancy. We evaluated risk factors for newly diagnosed asthma during pregnancy.

Materials-Methods: The women who gave birth from January 2012 to December 2015 and had not been diagnosed as asthma before pregnancy for ≥ 4 years were enrolled from the National Health Insurance Database of the Korean Health Insurance Review and Assessment Service. Asthma flare up was defined by ≥ 3 times diagnosis for visits at hospital visit with ≥ 1 oral corticosteroids treatment. Nested case-control study was performed with 1:3 matching for age and year and season of delivery to evaluate the risk factors.

Results: 7.5% (103,126/1,381,845) of women without history of asthma before pregnancy experienced asthma flare-up during pregnancy including 18.6% of them needed hospitalization or emergency room visits for asthma. Old age, primiparity, and multifetal pregnancy were the risk factors for such asthma flare-up. Moderate to severe rhinitis were strong risk factors. For pregnant women aged ≥ 34 years old, 23.0% of those with moderate to severe rhinitis and 22.7% of those with primiparity and multi-fetal pregnancy showed OCS-needed asthma flare-up during pregnancy.

Conclusions: Even pregnant women without history of asthma, there were a substantial number of pregnant women who experienced first asthma flare up during pregnancy. Moderate to severe rhinitis, old age, primiparity and multi-fetus were risk factors.

Keywords: Asthma, Pregnancy, Rhinitis



PP-252

COMORBIDITY IN ASTHMA:TICAGRELOL CAUSING DYSPNEA

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Health Sciences University, Süreyyapaşa Training and Research Hospital, Allergy and Immunology Clinic

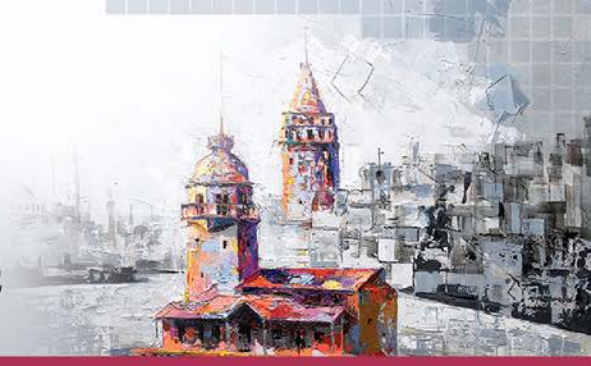
Introduction: Severe asthma İs İmproved to the maximum after we excluded factors due to medicine adaptation, inhaler use technique, comorbidity, triggers that may improve asthma control and the diagnosis of asthma has been confirmed. Uncontrolled asthma may develop due to comorbidities (obesity, obstructive sleep apnea syndrome, gastroesopagial reflux, chronic sinusitis, nasal polyp), drug incompatibility). Ace inhibitors, non specific beta blockers, nonsteroid anti-inflammatory drugs are coming from our time as trigger drugs. İn this case, we wanted to provide the clinical presentation of dyspnea development like severe asthma in the patient who started ticagrelol.

Case: a 62-year-old male patient has been diagnosed with asthma for 10 years. Reference to allergy outpatient clinic due to uncontrolled asthma, due to taking middle-high dosage of budezonide + formoterol.Comorbidities such as osas, ger, nasal polyp were excluded. Eosinophil number 200, anca, main ena profile seen negative.İt was learned that ticagrelol as an antiagregan was started 6 months ago, after coronary angiography, and increased dypnea after using this drug. the patıent ıs consıdered wıth clopıdogrel therapy ınstead of tıcagrelol.At the vısıt after 1 months, the patıent's asthma was under control wıth a medium dose inhaler for asthma.

Conclusion: Ticagrelol, an antiagregan frequently used in the treatment of ischemic heart diseases, is an adp receptor antagonist and increase the blood levels of adenozine compared to other drugs, and can cause adenosine from bronchobstruction.

İn difficult asthma patients, patients should be interested in detailed according to the anamnesis and the medications used before saying severe asthma.

