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ABSTRACT BOOK

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ORAL PRESENTATIONS

Submission number: 000035
Prefix: OA1

DUPILUMAB-TREATMENT PRIOR TO ALLERGEN IMMUNOTHERAPY IMPROVES TOLERANCE AND INDUCES METABOLOMIC AND PROTEOMIC CHANGES

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BACKGROUND

Allergen-specific immunotherapy (AIT) is the only clinically effective disease-modifying treatment for allergy. However, it is usually contraindicated in severe patients, who cannot tolerate it. AIT effectiveness depends on the induction of an immunoregulatory response. Since severe allergic patients are characterized by an exacerbated T_H2-linked inflammation accompanied by an impairment of the immunoregulatory response, we hypothesize that pre-treating severe patients with biological drugs, such as Dupilumab (which targets the IL-4/IL-13 pro-T_H2 signalling), could improve the efficacy and safety of subsequent AIT.

METHOD

We recruited severe seasonal asthmatic patients with Ole e 7-positive olive pollen allergy (n=22) with a previous story of adverse reactions to AIT. Patients were randomly assigned to a Dupilumab-treated (n=12) or untreated (n=10) group. Serum samples were taken before the pollen season (prior to the initiation of Dupilumab treatment) and 6 months after treatment started. Then, 16 patients (n=8 per group) started AIT treatment with a Depot extract with aluminium hydroxide, which is currently ongoing. Clinical variables (Quality-of-life questionnaires, eosinophils, IgE, lung function, etc.) were collected coinciding with each dose of Dupilumab. Inflammation-related metabolomic and proteomic biomarkers were measured in serum before and 6-months after Dupilumab-treatment started using targeted approaches.

RESULTS

All Dupilumab-treated patients tolerated AIT up until the maintenance dose, while only 50% of the untreated patients reached that dose (p=0.0769), with the other 50% suffering bronchospasm

+ rhinitis (n=3) or anaphylaxis (n=1). Moreover, Dupilumab-treated patients showed higher FEV1, ACT and mini-AQLQ scores, fewer rhinitis and asthma symptoms, and lower treatment-dependence for both diseases ($p<0.05$) during pollen season.

Furthermore, Dupilumab treatment induced a significant decrease of arachidonic, oleic, and palmitoleic fatty acids and lysophospholipids LPC17:0 and LPC19:0, and an increase in sphingosine-1-phosphate, pyruvic acid, and lactic acid. Regarding proteomics, we observed a significant increase in IL4, as has been reported previously, and in IL17C and CCL2. Furthermore, TNFSF12 and CCL13 were decreased after treatment compared with the untreated subjects.

CONCLUSION

Our results demonstrated that short-term Dupilumab usage improved the quality of life, lung function, symptomatology, and treatment needs of severe olive pollen-allergic asthmatic patients during pollen season, and induced specific changes in the metabolomic and proteomic serum profile. Notably, Dupilumab treatment also improved tolerance to subsequent AIT. Overall, these results open new avenues for AIT treatment in severe patients and offer insights into the mechanisms that may be driving these changes.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000025
Prefix: OA2

UNDERLYING MECHANISM OF IGD IN THE DEVELOPMENT OF NATURAL AND INDUCED TOLERANCE TO ALLERGENS

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BACKGROUND

B cells contribute to immune tolerance, partly through IL-10 production, though other mechanisms remain unclear. Immunoglobulin D (IgD), traditionally associated with naive B cells, has recently emerged as a potential regulator of immune homeostasis in allergy and tolerance settings. This study investigates the multifaceted role of IgD in allergy, natural tolerance (NT), and models of high-dose allergen exposure.

METHOD

Peripheral blood mononuclear cells (PBMCs) were cultured with CpG, inducing IL-10-producing regulatory B cells, and expression of IgD and tolerance-related markers were analysed by flow cytometry. Purified B cells from PBMCs were stimulated with CpG, sCD40L, IL-21, IL-4, and IL-10, and total immunoglobulin (tIg) isotypes were quantified in supernatants using multiplex assays. Total IgD and antigen-specific IgD (sIgD), as well as CD27+ memory IgD+ B cells, were evaluated in participants undergoing cow's milk oral immunotherapy (OIT), atopic dermatitis patients treated with dupilumab (anti-IL-4Rα), tonsillar mononuclear cells (TMCs) and long-term bee venom-exposed beekeepers.

RESULTS

CpG stimulation significantly increased CD19+IgD+IL-10+ B cells in PBMCs. IgD+IgM− B cells co-expressed CD22 (BCR signaling inhibitor) and Notch2 (associated with marginal zone (MZ) B cell development), though IL-10 expression was limited to IgD+IgM+ cells. CpG or IL-21+sCD40L+IL-4 stimulation enhanced IgD production in purified B cells. Circulating CD27+IgD+ B cells exhibited higher CD22 and Notch2 expression compared to CD27+IgD− cells in PBMCs and TMCs. While IL-4 promoted IgD production in vitro, dupilumab treatment did not reduce tIgD or CD27+IgD+ B cell levels after six months. In the cow's milk cohort, αS1-casein-specific IgD levels increased significantly post-OIT and in NT compared to pre-OIT levels. Additionally, CD27+IgD+ B cell frequencies were elevated in long-term allergen-exposed beekeepers and TMCs compared to new beekeepers and controls.

CONCLUSION

Memory IgD+ B cells express tolerance- and MZ-related markers. While CpG and IL-4 stimulate IgD production in vitro, dupilumab treatment does not alter IgD levels. Elevated sIgD levels in

NT, OIT, and high-dose allergen exposure suggest a potential role for IgD in immune tolerance. However, further research is needed to elucidate the underlying mechanisms.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000060
Prefix: OA3

EFFICACY AND SAFETY OF SPECIFIC ALLERGEN IMMUNOTHERAPY IN SEVERE ASTHMA: A CASE SERIES

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BACKGROUND

Severe asthma often requires intensive treatments, including biologics like omalizumab. Specific allergen immunotherapy (AIT) targeting allergens may enhance control by addressing underlying sensitivities.

METHOD

This was a retrospective observational study of patients with severe asthma receiving optimised therapy, who underwent allergen-specific immunotherapy (AIT) targeting house dust mites, and cat or dog dander. Data were collected from medical records, including demographic information, asthma control measures (FEV_1, frequency of exacerbations, asthma control tests, and inhaled therapy requirements), and adverse events related to AIT.

RESULTS

Out of the seven patients, most showed positive outcomes with AIT for asthma. The median age of the patients was 31 years (range: 16-38 years). The median follow-up time was 12 months (range: 6-24 months). Three patients were concomitantly treated with omalizumab, one of whom was discontinued due to pregnancy, leading to frequent exacerbations and subsequent withdrawal from specific immunotherapy. Of the remaining patients, six showed improvement in lung function (FEV_1), reduced exacerbations and decreased need for inhaled medication. The other adverse event was pharyngeal itch and mild bronchospasm after house dust mite AIT, leading to temporary discontinuation of immunotherapy. After a 4-month break, the patient resumed treatment without further adverse effects and showed improved FEV_1 after one year.

CONCLUSION

AIT in severe asthma patients receiving comprehensive therapy, including omalizumab, was generally well tolerated and associated with significant improvements in lung function, asthma control, and reduced exacerbations. These findings suggest that AIT may be a valuable adjunctive treatment in controlled severe asthma. Further large-scale studies are necessary to confirm these findings and evaluate the long-term efficacy and safety of AIT in severe asthma.

Submission number: 000080
Prefix: OA4

EVALUATING THE SAFETY AND EFFICACY OF THE HEN'S EGG LADDER IN CHILDREN WITH EGG ALLERGY

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BACKGROUND

Hen's egg allergy is one of the most common IgE mediated food allergy. Approximately 80% of children with IgE-mediated egg allergy are tolerant of egg in a baked form, which is created using wheat as a matrix. Consuming baked eggs accelerates the resolution of egg allergy and the development of tolerance. The procedure of gradually reintroducing food allergens into an individual's diet is known as "food allergen ladders." This study was conducted to examine the general characteristics and factors that influence the development of tolerance in pediatric patients with egg allergy using Hen's egg ladder.

METHOD

In this retrospective cross-sectional study, we included the patients who received egg ladder protocol between 01 January 2022 and 01 January 2025. According to our hen's egg ladder protocol, the initial OFC was conducted with one cooked egg yolk. If the test was negative, the patient continued to eat egg yolk at home for 2-3 months. Then, the patient underwent OFC with baked egg (800 mg egg pr) in the hospital. If the patient had a history of severe anaphylaxis or high egg white spe IgE or skin test positivity, the initial baked egg protein doses were 400 mg. The third step of ladder was pancake (egg protein 650 mg). As the last step, OFC was performed with boiled egg. After the patient tolerated boiled eggs for at least three months, the patient began to eat undercooked, near-raw egg forms at home.

RESULTS

We included 68 egg-allergic patients (72% male) with a median age of first admission was 7 months (IQR: 5-13 months). 85.5% of patients had multiple food allergies and nearly half of the study population had concomitant asthma. As the first step, 54 patients [1.5 years old (1-4)] received egg yolk. One patient developed anaphylaxis with egg yolk. In the second step, 49 and 5 patients consumed 800 mg and 400 mg baked egg protein, respectively. In the third step, 27 patients ingested boiled egg whites, while 10 patients consumed pancakes, at least three months later boiled egg.

Thirty-nine patients successfully completed the egg ladder and were able to tolerate the whole egg. The median duration of egg ladders was 18 months, with a range of 12-24. Seven patients developed IgE-mediated symptoms during OFC with different forms of egg while four of them had anaphylaxis that necessitated administration of adrenaline. After a negative baked egg OFC in the hospital, anaphylaxis was also observed in one patient during the consumption of baked cake at home.

CONCLUSION

In addition to oral immunotherapy, hen's egg ladder is an alternative treatment option for patients with egg allergy that induces tolerance. In comparison to oral immunotherapy, egg ladder was deemed more feasible and safe, as patients were admitted to the hospital less frequently and successfully completed the steps

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000054
Prefix: OA5

MRNA-DELIVERED CONSENSUS ALLERGENS INDUCE A NEUTRALIZING IGG RESPONSE AGAINST FOOD AND POLLEN ALLERGENS

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BACKGROUND

Cross-reactive allergy significantly impact patient health and quality of life, particularly in food allergy, where strict avoidance remains the primary management strategy. Current allergy immunotherapy (AIT) typically targets the dominant sensitizing allergen but often fails to protect against cross-reactive allergens, resulting in incomplete desensitization. To address this limitation, we developed a novel approach utilizing mRNA technology and consensus allergens to achieve broader protection.

METHOD

A consensus non-specific Lipid Transfer Protein (cnsLTP1) was designed based on orthologous nsLTP allergens prevalent in food and pollen sources. Naïve BALB/c mice were immunized with cnsLTP1 using either mRNA-lipid nanoparticles (mRNA-LNP) or a conventional protein formulation, and natural allergens (Pru p 3 and Par j 2) in mRNA-LNPs. The immune response was assessed by measuring cnsLTP1-specific IgG titers, IgE-blocking capacity, and inhibition of basophil degranulation. Human serum from allergic patients was used to evaluate IgE binding to nsLTPs, and humanized RBL-2H3 cells were employed to assess functional inhibition of allergic responses.

RESULTS

Both mRNA-LNP and protein formulations successfully induced high titers of cnsLTP1-specific IgG, which exhibited broader cross-reactivity with multiple nsLTP allergens than natural allergern immunisation. Serum from immunized mice efficiently blocked IgE binding from allergic patients, reducing allergen-induced basophil degranulation in humanized RBL-2H3 cells. These findings suggest that immunization with cnsLTP1 can elicit protective immune responses capable of mitigating allergic reactions to a broad range of nsLTPs.

CONCLUSION

This study demonstrates that mRNA-LNP-based immunization with a consensus allergen induces antibodies binding to a wide range of allergers. By addressing the limitations of current

treatments, this approach provides a broader and potentially safer desensitization strategy for cross-allergic patients. Further clinical development of this technology could revolutionize allergy treatment, offering more effective therapeutic options.

CONFLICTS OF INTEREST

A patent application (WO2023242436) has been submitted based on the work presented in this paper whose inventors are ERdT, AHL, and TPJ. The rest of the authors declare no conflict of interest

Submission number: 000036
Prefix: OA6

INVESTIGATION OF ALLERGEN SPECIFIC B CELLS

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BACKGROUND

Food allergies are defined as a type 2 IgE-mediated immune response against certain food proteins. 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 and, therefore B cell regulation between healthy and allergic individuals. As such, an investigation into the B cell regulation and the development of food tolerance vs food allergy is a promising trail to understand the causal pathways for food allergy. This project aims to characterize B cells of allergic individuals on a transcriptomic level and investigate the differences of their B cell gene expression in comparison tolerant counterparts.

METHOD

We used bio-banked PBMCs from mono- and dizygotic twins that are either food allergy concordant or discordant. We separated the switched and unswitched B cells from the individual donors with FACS and pooled them for total RNA extraction. The extracted RNA was depleted from ribosomal RNA using the probe based approach of the RiboCop rRNA Depletion Kit. After reverse transcription, library generation and pooling the transcriptomic cDNA was sent for sequencing. We labelled peanut allergen to sort out allergen specific memory B cells from donors undergoing peanut OIT. In a collaboration with Harvard, PBMCs from participants of the IMPACT study were sorted and sequenced.

RESULTS

Expression patterns between healthy and allergic, between allergy discordant, concordant and healthy twins showed that there was no dysregulation in general B cells. What differences there are might only be present in allergen specific cells. The signals of allergen specific cells are drowned out in the noise due to their rarity in the general B cell population. Sequencing only the allergen specific B cells will show these differences and their changes over allergy, tolerance and maintenance during OIT.

CONCLUSION

Allergy is not a general dysregulation of B cells. The twin data shows no significant differences between healthy and allergic siblings or donors in general. The analysis of specific B cells will focused on differential gene expression from timepoints at the beginning, end and after OIT. This

will give insight on the progress of tolerance development on the B cell level and how lasting these changes are.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

FRIDAY 11 APRIL 2025

POSTER DISCUSSION

Topic 1 - Respiratory: Group 1

Submission number: 000064
Prefix: P02

IMPACT OF SUBCUTANEOUS ALLERGEN IMMUNOTHERAPY ON AUTOIMMUNE DISEASE DEVELOPMENT OR EXACERBATIONS: A CROSS-SECTIONAL STUDY

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BACKGROUND

Allergen immunotherapy (IT) has proven effective in managing allergic conditions, yet its use remains controversial in patients with autoimmune diseases (AID) due to concerns of exacerbating or triggering such conditions. Although case reports have suggested a link, robust evidence from systematic studies is lacking. Understanding the interaction between IT and AID is critical for optimizing clinical practice.

METHOD

This cross-sectional study analyzed patients treated between 2014 and 2024 at a tertiary allergy center, all of whom had a confirmed diagnosis of either allergic rhinitis or anaphylaxis, depending on the indication for IT. Patients were categorized into two groups:1. Immunotherapy group: patients receiving either allergen-specific immunotherapy (AIT) for allergic rhinitis or venom immunotherapy (VIT) for Hymenoptera venom allergy. 2. Non-immunotherapy group: patients with allergic rhinitis or anaphylaxis who did not receive AIT or VIT.

Data were collected through detailed questionnaires and medical record reviews, including information on autoimmune disease onset, exacerbations, and IT-related adverse effects. Statistical analyses compared the frequency of AID development and exacerbations between groups.

RESULTS

The study included 1459 patients, with 879 receiving IT (AIT or VIT) and 580 in the non-IT group. The mean age of the participants was 46.96 years. The proportion of females was 60.45% overall.

Among patients receiving IT, the prevalence of AID prior to treatment was 18.89%, compared to 19.45% in the non-IT group. The frequency of new-onset AID after IT initiation was 18.57% in the IT group and 19.02% in the non-IT group.

Analysis of symptom exacerbation revealed that 25.4% of patients undergoing IT reported worsening of AID symptoms post-treatment, compared to 24.8% in the non-IT group.

Statistical comparison between the IT group and the non-IT group showed no significant differences in the overall incidence of AID development ($p = 0.0813$). Patients undergoing AIT or VIT did not have a statistically higher risk of developing new AID compared to those who were treated symptomatically.

CONCLUSION

IT appear to be safe in patients with allergic rhinitis or Hymenoptera venom allergy, with no significant increase in the risk of AID development. A subgroup of patients receiving VIT experienced mild disease exacerbation, particularly in the case of thyroid and joint-related autoimmune diseases. Further longitudinal studies are required to confirm these findings and refine clinical guidelines for managing patients with autoimmune conditions undergoing allergen immunotherapy.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000010
Prefix: P04

MOLECULAR PROFILES OF ALLERGEN-SPECIFIC IGE TO DERMATOPHAGOIDES PTERONYSSINUS IN ATOPIC CHILDREN

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BACKGROUND

House dust mites are one of the main sensitizing factors in atopic children, particularly suffering from asthma, allergic rhinitis, and atopic dermatitis. Assessing molecular sensitization profiles to mite allergens allows appropriate qualification of patients for allergen immunotherapy (AIT), significantly enhancing treatment effectiveness.

METHOD

We evaluated sensitization to individual Dermatophagoides pteronyssinus (Der p) molecular allergens in a population of 242 atopic children (aged 5–18) treated at the Department of Allergology and Pulmonology of the Institute of Tuberculosis and Lung Diseases in Rabka-Zdrój, Poland, due to asthma, allergic rhinitis, and/or atopic dermatitis. Serum allergen-specific IgE (sIgE) concentrations of for 9 Dermatophagoides pteronyssinus molecular allergens (Der p 1, Der p 2, Der p 5, Der p 7, Der p10, Der p 11, Der p 20, Der p 21, Der p 23) were assessed using the multiplex ALEX2 test (Macro ArrayDiagnostics, Vienna). Positive results were defined as sIgE concentrations ≥ 0.3 kUA/L. According to EAACI recommendations, sensitization to at least one of the following allergens—Der p 1, Der p 2,or Der p 23—was necessary to qualify for allergen immunotherapy.