Keywords: ticagrelol causing dypsnea,antiagregan broncobstruction,



PP-253

NON-UTILIZATION OF MEDICAL REHABILITATION BEFORE THE OCCURRENCE OF EARLY RETIREMENT DUE TO ASTHMA IN GERMANY – PREVALENCE AND SOCIODEMOGRAPHIC CORRELATES

Maria Weyermann
Niederrhein University of Applied Sciences

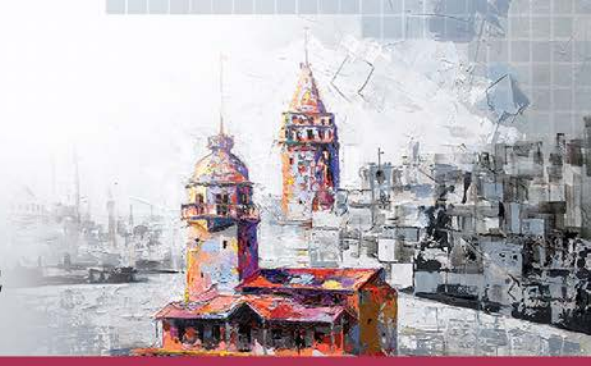
Background and Objectives: In Germany the statutory pension insurance fund covers the cost of rehabilitation treatment for employees whose working capacity is endangered due to health problems. The underlying principle called "rehabilitation over retirement" is the concept to avoid early retirement due to health problems. We aimed to describe the utilization of medical rehabilitation before the occurrence of early retirement due to asthma in Germany from 2001 to 2020 and to investigate potential sociodemographic determinants.

Materials-Methods: Analysis based on 20% random samples of administrative pension records from the Research Data Centre of the German Federal Pension Insurance, which include of all new cases of early retirement. We used logistic regression models to investigate the risk of non-utilization of medical rehabilitation before the occurrence of early retirement. Age, sex, citizenship, marital status, education, and annual income were considered as potential risk factors.

Results: Among all early-retired patients due to asthma 53.9% (989 out of 1.834) did not utilized medical rehabilitation during five years before the occurrence of early retirement. Non-German citizenship, older age, low educational level, as well as low annual income before rehabilitation were risk factors for non-utilization. For example, adjusted risk among persons with low annual income (1st quartile vs. 4th quartile, OR [95%-CI]) was 5.2 [3.8;7.2].

Conclusions: Despite the importance of medical rehabilitation among patients with asthma more than 50% of them obtained no medical rehabilitation during five years before the occurrence of work disability, worst affected are deprived persons.

Keywords: medical rehabilitation, disability pension, German pension insurance



PP-254

ALLERGIC ASTHMA IN THE PEDIATRIC POPULATION

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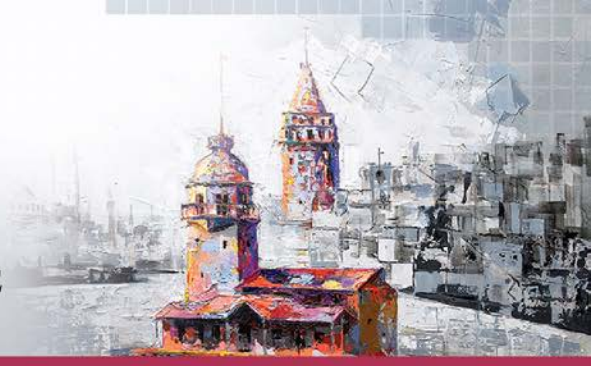
Goal of research-Asthma phenotyping, based on presence of accompanying allergic diseases is significant for asthma classification or not.

Research materials and methods Diagnostic criterion for allergy was analyzed and representative cohort was selected. 2019-2022 Studied population included 1450 children from 2 to 17 years age representing Georgia population 850 girls and 600 boys.

As a result of research the following findings were made: asthma was confirmed where at least two of the listed was present: diagnosis of asthma made by doctor, asthma symptoms and consumption of drugs against asthma. Population was divided into active and ever groups. Main finding is identification of correlation between airways inflammation and phenotype accompanying asthma in children of age from 2 to 16. Research showed than of 860 children of age from 2 to 8,62 children had A with at least accompanying disease. 590 children of age from 9 to 17, 81 children had asthma with at least accompanying allergic disease. asthma, in 32.8%, further A and AR, A with R and A D 13%, A with A D 4.9%. boys are more susceptible to A and AR compared with the girls p=0.001. Lung function is significantly correlated with hyperresponsiveness of bronchi associated with asthma phenotype with the lowest FEV 2% case of A, AR and AD

Conclusion: Our A in adults is accompanied with AR or AD 14.9%. In puberty, A phenotypes with AR inflammation p>0.05. In the combinations of AD the association of the phenotypes with gender was mostly found in males p=0.001.