RESULTS

Sensitization to at least one of the nine of Dermatophagoides pteronyssinus allergens was confirmed in 59.9% of atopic children. Among those sensitized to Der p, the presence of sIgE was most frequently confirmed for Der p 2 (81.1%), Der p 23 (67.6%), and Der p 1 (64.1%), followed by Der p 5(32.4%), Der p 7 (30.3%), Der p 21 (25.5%), Der p 10 (13.8%), Der p 20 (11%), and Der p 11 (2.1%).Monosensitization was confirmed in 24.8% of children, most commonly to Der p 2 (11.7%), Der p 23(7.6%), and Der p 1 (3.45%).A total of 50 different molecular sensitization profiles were identified. The most common molecular profiles included monosensitization to Der p 2 (11.7%), Der p 1 + Der p 2 + Der p 23 (11%),monosensitization to Der p 23 (7.6%), and combined sensitization to Der p 1 + Der p 2 + Der p 5 + Derp 7 + Der p 21 + Der p 23 (6.9%).

In 95.9% of children, a molecular profile allowing the decision on allergen immunotherapy, provided there was a correlation with clinical symptoms, was observed. However, 4.1% of children were sensitized to allergens not confirmed in allergen vaccines.

CONCLUSION

Current molecular diagnostics allowed the identification of the most common sensitizations and molecular profiles. Among the allergens, sensitization was most frequently observed (in order) to Derp 2, Der p 23, and Der p 1. The dominant molecular profiles included monosensitization to Der p 2and Der p 23, as well as combined sensitization to Der p 1 + Der p 2 + Der p 23. Most of the identified molecular profiles (95.9%) suggested potential qualification for allergen immunotherapy.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000083
Prefix: P05

DOES ALLERGEN IMMUNOTHERAPY PREVENT AEROALLERGEN INDUCED ANAPHYLAXIS?

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BACKGROUND

Aeroallergen sensitization is recognized for triggering allergic rhinitis symptoms, exacerbating asthma and occasionally resulting in urticaria and angioedema. Nonetheless, anaphylaxis is rarely provoked by aeroallergens. We presented a case of anaphylaxis induced by grass pollen exposure, which was successfully treated with Phleum pratense immunotherapy.

METHOD

We presented a patient who admittted to pediatric allergy departement of Hacettepe University Medical School in the results part.

RESULTS

The twelve-year-old female patient exhibited asthma symptoms at the age of four and underwent inhaled fluticasone prophylaxis for a duration of two years. At the age of six, symptoms of allergic rhinitis commenced in spring, including sneezing, postnasal drip, and nasal congestion. The skin prick test indicated sensitization to grass pollen and cats. She received treatment with intranasal corticosteroids and antihistamines. At the age of seven, episodes of angioedema and generalized urticaria commenced following exposure to aeroallergens. At eight years old, she reported wheezing, dyspnea, angioedema, and urticaria while gathering linden in the spring. The reaction was assessed as anaphylaxis, adrenaline was delivered, and her symptoms subsequently improved. We conducted comprehensive aeroallergen skin prick testing and identified sensitization to Dactylis glomerata (17 mm), Festuca pratensis (15 mm), Poa pratensis (11 mm), Lolium perenne (10 mm), and Phleum pratensis (7 mm). The specific IgE for grass mix exceeded 200 kU/L, indicating class 6. The multiplex microarray assay indicated sensitivity to timothy grass Phl p 1 and Phl p 5. We intended to initiate allergy immunotherapy (AIT). The patient was assessed at the pediatric gastroenterology department for recurring abdominal pain, and the diagnosis of eosinophilic esophagitis was excluded. During this period, she experienced anaphylaxis for the second time after playing on the grass. Clustoid phleum pratense AİT was initiated at the age of eleven. She has had 17 doses of AIT to yet. During the previous spring season, she did not have anaphylaxis, angioedema, or urticaria despite exposure to aeroallergens. She exhibited just minor rhinitis symptoms, which could be readily managed

CONCLUSION

Aeroallergens, however infrequent, can induce anaphylaxis. Immunotherapy is a crucial treatment approach to mitigate the risk of anaphylaxis while improving symptoms of treatment-resistant rhinitis.

Submission number: 000031
Prefix: P06

EAIT-ANGI-CU; EXTENSIVE ALLERGEN IMMUNOTHERAPY PROTOCOL FOR MANAGEMENT OF ANGIOEDEMA & CHRONIC URTICARIA

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BACKGROUND

Chronic Urticaria (CU)—with or without angioedema—is rarely linked to allergies. Yet, recent research suggests that a sector of CU patients may react to inhalant allergens. Despite this, allergen immunotherapy (AIT) has largely been overlooked in CU treatment. Building on the success of our previous novel protocol on Extensive Allergen Immunotherapy for chronic spontaneous urticaria (EAIT-CSU), we've now extended its reach to address chronic angioedema: EAIT-ANGI-CU.

METHOD

Fifty-two CU patients, 33% with angioedema, were treated with AIT. Only 30% had other allergic conditions. changes in disease activity and impact were tracked using Urticaria Activity Score (UAS7) and Dermatology Quality of Life Index (DLQI). All patients tested positive for multiple inhalant allergens (40 total) via skin prick tests (SPT). Then an AIT plan was customized for every patient. Positive allergens were grouped into vials (up to 8 allergens each), with patients receiving 1-4 groups of subcutaneous AIT every two months. The protocol started with extreme dilutions (1:100 million), with even higher dilutions for severe cases to prevent allergic reactions. Patients underwent a one-year build-up phase (two injections per week per group) followed by two years of maintenance. We named this protocol "Extensive AIT" because its defining feature is inclusivity: all positive allergens were included, even if the list exceeded 20.

RESULTS

The results spoke volumes. By 12 months, CU symptom severity saw dramatic improvement (UAS7: P=0.001, DLQI: P=0.003). The biggest changes were seen early, with UAS7 scores dropping significantly at months 2 (P=0.000), 4 (P=0.000), and 6 (P=0.069). Improvements slowed by months 8, 10 & 12 but remained steady (P=0.215, 0.222 & 0.202 respectively). DLQI scores mirrored these trends, with substantial gains at months 2 (P=0.000), 4 (P=0.000) & 6 (P=0.012). By month 12, near-complete control of CU was achieved, slowing down in DLQI at months 8, 10 & 12 (P=0.429, 0.465 & 0.431 respectively). We hypothesized that improvement in months 8-12 was not as significant as the months before because the scores were already low and the symptoms have already improved. Overall, 32.7% of CU patients experienced complete resolution, 44.2% saw partial improvement, and 23% did not respond. For angioedema, complete response was even higher at 50%, with 12% partial responders and 23% non-responders. Notably, factors like seasonal differences, angioedema presence, symptom duration, or number of allergens did not affect AIT outcomes.

CONCLUSION

The Extensive AIT protocol, which boldly tackles all identified allergens, offers a groundbreaking solution for CU and angioedema. Its impact goes beyond symptom relief, with benefits that last long after therapy ends. This approach represents a transformative step forward for patients battling persistent symptoms of CU & angioedema.

*** Please refer to the allergen panel key below**

Patient code	Allergen components in each AIT bottle (Group) *			
	Group (A) Allergens / Starting Dilution	Group (B) Allergens / Starting Dilution	Group (C) Allergens / Starting Dilution	Group (D) Allergens / Starting Dilution
2	1, 5, 11, 12, 13 / 1: 10 million	16, 21, 26, 29, 30 / 1: 10 million	-	-
10	1, 8, 9, 10, 11, 37 / 1: 10 quadrillion	12, 20, 21, 22, 24, 27, 28, 38 / 1: 10 quadrillion	2, 35, 36 / 1: Quadrillion	-
6	1, 10, 16, 21, 27, 37, 38 / 1: 100 million	-	-	-
15	1, 3, 6, 7, 10, 11 / 1: 10 billion	13, 14, 15, 16, 17, 18 / 1: 1 trillion	19, 20, 21, 22, 24, 25 / 1: 100 billion	23, 26, 27, 31, 38, 40 / 1: 10 billion

***Allergen panel key**

1 Mite Mix, 2 Cockroach Mix, 3 GS 11 Tree Mix, 4 Australian Pine (Beefwood), 5 Mugwort (Sagebrush), 6 Gum (Acacia), 7 Alfalfa, 8 Palm Queen, 9 Perennial Rye grass, 10 Lambs Quarter, 11 Timothy grass, 12 Johnson grass, 13 Olive tree, 14 Ragweed Mix, 15 Bahia grass, 16 Mesquite, 17 Bermuda grass, 18 Birch Pollen, 19 Orange Pollen, 20 Mango Blossom, 21 Corn pollen, 22 Wheat Pollen, 23 Black willow, 24 Amaranth Pollen, 25 Grass Mix, 26 Eucalyptus Grobbulus, 27 Prairie Saga, 28 Walnut Pollen, 29 Hazelnut Pollen, 30 Sunflower Pollen, 31 Dandelion Pollen, 32 Daisy pollen, 33 GS New Stock Fungi Mix, 34 Alternaria, 35 GS Grain Smut Mix, 36 Aspergillus Fumigatus, 37 Feather C.D.G. mix, 38 Cattle Epithelium, 39 Dog Epithelium, 40 Cat Hair Mix

Table 1. EAIT-ANGI-CU; Extensive Allergen Immunotherapy Protocol for Management of Angioedema & Chronic Urticaria, featuring a sample of patients, allergen components, groups, starting dilutions and allergen panel for AIT

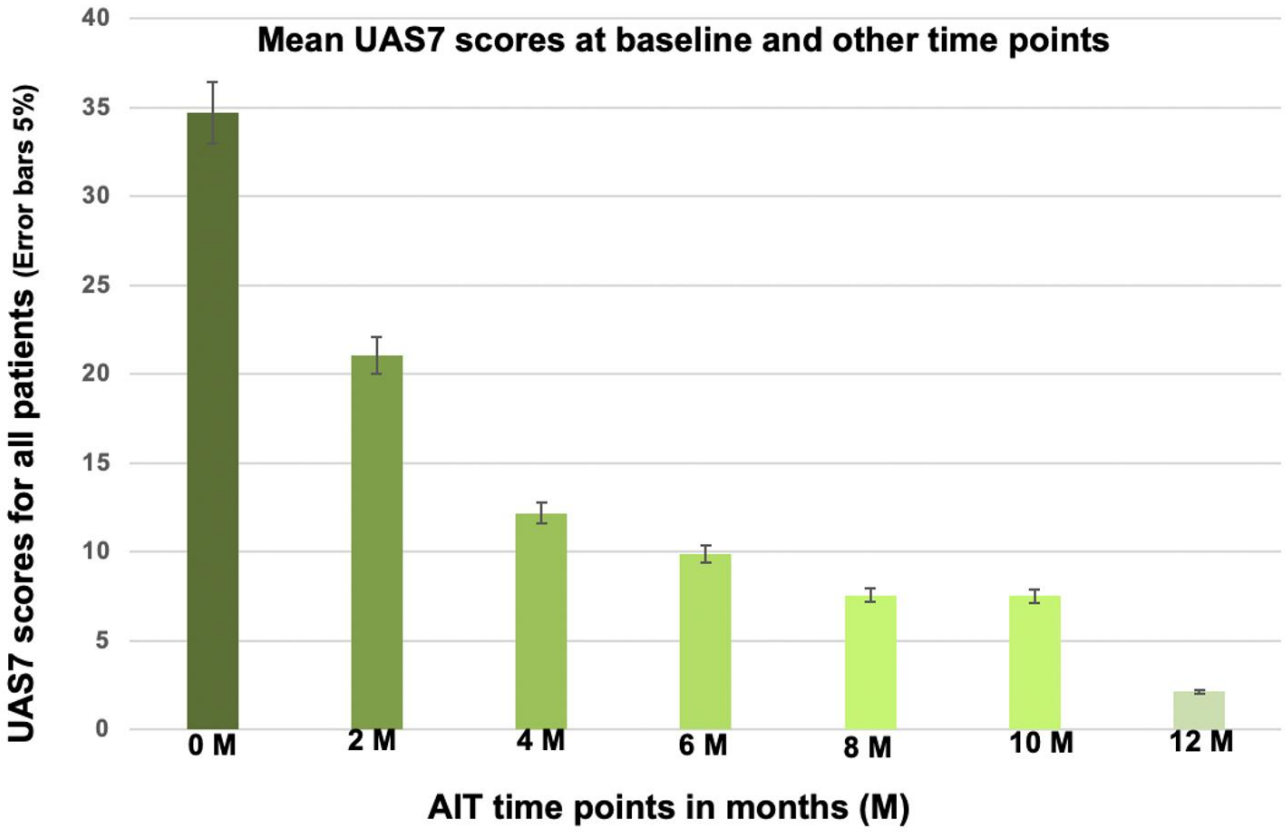

Fig. 1. Change in severity of symptoms over time with AIT

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000052
Prefix: P07

MOLECULAR ALLERGY PROFILING IN ASTHMA: EXPLORING GENDER DIFFERENCES AND ADVANCING NON-INVASIVE TESTING

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BACKGROUND

Asthma is a chronic inflammatory airway disease characterized by reversible airflow obstruction, bronchial hyperresponsiveness, and heterogeneous phenotypes driven by complex interactions between genetic and environmental factors. Molecular allergen profiling has emerged as a valuable tool for precisely characterizing allergen sensitization patterns, leading to a deeper understanding of asthma endotypes. Network analysis are needed to understand complex sensitization profiles. However, invasive testing, such as serum diagnostic tests, are often impractical, especially in children. Therefore, we investigated nasal lining fluid as a rapid, non-invasive alternative sampling method for component-based allergy testing.

METHOD

In the outpatient clinic of Pediatric Pneumology and Allergy of the University Hospital Augsburg, we recruited 150 pediatric patients with suspected airway allergies. Serum and nasal lining fluid samples were collected from each patient, and a questionnaire was filled to record clinical history. Specific IgE levels from Immuno Solid-phase Allergen Chip (ISAC 112) assay were generated for network analysis as well as Spearman correlations between serum and nasal tests.

RESULTS

Poly-sensitization plays a significant role in the pathogenesis of asthma. The majority (63.4%) of the pediatric patients were diagnosed with asthma, with a higher prevalence among males (70.7%). Network analysis revealed distinct asthma sensitization profiles, with major allergens from grass, birch, house dust mites, and cats being strongly associated with asthma development. Incorporating gender as a factor further highlighted that sensitization patterns differed significantly between male and female patients. Of note, specific IgE levels in nasal lining fluid showed a strong positive correlation with serum sIgE levels, both at the patient level and per allergen. Nasal ISAC testing demonstrated high specificity (mean: 0.98) and sensitivity (mean: 0.85), with an overall accuracy of 95.5%, indicating its potential as a reliable, non-invasive diagnostic tool for allergen sensitization in pediatric asthma.

CONCLUSION

Specific poly- and co-sensitization across allergen families is common in asthmatic children. Given the multifaceted nature of asthma, gender-specific analysis is crucial. ISAC analysis from nasal fluid offers a valuable, non-invasive tool for molecular allergy diagnostics. This approach may allow for repeated data collection in early childhood, towards earlier introduction of allergen immunotherapy.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000012
Prefix: P08

COMPARATIVE ANALYSIS OF NASAL SECRETIONS AND SERUM BIOMARKERS IN HOUSE DUST MITE ALLERGY: CORRELATION WITH SYMPTOMS AND SKIN PRICK TEST RESULTS

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BACKGROUND

Nasal IgE has been found in patients with allergic rhinitis, such as house dust mite (HDM) allergy. Previous studies have shown that nasal secretions provide a non-invasive method for assessing HDM-specific biomarkers, offering more detailed insights into nasal HDM sensitization compared to sensitization patterns in serum or by skin prick tests (SPT). Allergen specific IgE in nasal secretions can be detected with a customized allergen microarray, which demonstrates high sensitivity.

METHOD

Serum samples were collected, and nasal secretions were obtained using an absorbent technique with sinus packs. Both were analyzed for total IgE, specific IgE to rDer p 1, rDer p 2, rDer p 23, and IgG4 levels. Additionally, patients were characterized based on medical history, medication use, RQLQ questionnaire and ACQ if asthma was present. Patients also underwent SPT for twelve different aeroallergens.

RESULTS

This study included 150 patients aged 18-62 years (mean age: 34 years) with confirmed HDM allergy. Among the cohort, 31% were diagnosed with allergic asthma, and 13% were monosensitized to HDM.
This study compared the specificity and sensitivity of HDM-specific biomarkers in nasal secretions versus serum. Correlations were examined between SPT wheal sizes, antibody levels, and clinical symptoms reported by patients.

CONCLUSION

The findings provide evidence supporting the potential clinical role of nasal secretions in measuring HDM-specific biomarkers. This method can be effectively used for diagnosis, monitoring the effects of therapy – such as allergen immunotherapy – and correlating results with clinical symptoms.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000071
Prefix: P09

EARLY LOSS OF IMMUNOLOGICAL MEMORY IN DUST MITE SCIT; ABOUT A CASE

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BACKGROUND

It is well known that dust mite (DM) immunotherapy (IT) can enhance immune responses by increasing IgG4 levels of regulatory T cells thus improving clinical symptoms and life quality in allergic patients. But information about the persistence of this immune memory and its correlation with clinical efficacy is scarce.

METHOD

A clinical interview was conducted and several tests including skin prick test (SPT), blood work and lung function tests.

RESULTS

We present a 47-year-old female with a history of intermittent mild allergic rhinitis since childhood, only needing occasional use of oral anti-H1. She noticed her symptoms were progressively worsening, and now present on a daily basis ocasional oral anti-H1 were no longer enough.