Keywords: Children, FEV. Asthma, Allergic Rhinitis and Atopic Dermatitis.



PP-255

INTERNET ADDICTION AND ANXIETY IN ASTHMATIC CHILDREN AFTER THE FIRST YEAR OF THE COVID-19 PANDEMIC

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Background: Studies have revealed that people with asthma have a higher risk of anxiety during the COVID-19 pandemic.

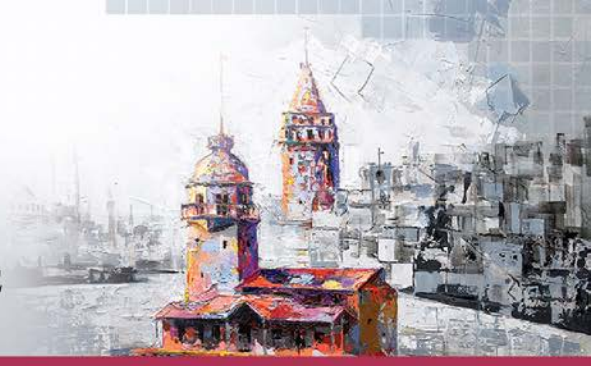
Objective: To evaluate the relationship between anxiety levels and internet use in asthmatic children and adolescents during the late stage of the COVID-19 pandemic.

Method: A multicenter-cross-sectional survey was conducted February–March 2021, enrolling 78 asthmatic patients and 44 healthy controls. Anxiety was evaluated with the State-Trait Anxiety Inventory for Children (STAI-C) for ages 9–12 and with the State-Trait Anxiety Inventory (STAI) for youngsters aged 13–18. Internet use was evaluated with the Internet Addiction Scale for Adolescents (IASA).

Results: Anxiety scores did not differ between patients and controls. The average time spent on the internet increased markedly (over three-fold) during the pandemic period compared to pre-pandemic (to 6.9±3.5 [0–18] from 2.1±1.5 [0–6] hours per day, respectively; $p<0.001$). There was no difference between the patients and controls in the IASA scores. There was a correlation between the IASA and STAI state and trace (STAI [S] and STAI [T]) scores in the 13–18 years group ($r=0.28$, $p=0.03$, and $r=0.34$ $p=0.01$, respectively). Multivariate linear regression revealed that mothers' education level was positively associated with the IASA and STAI-C scores in the 9–12 years group.

Conclusion: Problematic internet use has more impact on adolescents' anxiety than does asthma during the late stage of the COVID-19 pandemic. We suggest internet addiction should be kept in mind when evaluating anxiety among asthmatic adolescents during their follow-up.

Keywords: asthma, anxiety, internet addiction, children, COVID-19 pandemic



PP-256

ASSESSMENT OF THE CYTOKINE STATUS DEPENDING ON THE STAGE OF BRONCHIAL ASTHMA IN CHILDREN

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Cytokines support the biosynthesis of immunoglobulin E, participate in the development of allergic inflammation by activating mast cells and eosinophils.

Purpose of the study: To study the dependence of the state of the level of cytokines on the stage of the immunopathological process in AD

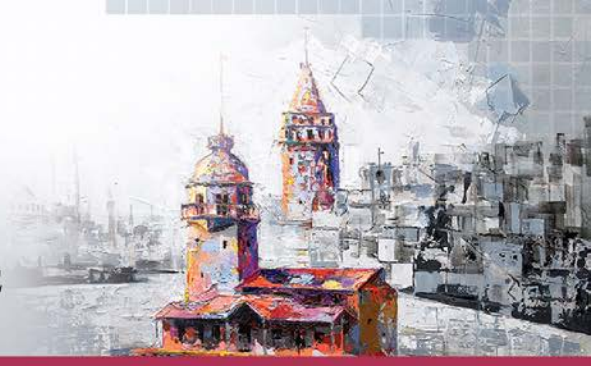
Materials-Methods: 112 children with BA, aged from 4 to 15 years, were under observation. Of these, 96 boys, 16 girls. Studies were conducted during the period of exacerbation and remission.