An inmunoallergic screening was done and she had a positive SPT to DM from the dermatophagoides family, cypress and mugwort. With the use of symptom calendars we determined that DM were the clinically significant allergens and started subcutaneous immunotheraphy (SCIT). A rapid improvement of symptoms was noted in the first 6 months and she successfully received 4 and a half years of treatment with complete response, being discharged completely asymptomatic and without any new sensitizations. A year later she returns with worsened rhinitis and bronchospasms with a spirometry that showed small airway obstruction. A SPT was repeated, and no new sensitizations were found. An immune screening showed normal lymphocyte subpopulations and normal immunoglobulin levels with high IgE levels. Treatment with inhaled formoterol/beclomethasone and nasal mometasone was prescribed with a slight improvement in symptoms. We decided to do another round of SCIT noticing progressive improvement within the first year, the treatment is currently ongoing, and the patient only needs occasional use of oral anti-h1 and her lung function has normalized.

CONCLUSION

This patient case makes us reflect upon the fact that even if we have an early and sustained response to ongoing IT, there are no guaranties that the response will be long-lasting. We currently lack tools to predict immunomodulation and immunologic memory development.

Submission number: 000059
Prefix: P11

SUBLINGUAL ALLERGEN-SPECIFIC IMMUNOTHERAPY IN ATOPIC DERMATITIS

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BACKGROUND

Atopic dermatitis is a chronic recurrent skin disease characterized by dry patches, skin barrier dysfunction, eosinophilic dermatitis and recurrent skin infections. Allergen-specific immunotherapy is an immunomodulatory treatment that could improve the clinical severity of the disease by inducing immune tolerance to a relevant allergen.

METHOD

Two patients who were treated for refractory atopic dermatitis with allergen-specific sublingualimmunotherapy for house dust mite allergens were presented.

RESULTS

A girl aged 7 years presented to the clinic for the first time with persistent, localized atopic eczema of the ears, ear canal, eyes and scalp, associated with recurrent infections of the eyes and ear canal. At the initial presentation, her SCORAD score was 46.9. In addition to the skin symptoms, she suffered from perennial rhinitis. She was on a food elimination diet (milk, egg, soy, nuts and peanuts). She was treated with topical corticosteroids, antibiotic drops, ointments, antihistamines and occasionally systemic antibiotics against Staphylococcus aureus and Pseudomonas aeruginosa, which were frequently isolated from the ear canal. After allergy diagnostics in our clinic, we found no IgE sensitization to food allergens, but only to house dust mites, olive trees and dog dander (sIgE d1 65kU/l, sIgE d2 78kU/l, sIgE t9 0.6kU/l, sIgE e5 0.8kU/l). We treated her with topical tacrolimus, mupirocin ointment and on-demand antihistamines and reintroduced foods into her diet that she had previously avoided. There was no significant improvement, so we decided on sublingual immunotherapy for house dust mites (Diater, Spain). After two months of therapy, there was a single exacerbation of the ear skin symptoms during the olive tree pollen season, which then improved again. She is now in the third year of therapy with significant improvement (no infection, occasional slight scaling). SCORAD score has improved to 11.8.

A boy aged 5 years presented to the clinic for an allergy assessment because he had recurrent, localized atopic eczema in the left cheek and perioral area. His SCORAD score was 25. He had previously been treated with a topical corticosteroid, tacrolimus and topical antibiotics. During an allergy test, we found that he was only sensitized to house dust mites (sIgE d1 50.7kU/l, sIgE d2 43.7kU/l) and decided to introduce sublingual immunotherapy for house dust mites (Diater, Spain) in addition to topical therapy. After one month, there was a clear improvement in the skin symptoms without the eczema recurring. On his last check-up, his SCORAD was 3.5. He completed the three-year immunotherapy.

CONCLUSION

Sublingual allergen-specific immunotherapy with house dust mites as adjuvant therapy can significantly improve the treatment of atopic eczema and bring out remission.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Topic 2 - Respiratory: Group 2

Submission number: 000077
Prefix: P14

RESPONSE BIOMARKERS OF ALLERGEN SPECIFIC IMMUNOTHERAPY

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BACKGROUND

Allergen specific immunotherapy (SIT) is a form of therapeutic vaccination for established IgE-mediated hypersensitivity to common allergen sources. There is no validated biomarker to follow tolerance responce. In this study, we aimed to evaluate the tolerance responce to SIT, in means of inflammatory biomarkers.

METHOD

We retrospectively screened patients who received subcutaneous conventional SIT in Allergy Clinic. Age, gender, spirometry, initial (before SIT) and final (after SIT) blood eosinophile, lymphocyte, basophile, serum total IgE values, and fractionated exhaled nitric oxide (FeNO) of the patients were recorded.

RESULTS

A total of 50 patients' data were scanned between 2017-2019. The mean age of the patients was 27.94±9.94 /year, and 52% were female (n: 26). The mean FEV_1 value of the patients was 99.33±14.22%. Thirty-two percent of the patients were receiving house dust mite, 46% pollen, 4% cat, and 16% venom SIT. The mean duration of SIT was 3.78±1.13 years and serum total IgE: 303.96±219.40 IU/mL. Comorbidities of the patients whom had SIT were asthma 18%, and nasal polyposis 20%. Local reaction was observed in 1 person, and there was no systemic reaction during immunotherapy. No correlation was found between the initial and final values of eosinophils, lymphocytes, and basophils ($p > 0.05$). In addition to clinical improvement, a correlation was found between the initial and the end of treatment of FeNO (35.15 ppb and 27 ppb, p: 0.01).

CONCLUSION

While no change was observed in inflammatory biomarkers before and after SIT, a decrease in FeNO mean values was evident. In conclusion, SIT improves FeNO, supporting that it is the only therapy that can change the natural history of allergic disease.

Submission number: 000074
Prefix: P15

EVALUATION OF THE EFFICACY AND SAFETY OF SPECIFIC SUBCUTANEOUS IMMUNOTHERAPY WITH DOG EPITHELIAL EXTRACT

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BACKGROUND

There are limited efficacy studies on specific immunotherapy using dog extract. Our objective is to evaluate the response to subcutaneous immunotherapy (SCIT) in patients with dog allergy.

METHOD

A retrospective observational study was conducted involving patients with rhinoconjunctivitis, asthma, and/or urticaria due to dog allergy who started SCIT in 2023. Efficacy was assessed using validated symptom scales (Rhinoconjunctivitis Control Test [RCAT], Asthma Control Test [ACT], Visual Analog Scale [VAS] for quality of life) and adverse events related to SCIT were assessed at baseline, 12, 18, and 24 months of treatment.

RESULTS

Seven patients were included (6 women, 1 man) with a mean age of 37 years; 85% lived with a dog. Initial symptoms included rhinoconjunctivitis (100%), asthma (85%), and urticaria (57%). At baseline, the mean levels of total IgE, dog IgE, Canf1, and Canf5 were 341, 27, 11.8, and 20.45 KU/L, respectively. Prick tests were performed in 85% of the patients, all of whom showed positive results. Allergen extracts used were from LETI Pharma (Retard rapid [28.5%]), Roxall (Cluxin [28.5%], Allergovac poliplus [14.5%]), and Probelte Pharma (polymerized Beltavac [28.5%]). In the initial phase, 6 patients (85%) had mild local reactions that persisted during the maintenance phase. No systemic reactions were observed.

A total of 7 patients (100%) completed 12 months of treatment, showing an improvement in the mean scores of points of 4.7 in RCAT, 3.9 points in ACT, and 1.3 points in VAS quality of life.

Additionally, 4 patients (57%) completed 18 months of treatment, with a mean improvement of 3.75 points in RCAT, 7.1 points in ACT, and 2.25 points in VAS quality of life.

Another 2 patients (28.5%) completed 24 months of treatment, demonstrating a mean improvement of 6.5 points in RCAT, 13 points in ACT, and 4.5 points in VAS quality of life (Figure 1).

CONCLUSION

SCIT administration in dog-allergic patients improves respiratory and cutaneous symptoms, as well as quality of life, from the onset of treatment.

	7/7 patients (100%) completed 12 months		4/7 patients (57%) completed 18 months		2/7 patients (28,5%) completed 24 months	
	Pre-AIT	12 months	Pre-AIT	18 months	Pre-AIT	24 months
RCAT	16.7	21,4	18,5	22.3	17.5	24
ACT	17.3	21.2	15.6	22.6	7	20
VAS quality of life	5.6	6.9	5	7.25	4.5	9

Figure 1. Comparison of mean scores on validated symptom scales (RCAT, ACT, and VAS quality of life) between Pre-Allergen Immunotherapy (Pre-AIT) and completed treatment months in each patient group.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000087
Prefix: P16

THE EVALUATION OF THE EFFICACY OF ALLERGEN-SPECIFIC IMMUNOTHERAPY IN PATIENTS WITH ALLERGIC RHINITIS AND/OR ASTHMA DUE TO CAT ALLERGY IN A TERTIARY ADULT ALLERGY CLINIC

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*Presenting author: N. Orak Akbay

BACKGROUND

Cat allergy, primarily driven by sensitization to the major allergen Fel d 1, remains a significant health concern, particularly for individuals with persistent allergic rhinitis and asthma. Despite allergen avoidance recommendations, enviromental persistence of Fel d 1 complicates management. Allergen immunotherapy (AIT) has been explored as a potential long-term treatment; however, its efficacy and safety profile remain controversial.

METHOD

The medical records of 41 patients who received cat immunotherapy in our clinic between 2013 and 2023 were retrospectively reviewed. Patients were contacted to assess their current symptoms and ongoing treatments. Skin prick tests (SPT) and spirometry were performed on available patients. Asthma or rhinitis quality of life questionnaires and visual analog scale were administered.

RESULTS

Among the patients, 35 were female and 6 were male, with a median age of 38 (IQR 31-41). 19 patients had allergic rhinitis, 21 had rhinitis and asthma together, and 1 had only asthma. Of the 25 patients who can be reached, 17 received maintenance treatment and the visual analog score for rhinitis symptoms decreased significantly after AIT ($p=0.001$). Rhinitis quality of life scores improved in 15 (83.3%, $p=0.05$). Quality of life scores improved significantly in 11 of 13 patients diagnosed with asthma ($p=0.003$). The median time after termination of treatment was 43 months (IQR 14). Patients received an average of 22.5 (±13.9) months of AIT. The most common reason for early termination of treatment was the onset of the pandemic. In total, 11 patients experienced local swelling and 5 patients experienced anaphylaxis, maintenance was achieved in 1.

CONCLUSION

Our findings suggest that allergen-specific immunotherapy (AIT) is effective in improving rhinitis and asthma symptoms in patients with cat allergy. While local swelling was the most frequent adverse reaction, anaphylaxis occurred in a few cases. These results support the long-term efficacy of AIT in cat-allergic patients, though further studies are needed to optimize treatment adherence and observe long-term results.

Submission number: 000079
Prefix: P17

EVALUATION OF THE EFFICACY AND SAFETY OF SPECIFIC SUBCUTANEOUS IMMUNOTHERAPY WITH CAT EPITHELIAL EXTRACT

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BACKGROUND

There are few efficacy studies of specific immunotherapy with cat extract. Our objective is to evaluate the response to subcutaneous immunotherapy (SCIT) in patients with cat allergy.

METHOD

A retrospective observational study was conducted. Patients with rhinoconjunctivitis, asthma, and/or urticaria due to cat allergy who started SCIT in 2023. Efficacy was assessed using validated symptom scales (Rhinoconjunctivitis Control Test [RCAT], Asthma Control Test [ACT], and Visual Analog Scale [VAS] for quality of life) and adverse events at baseline, 12, 18, and 24 months of treatment.

RESULTS

Sixteen patients were included (11 women, 5 men) with a mean age of 39 years; 87% lived with a cat. The most frequent symptoms were rhinoconjunctivitis (87.5%), asthma (75%), and urticaria (19%). Mean values for total IgE, cat IgE, Feld1, and Feld2 were 227, 25, 33, and 1.55 KU/L, respectively. Prick test was performed in 75% of the patients, with a 100% positive result.

The extracts used were LETI Pharma (Depigoid [50%] and Retard Rapid [6.25%]), Inmunotek (Clustoid Max [12.5%]), Allergy Therapeutics (TyTOP [12.5%]), Roxall (Cluxin [6.25%], Allergovac Depot [6.5%]), and Alutard SQ [6.5%].

During the initiation phase, 8 patients (50%) experienced local reactions, and 2 (12.5%) had systemic reactions (bronchospasm).

A total of 16 patients have completed 12 months of treatment, with an improvement in the mean scores of 13 points in RCAT, 5.2 points in ACT and 3 pointS in EVA quality of life. Additionally, 11 patients (68.75%) have completed 18 months of treatment, with an improvement in the means of 8.57 points in RCAT, 7 points in ACT and 3.4 points in VAS quality of life. Another 3 patients (18.755) have completed 24 months of treatment, with an improvement of 9 points in RCAT, 12 points in ACT and 5 points in EVA quality of life.

CONCLUSION

The administration of SCIT in cat allergic patients improves symptoms and quality of life from the onset of treatment.

	16/16 patients (100%) completed 12 months		11/16 patients (68.75%) completed 18 months		3/16 patients (18.75%) completed 24 months	
	Pre-AIT	12 months	Pre-AIT	18 months	Pre-AIT	24 months
RCAT	11.5	24.3	15.63	24.20	18.3	27.3
ACT	12.8	18	11.77	18.7	11.3	23
VAS quality of life	5	8	4,6	8	4	9

Figure 1. Comparison of mean scores on validated symptom scales (RCAT,ACT, and VAS quality of life) between Pre-Allergen Immunotherapy (Pre-AIT)and completed treatment months in each patient group.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000046
Prefix: P18

EXPERIENCE OF GIVING ALLERGEN IMMUNOTHERAPY IN THE CONDITIONS OF HUMANITARIAN EMERGENCIES

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BACKGROUND

Introduction. Ukraine has been in a full-scale war for 3 years. In the first year of the war, thousands of patients with allergic diseases who received allergen immunotherapy (AIT) left the country abroad. Some of these patients received subcutaneous AIT (SCIT) with various mixtures of allergens. There was no possibility to continue SCIT in other countries, similarly to transporting vaccines with compliance with the temperature regimen. Ukrainian allergists faced a problem - how to help patients not to interrupt specific treatment of allergic diseases?

Objective. Change SCIT with mixtures of allergens ALXOID «Inmunotek», Spain, to sublingual AIT (SLIT) by tablets Lais «LOFARMA», Italy in patients with allergic diseases.

METHOD

There were 82 patients with diagnoses of asthma/allergic rhinitis (AR) under observation who received SCIT (1 injection per month) with 'mix grass', 'mix trees' 'mix house dust mites' or 'Ambrosia artemisiifolia' for 1-2 years. All patients were switched to the appropriate SLIT by tablets Lais «LOFARMA» 300 A/U, 1000 A/U according to the adapted regimen. The clinical efficacy of SLIT was assessed using Visual Analogue Scale (VAS) and combined assessment (total symptom assessment + medication assessment) in the dynamics of treatment – after 6, 12, 24 and 36 months.

RESULTS

Clinical symptoms were assessed: upper (nasal and non-nasal symptoms – for patients with AR) and lower (asthma symptoms). Further positive changes in VAS scores were determined in patients with AR and asthma after 6 months of specific therapy by tablets ($p<0.05$) with the highest regression of symptoms after 24 months of treatment (Fig. 1).

In general, the patients on AIT who switched to Lais tablets were found to have a decrease in the global symptom assessment, assessment of medication needs, and, accordingly, the comprehensive symptom assessment after 36 months of treatment, Table 1.

CONCLUSION

In humanitarian emergencies (full-scale war), transfer of the patients with AR or asthma from SCIT to SLIT by tablets has demonstrated a positive clinical and comprehensive efficacy.

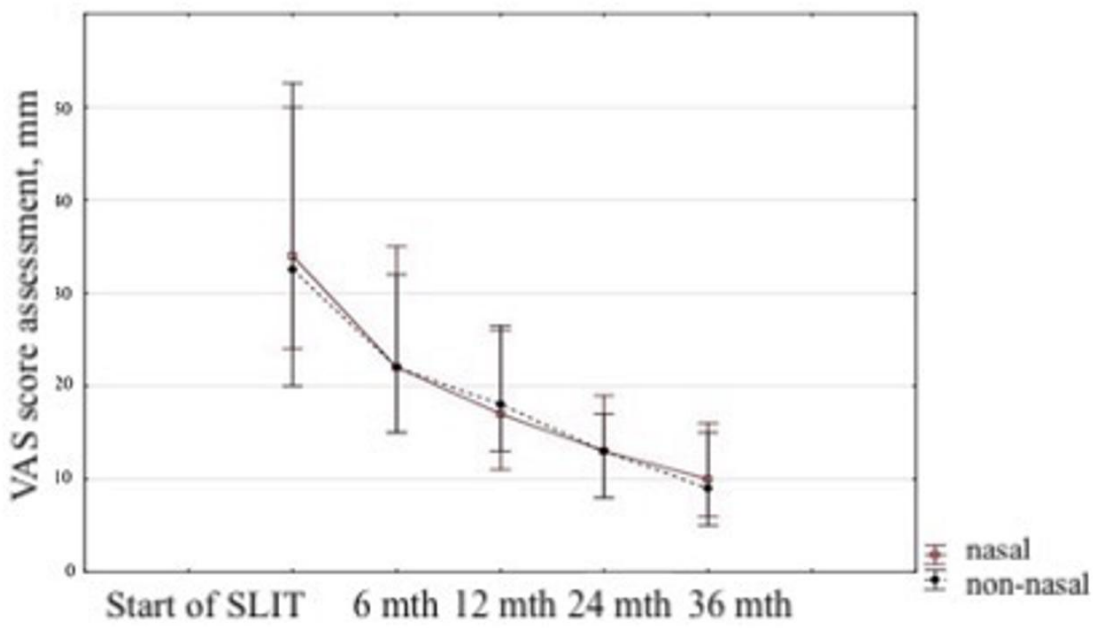

Fig. 1. Results of the assessment of nasal and non-nasal symptoms according to the VAS scale in patients with AR who received SLIT by tablets (n=44)