The concentration of IL-4, Il-8, γ-interferon and TNF was studied by ELISA Statistical processing was carried out using Student's t test.

Results and Discussion: The leading clinical symptom was broncho-obstructive syndrome of varying severity. The concentration of Il4 during the period of exacerbation was at the upper limit of the norm (12.7±0.3). In the stage of remission, there is a significant decrease in it (9.9±0.2 at $p < 0.05$). In the acute stage, the concentration of Il8 was at the upper limit of the norm (28.2±0.6), the content of γ-interferon slightly exceeded the norm (11.5±0.3), and the level of TNF was within the normal range (5.39±0.3). 0.12). During of remission, the concentration of Il8, TNF continued to decrease (14.9±0.5 at $p < 0.05$; 2.92±0.15). The initially slightly elevated level of γ-interferon normalized (7.5±0.8 at $p<0.05$).

Conclusion: The greatest deviations from the norm in the form of an increase in the concentrations of all citokynes were observed in the acute stage. The period of remission was characterized by complete normalization of the cytokine status.

Keywords: bronchial asthma, broncho-obstructive syndrome, cytokines



PP-257

THE EFFECT OF SPELEOTHERAPY ON FRACTIONAL EXHALED NITRIC OXIDE AND SERUM CYTOKINE LEVELS IN CHILDREN WITH ATOPIC ASTHMA

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Background: Speleotherapy or use of subterranean environment is an promising therapy in the treatment of asthma. Objective to evaluate the role of speleotherapy in a rehabilitation of children with asthma in Nakchivan "Duzdag" magara centre.

Methods: 50 children with mild and moderate asthma (5-17 years) were enrolled in a study. Speleotherapy was offered in a "Duzdag" magara centre at the time of remission in three modalities: adaptation, basic, and readaption.The course of treatment consisted of 15 speleoprocedures daily.Efficacy of speleotherapy was evaluated by fractional exhaled nitric oxide(FeNO) measurement and serum levels cytokine at the beginning and at the end of course

Results: Prior to speleotherapy FeNO levels were elevated to 56.9±5.6 ppb and 64.0±3.1 ppb in patients with mild and moderate degree of disease Repeated measurement on FeNO demonstrated tendency to normalization- 22.2±2.2 ppb and 34.3±3.2ppb in mild/ moderate groups ($p<0,001$) Before the treatment of mild persistent asthma IL-5 was 6.52±0.59 pg/ml, IL-13 5.82±2.54 pg/ml, in moderate asthma IL-5 was 8.24±1.25 pg/ml, IL-13-10.41±3.44 pg/ml. After treatment with a mild form of the disease, the level of IL-5 decreased to 4.37±0.12 pg/ml ($p=0.008$) and the level of IL-13 to 1.44±0.26 pg/ml ($p=0.038$). In the moderate course of the disease, the level of IL-5 after treatment was 5.05 ± 0.2 pg /ml ($p= 0.001$). IL-13 was 1.85±0.65 pg/ml ($p=0.001$).

Conclusion: A positive effect of speleotherapy on cytokine levels and fractional exhale nitric oxide of the disease. Changes of FeNO and cytokine levels after speleotherapy was associated decrease in airway inflammation

Keywords: asthma, cytocines, speleotherapy, FE NO

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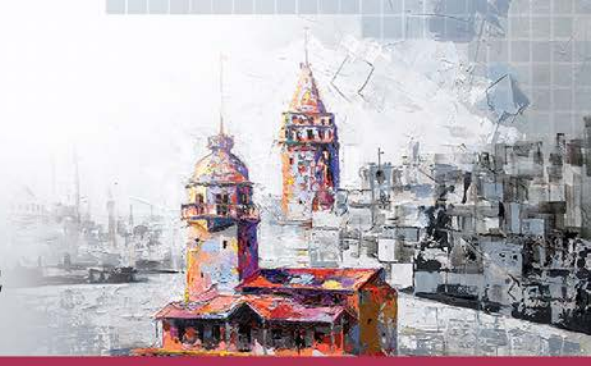

PP-258

DETERMINANTS OF INDOOR ALLERGEN AVOIDANCE UPTAKE IN THE HOMES OF CHILDREN AND YOUNG PEOPLE WITH SEVERE ASTHMA AND ALLERGIC SENSITISATION: A QUALITATIVE STUDY

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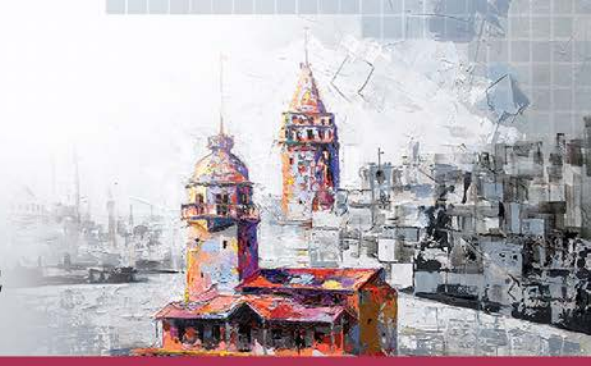
Background and Objectives: Multiple indoor asthma triggers exist and can affect asthma control and may drive increased use of reliever medication. Whilst the effectiveness of many allergen reduction methods remain debated and are not widely advocated by UK clinical guidance, trigger avoidance is suggested. However, the determinants of avoidance uptake in families with a child with asthma remain unclear. Objectives: Explore the determinants of remediation uptake with a view to developing an explanation through participants' experiences, to elucidate gaps in avoidance uptake, and inform future theory and family-based interventions to promote trigger avoidance.

Methods: In-depth qualitative interviews were conducted with 11–16-year-olds with severe asthma and sensitisation to house dust mite and/or domestic pets. Parent-carers were also invited to participate. Grounded theory methodology guided design and analyses.

Results: 21 individuals (11 mothers and 10 children/young people) participated. Multiple factors affect trigger and allergen avoidance. Motivators include recurrent exacerbations, hospitalisations, oral steroid use, and school absences. Barriers include being overwhelmed by information or not recalling being provided with the range of remediation options; financial costs and lack of understanding of the mechanisms linking allergen exposures and asthma control or symptoms. In most families there was delayed remediation uptake and uptake was in response to ongoing sub-optimally controlled asthma.

Conclusions: Interventions to increase uptake of evidence-based avoidance methods should focus on family education, targeted, individualised information provision, and consideration of behaviour change theory to promote timely uptake.

Keywords: asthma, allergic sensitisation, children, triggers, indoor environmental allergens, qualitative



PP-259

EFFECT OF SUBCUTANEOUS IMMUNOTHERAPY ON SPECIFIC ANTIBODY LEVELS AND ASTHMA CONTROL IN PEDIATRIC ASTHMA PATIENTS ALLERGIC TO HOUSE DUST MITES

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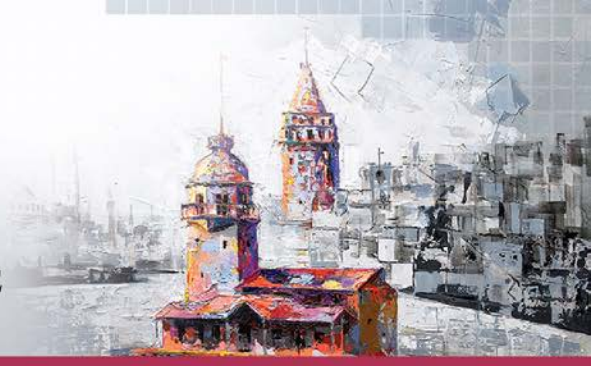
Background and Objectives: Allergen specific immunotherapy is a recommended treatment for pediatric asthma patients allergic to house dust mites (HDM). This study was aimed to evaluate the effect of subcutaneous immunotherapy (SCIT) on specific antibody levels and asthma control in pediatric asthma patients allergic to HDM.