Table 1

Results of a combined evaluation of the effectiveness of AIT in patients with AR and asthma

Evaluation parameters	AR, (n=44)			Asthma (n=38)		
	Before treatment	After 3 years	p	Before treatment	After 3 years	p
Global symptom assessment, Me (Q_{25}; Q_{75})	2,5 (2,3;2,7)	0,7 (0,5;1,0)	0,0053	2,5 (2,3;2,6)	0,6 (0,5;0,9)	0,0041
Assessment of medication needs, Me (Q_{25}; Q_{75})	2,0 (2,0;3,0)	1,0 (0,0;2,0)	0,0024	2,0 (2,0;3,0)	1,0 (0,0;2,0)	0,0021
Comprehensive symptom assessment + Assessment of medication needs, Me (Q_{25}; Q_{75})	4,7 (4,5;5,5)	1,8 (1,0;2,5)	0,0026	4,6 (4,5;5,5)	1,7 (1,0;2,5)	0,0023

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000021
Prefix: P19

MANAGEMENT OF PATIENTS WITH SPECIFIC IMMUNOTHERAPY AT AN ALLERGOLOGICAL DIAGNOSTIC CENTER IN PRISTINA

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BACKGROUND

Specific anti-allergic immunotherapy represents the only disease-modifying treatment for atopic disorders, offering the potential to alter the natural course of the disease and provide long-term relief from allergic symptoms. This treatment approach targets the underlying immune system mechanisms responsible for allergic reactions, making it a cornerstone of clinical management for patients with allergic conditions.

METHOD

This study examines patients currently receiving treatment at the "Ylli" Allergological Clinic in Pristina. The immunotherapy employed is sourced from Probeltepharma, Spain, and is administered in the forms of Sublingual Immunotherapy (SLIT) and Subcutaneous Immunotherapy (SCIT). These therapies include Beltaoral and Beltavac Polymerized, along with Depot Immunotherapy options. Patient data were collected to assess treatment outcomes and patient demographics.

RESULTS

A total of 188 patients are currently undergoing specific immunotherapy at our clinic. Of these, 110 are male (58.5%) and 78 are female (41.5%). The majority of patients receiving immunotherapy are residents of Pristina, the capital city of Kosovo, accounting for 43.09% of the total patient population.Within the cohort of patients undergoing immunotherapy, the most common diagnoses are Rhinoconjunctivitis, affecting 63.83% of patients, followed by Bronchial Asthma in 17.02%, and a combination of Asthma with Rhinoconjunctivitis in 11.7%.Furthermore, a significant portion of patients, specifically 55.85%, are receiving treatment for sensitization to pollens, including those from Grasses and Cereals, as well as high trees and shrubs. Approximately 40% of patients are being treated for sensitivity to house dust mites.

CONCLUSION

At the "Ylli" Allergological Clinic in Pristina, patients predominantly present with polysensitization to various pollens, with a notable subset also sensitized to house dust mites. Specific immunotherapy has proven to be an essential component of treatment for these patients, offering the potential for long-term relief and disease modification. Further studies and follow-up are required to assess the long-term effectiveness and patient outcomes associated with specific immunotherapy in this population.

Submission number: 000040
Prefix: P20

EOSINOPHILIC ESOPHAGITIS INDUCED BY SUBLINGUAL IMMUNOTHERAPY WITH BIRCH POLLEN: A CASE REPORT

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BACKGROUND

Eosinophilic esophagitis (EoE) is a chronic, immune-mediated and allergen-triggered inflammation of the esophagus. EoE presents with classic symptoms such as abdominal pain, reflux, vomiting, dysphagia, and food impaction. According to official data, EoE is thought to affect 0.5–1 in 1000 individuals. Sublingual immunotherapy (SLIT) is effective method of treatment of seasonal rhinoconjunctivitis induced by birch pollen, but today there isn't enough information about correlation between eosinophilic esophagitis and SLIT.

METHOD

We describe the case of an 33-year-old man, without a history of reflux, with a family history of allergies. Who suffered from dysphagia, chest pain and heartburn developed 14 days after receiving SLIT for birch pollen (STALORAL®), drops placed under the tongue for 2 min and then swallowed.

RESULTS

From the age of 16 (2007) every spring there have been symptoms of rhinoconjunctivitis, dry cough, in therapy – antihistamines, nasal corticosteroids. Cross-food allergy: apple, peach, cherry, apricots - itchy lips, sneezing (severe symptoms from 2024).

The specific IgE (ImmunoCAP) Nov14: rBetv1/PR-10 86.70 kU/l rBetv2, rBetv4 <0.1 kU/l. Blood tests did not reveal eosinophilia.

Nov16 - SLIT initiated: 10 IR there was no reaction, 300 IR - reached 4 pressings - slight itching of the throat, but symptoms quickly went away in 15 min, further received 4 pressings 300 IR without reactions within a week.

Dec01 at night suddenly appeared chest pain, while eating felt heartburn and food impaction. The symptoms had been lasting for 10-14 days, patient took Maalox, but the symptoms had been persisted. Patient continued SLIT despite the symptoms up to Dec14 (4 presses of 300 IR), then 3 days before receiving the biopsy results spat SLIT out for, and then symptoms had gone but SLIT stopped.

Dec14 – esophagogastroduodenoscopy (EGD) - endoscopic picture of total exudative esophagitis (15 eos/HPF). At the EGD performed 5 weeks later, macroscopic examination of the esophageal mucosa was normal (0 eos/HPF).

CONCLUSION

Gastrointestinal symptoms such as abdominal pain, nausea and vomiting are reported as possible side effects of SLIT. In the absence of endoscopic examination, it is impossible to say whether they can be classified as EoE. It is therefore likely that the actual prevalence of EoE in patients receiving SLIT is underestimated.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000070
Prefix: P21

FROM SKIN TO EYES: EXPANDING THE ROLE OF AEROALLERGEN IMMUNOTHERAPY

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BACKGROUND

This report highlights the potential of aeroallergen-specific immunotherapy (AIT) in managing pediatric allergic conditions that extend beyond traditional respiratory indications for immunotherapy: vernal keratoconjunctivitis (VKC) and atopic dermatitis (AD).

METHOD

Retrospective review of the clinical evolution of two pediatric cases treated with AIT for VKC and AD, evaluated by a multidisciplinary team (pediatric allergists, ophthalmologists and dermatologists).

RESULTS

Case 1: 10-year-old male diagnosed with VKC at age four. The condition caused severe ocular discomfort and photophobia, significantly affecting his quality of life, particularly during spring and summer. Despite treatment with cyclosporine and fluorometholone, his symptoms persisted without improvement. Sensitization to house dust mites (HDM) was identified, although no coexisting rhinitis, asthma or AD. Given the absence of conventional indications, AIT targeting these allergens was initiated following a one-year treatment of AIT agreed upon with the family. The therapy led to significant clinical improvement, symptom reduction and enhanced daily functioning, enabling discontinuation of baseline ophthalmological treatments.

Case 2: 11-year-old female with severe AD diagnosed at six months of age, characterized by multiple exacerbations and infections, including hospitalizations for *Staphylococcus aureus* and Kaposi's varicelliform eruption. Previous treatments (topical corticosteroids, calcineurin inhibitors, prednisone, cyclosporine, and methotrexate) were ineffective or caused side effects. Elevated total IgE levels (56,120 kU/L) prompted genetic testing of hyper-IgE syndrome, which was negative. She also had extrinsic bronchial asthma and mild perennial allergic rhinitis with HDM sensitization, managed with inhaled budesonide, nasal corticosteroids and antihistamines. HDM-specific AIT was initiated and continued for 4 years, resulting in significant reductions in both her BSA (Body Surface Area) and EASI (Eczema Area and Severity Index), leading to fewer dermatitis flare-ups and improved asthma and rhinitis symptoms. Six months after stopping AIT she experienced an AD flare and systemic therapies are now being evaluated.

CONCLUSION

These cases illustrate AIT's broader applicability in treating severe allergic conditions beyond traditional respiratory contexts. In VKC, it targets mixed immunological mechanisms, while in AD it may reduce severity and dependency on systemic therapies in allergen-driven cases. Individualized treatment plans, comprehensive clinical evaluations and allergen profiles are crucial for optimizing outcomes. In conclusion, these cases support the consideration of AIT as a tailored therapeutic option for pediatric complex allergic diseases like VKC and AD. Further research is essential to redefine guidelines and establish its role in clinical practice.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000006
Prefix: P24

SYSTEMIC REACTIONS DURING THE MAINTENANCE PHASE OF ALLERGEN-SPECIFIC IMMUNOTHERAPY

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BACKGROUND

Allergen-specific immunotherapy (AIT) follows allergen prevention and pharmacotherapy in treating allergic diseases. In patients with allergic rhinitis and asthma, immunotherapy can be applied in selected patients if the symptoms can not be controlled with medication, patient compliance is poor or unwanted side effects are experienced with medication. Immunotherapy is based on the development of immunotolerance to the allergen by administering the allergen at certain intervals and in increasing doses. The most common side effectS during immunotherapy are local reactions. Rarely, life-threatening systemic reactions may also be observed in these patients. We will present two patients with anaphylaxis in whom we applied subcutaneous immunotherapy (SCIT) in our clinic.