Materials-Methods: Study participant were pediatric asthma patients confirmed with HDM allergy from Skin Prict Test (SPT) in pediatric outpatient clinic in Saiful Anwar Hospital, Indonesia. Patients who treated with HDM-SCIT in build-up phase of treatment were included in this study. The response evaluation was conducted at baseline and 14th weeks after build-up phase of treatment. Blood sample were drawn to evaluate specific IgE(sIgE) and total IgE (tIgE) serum level. Improvement of asthma control was assessed by Asthma Control Test (ACT) score.

Results: Twenty six patients were enrolled in this study. The mean of age was 6,48 ± 2.54 y.o (ranged from 1.5 to 11 y.o). After receiving 14th weeks of HDM-SCIT, there were decreasing of tIgE (9.88±5.74kuA/L vs 4.51±3.98kuA/L, p=0.000) and sIgE serum level (207.60±120.81IU/mL vs 109.83±89.39IU/mL, p=0.000) compare to baseline. sIgE/tIgG ratio was also decreased significantly after 14th weeks of HDM-SCIT (0.06±0.05 vs 0.04±0.03, p=0.012). The mean of ACT score was improved significantly at the end of build-up phase of SCIT compare to baseline (15.5±1.79 vs 20.96±2.04, p=0.000). Interestingly, there was significant inverse correlation between sIgE/tIgG ratio and ACT score (p=0.034; r=-0,29).

Conclusions: Build-up phase of SCIT improved specific antibody levels and asthma control in pediatric asthma patients with HDM allergy.

Keywords: HDM, immunotherapy, asthma, sIgE, tIgE, ACT



PP-260

CAN MARKERS OF İNFLAMMATION DURING ASTHMA ATTACKS PREDICT ATTACK SEVERITY AND TREATMENT RESPONSE?

Ayça Demir, Özlem Sancaklı, Idil Akay Hacı, Özgen Soyöz, Figen Çelebi Çelik, Mehmet Şirin Kaya, Canan Şule Karkıner, Demet Can
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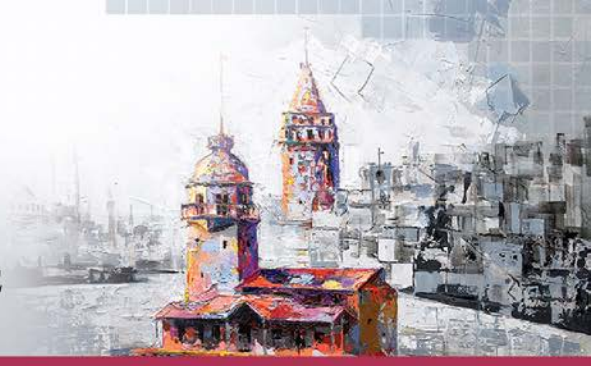
Introduction: Acute asthma attacks can occur with many triggers such as infections,allergens,irritants.In addition,different physiopathological processes may develop depending on the asthma phenotype. Neutrophil-lymphocyte ratio(NLR),platelet-lymphocyte ratio(TLR) are the parameters that can be used to predict the activation in chronic diseases.In our study,it was aimed to compare the clinical and laboratory findings according to the severity of the attacks and to determine the markers that will enable us to predict severe attacks and/or poor response to treatment.

Methods: The study included children aged 5-11years with an asthma attack between March and June 2022. Demographic data,laboratory results,treatment and treatment response were recorded in the case report form.

Results: In our study,58 patients with a median age of 7.9±2.8 years and a M/F ratio of 30/28 were included. Asthma attacks were mild-moderate in 75.9% of the cases and severe in 24.1%.While asthma control test scores were lower in patients with severe asthma attack,the number of asthma attacks and disease duration in the last year were similar(p=0.017,p=0.416, p=0.769, respectively).While eosinophil levels and percentages were lower in patients with severe attack,NLR and TLR rates were higher (p=0.014,p=0.005,p=0.005,p=0.009,respectively).In our study,steroid duration was found to be negatively correlated with saturation(p=0.001,r=-0.525),and positively correlated with NLR,TLR and total IgE levels(p=0.005, r=0.448, p=0.32, r=0.348, respectively).In addition, a negative correlation was found between the percentage of eosinophils and NLR and TLR (p=0.001 r=-432, p=0.003 r=-384).

Conclusion: The evaluation of inflammation markers during asthma attacks may contribute to the follow-up of the patients.In addition it is thought that the degree of inflammation determines the severity of the attacks.

Keywords: Asthma,Neutrophil-lymphocyte ratio (NLR),platelet-lymphocyte ratio (TLR),asthma control test



PP-261

ASTHMA CONTROL STATUS AND SEVERITY IN OBESE CHILDREN

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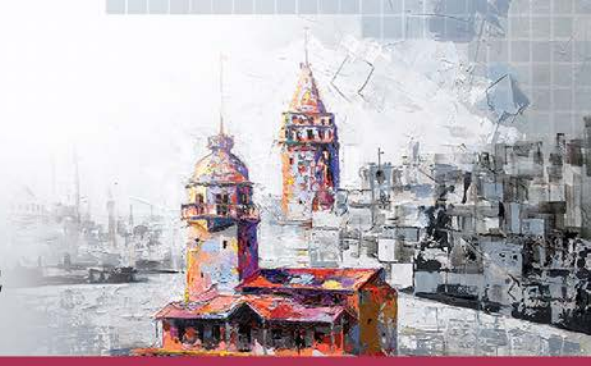
Background and Objectives: Asthma is the most common chronic disease in childhood. Although obesity is considered as an independent risk factor for asthma risk and prognosis. The aim of this study was to evaluate the relationship between obesity and asthma in a different population.

Materials-Methods: Patients with asthma between the ages of 6 and 18 years were included in our study. Body mass index (BMI), neck circumference, waist circumference, waist hip ratio recorded.The results were compared with control status, asthma severity, pulmonary lung functions and laboratory findings.

Results: Of the 264 patients included in the study, 66.3% were male the mean age was 10.1 ± 2.9 years. 33% of the patients were obese, 13.3% were overweight. 12.7% of patients with normal weight, 17.1% of overweight and 27.6% of obese subjects had severe asthma (p= 0.003). 31% of obese asthmatic patients were uncontrolled, 48.3% were partially controlled; 22.9% of overweight were uncontrolled, 37.1% were partially controlled. Obesity was associated with poor asthma control compared to patients with normal weight (p= 0.003). İncreased waist circumference z score increased poor control of asthma was seen (p=0,041). The increase in neck and waist circumference was associated with more severe asthma (p=0,046; p=0,033; p=0,021).

Conclusions: We found that the obesity increases the severity of asthma and deteriorates control [OR: 2,228(1,29-3,846); OR: 2,188 (1,146-4,18)]. More studies are needed to investigate the relationship between anthropometric measurements, control, severity and pulmonary functions. Weight control in obese asthmatic patients should be recommended.

Keywords: Asthma, obesity, BMI, child, control, severity



PP-262

PREVALENCE OF ASTHMA AND FOOD ALLERGY AMONG SCHOOL CHILDREN (6-14 YEARS) FROM RURAL AND URBAN AREAS OF NORTH INDIA

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Background and Objectives: Asthma is a significant, chronic disease that is a major health problem throughout the world, and one of the most common health problems seen among children in the Indian subcontinent. The prevalence of asthma has witnessed an increasing trend over the last few decades, both in the developing and developed countries. The childhood prevalence of asthma in India ranges from 2% to 8% in previous studies. There are very few community-based studies on the prevalence of asthma in Indian children particularly from rural areas. A study from Mysore reports an increasing trend over 1998 to 2008 in asthma and calls for future research to investigate protective factors to avoid this significant health burden.

Materials-Methods: The aim of this study was to explore the burden and clinical manifestations of asthma among 3,043 urban and rural children (6-14 yo) in Mysore and identify environmental and dietary risk factors associated with the development of asthma.

Results: Children living in urban environments were more than twice as likely to have diagnosed asthma compared to children living in rural environments (OR=2.7;p<0.045) and five times as likely to have food allergies (OR=5.3 p<0.0001).

Conclusions: When comparing residents of Mysore City and adjacent rural residents, a wide difference in asthma prevalence can be attributed to variation in climate, air pollution, socioeconomic status, living conditions, exposure to respiratory infection, and variation in allergen.

Keywords: Asthma, Food Allergies, Mysore, India