METHOD

The clinical and laboratory data of the patients were recorded.

RESULTS

A 13-year-old boy with allergic asthma and rhinitis underwent SCIT due to uncontrolled symptoms despite pharmacotherapy. Allergen-specific IgE tests showed high sensitivity to Dermatophagoides pteronyssinus, Dermatophagoides farinae, and grass mix (>100 Ku/L each). Treatment was interrupted for 10 months due to supply issues, and upon re-initiation with a rapid protocol, he experienced anaphylaxis after the 3rd dose, requiring intramuscular adrenaline and observation.

The second case was a 16-year-old male with allergic asthma and rhinitis. Skin prick tests revealed sensitivities to Dermatophagoides farinae (4 mm) and Dermatophagoides pteronyssinus (14 mm). In the 16th month of SCIT for house dust mites, he developed anaphylaxis five minutes after injection in the maintenance phase, necessitating adrenaline and observation.

Both patients had normal pulmonary function tests and no additional risk factors such as infection, travel, or stress at the time of injection. The first case occurred after a treatment gap, while the second occurred during the maintenance phase.

CONCLUSION

AIT should be continued for at least three years to ensure lasting clinical efficacy post-treatment. The risk of serious systemic reactions is under 1% with conventional protocols but exceeds 30% in rapid regimens. Risk factors include asthma, concurrent medications, dosing errors, prior local reactions, and high allergen sensitivity. Patients must be observed for at least 30 minutes post-injection and trained in adrenaline autoinjector use. Our case highlights the importance of administering injections under allergist supervision in settings equipped for anaphylaxis management.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000024
Prefix: P27

SUCCESSFUL TREATMENT WITH SUBCUTANEOUS ALLERGY IMMUNOTHERAPY IN A 15-YEAR-OLD GIRL WITH AUTISM SPECTRUM DISORDER

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BACKGROUND

BACKGROUND

The efficacy of subcutaneous allergen immunotherapy (SCIT) in pediatric patients with allergic rhinitis and asthma is well known. An increase in allergic diseases has been observed in autism spectrum disorder (ASD) patients compared to the normal population. In this study, we present a pediatric patient diagnosed with ASD who successfully tolerated subcutaneous immunotherapy treatment.

METHOD

CASE

A 15-year-old girl patient, who has been followed up with the diagnosis of ASD since the age of three, was referred to our pediatric immunology and allergy clinic with complaints of allergic rhinitis. Despite regular use of oral antihistamines, nasal corticosteroids, and leukotriene receptor antagonists for the last two years, there had been no regression in her symptoms such as nasal congestion, sneezing and nasal itching. Allergic study showed skin prick test positive to Dermatophagoides Farinea 4*4 mm, Dermatophagoides Pterinus 5*5 mm and specific IgE level was 22.7 KU/L for house dust mite. Allergen immunotherapy was planned for the patient, who described symptoms of moderately severe allergic rhinitis that affected her daily life activities and sleep patterns.

RESULTS

Although we had concerns about the patient's compliance with the planned weekly injections of SCIT treatment for house dust mite, we started treating after consulting with her family . For a period of approximately three months, she has been administered weekly injections of the initial treatment, with no adverse reactions being observed.

CONCLUSION

CONCLUSIONS

The present study has demonstrated that patients diagnosed with ASD are more likely to experience allergic disorders. In pediatric populations, SCIT has been shown to provide long-term benefits for allergic rhinitis, with the potential to reduce further sensitisation to environmental allergens. However, the latest European Academy of Allergy and Clinical Immunology (EACCI) guidelines categorise mental disorders as relative contraindications for SCIT. Consequently, clinicians should exercise caution when considering SCIT for patients with ASD, given the necessity for frequent injections.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Topic 3 - Venom and Food Allergy

Submission number: 000034
Prefix: P28

THE ROLE OF DIFFERENTIAL EXPRESSION OF HR1 AND HR2 ON B CELLS AND THEIR FUNCTIONS

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BACKGROUND

Histamine is a vasoactive amine involved in numerous physiological and pathological processes including allergic diseases. Four histamine receptors (HR1, HR2, HR3, HR4) regulate various actions of histamine. According to earlier studies, HR1 and HR2 are predominantly expressed in T helper 1 (Th1) and Th2 cells, respectively. HR1 is a Ca++ flux-inducing activating receptor, and HR2 is an adenyl cyclase-stimulating suppressive receptor. HR1 promotes Th1-type responses, but Th1 and Th2-type responses are suppressed by HR2. Additionally, histamine affects the antibody production of B cells. HR1 signalling contributes to T-cell-independent humoral immune responses, while HR1 and HR2 play a role in T-cell-dependent humoral responses. Our group demonstrated that the mRNA expression of HR1 and HR2 on B cell clones is mutually exclusive. The differential expression of HR1 and HR2 on B cells may characterize two distinct B cell subsets with pro-inflammatory and suppressive properties.

METHOD

Total peripheral blood mononuclear cells (PBMCs), or pure B cells isolated from both Tonsil (TMCs) and blood (PBMCs) were stimulated with different stimuli. Cells were then subjected to flow cytometry after 0, and 48h. HR1+ and HR2+ B cells were sorted from TMCs for the bulk RNA sequencing by Smart Seq2. HR1 and HR2 knockout mouse models were generated on a C57BL/6 background.

RESULTS

We confirmed the exclusive expression pattern of HR1 and HR2 on primary B cells from human PBMCs with flow cytometry. During PBMCs stimulation with CpG showed a tendency to promote HR1 expression on B cells, and stimulation with anti–B cell receptor (BCR), tended to inhibit HR1 expression; HR2 expression on human B cells can be induced by stimulation with IL-10 and inhibited by BCR with IL-4 after 48 hours; Stimulation with IL-10 for 48 hours increased the percentage of HR double-positive B cells. In response to stimulation in pure B cells from TMCs and PBMCs, CpG with or without histamine, or IL-3, IL-4 promoted HR1-expressed B cells from TMCs; HR2+ B cells from TMCs and PBMCs were increased after CpG with IL-4 activation and inhibited by IL-10. HR1KO and HR2KO mice showed significant changes in the B cell amount in diverse tissues compared to WT mice.

CONCLUSION

These data provide essential contributions to the conditions that lead to the exclusive expression of HR1 or HR2 on B cells. The data from the bulk RNA sequencing will provide a better understanding of the role of histamine receptors in B cells and immune regulation.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000026
Prefix: P29

LONGITUDINAL CHARACTERIZATION OF THE MEMORY B CELL RESPONSE IN HONEY BEE VENOM NEWLY EXPOSED BEEKEEPERS

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BACKGROUND

Allergen-specific immunotherapy has shown that once allergen-IgE B cell response develops, treatment with a high dose of the allergen can lead to tolerance through humoral and cellular mechanisms, however, timing has not been fully understood. Beekeepers represent a model of natural immune tolerance, which can provide insight into how class-switching to allergens works. To investigate the healthy B cell response during allergen tolerance development to honey bee venom (HBV), we longitudinally studied the development of antigen-specific class-switching of B cells in newly exposed healthy beekeepers.

METHOD

A six-year prospective study was performed. PBMCs from new exposed beekeepers (n=6) were collected before the first exposure to the bee venom and during different time points after the first sting (hours, days, and months). PBMCs were stained and analyzed by flow cytometry to identify phospholipase A2 (PLA-2; major allergen of HBV)-specific B cell isotype (sIg) class switching.

RESULTS

There were no changes in the distribution of the total B cell isotypes after the first sting or re-exposure time points. Allergen exposure correlated with the gradual increase of the frequencies of PLA-2 specific B cells. We observed allergen-specific class-switched B cells expand in response to HBV at 7 to 14 days after exposure. Particularly, sIgG1, sIgG2, and sIgG4-expressing B cells were predominantly present among allergen-specific B cells. sIgE was not observed at any time point. Inside the IgA isotypes, IgA1 was the most detected isotype. sIgG4 arises from 6 months to one year after constant exposure.

CONCLUSION

Allergen exposure does not induce changes in the total isotype distribution of circulating B cells. PLA-2 specific B cells cumulative increase after repeated exposure to HBV. IgG1, sIgG2 and sIgG4 are the predominant isotypes that develop in HBV natural tolerant individuals. These new findings provide valuable insights into the mechanisms of allergen tolerance in healthy individuals and can be extrapolated to patients undergoing AIT, highlighting the role of various B cell subsets in this process.

Submission number: 000072
Prefix: P31

CAP-INHIBITION TESTING FOR IDENTIFYING GENUINE DOUBLE SENSITIZATIONS IN PATIENTS ALLERGIC TO HYMENOPTERA VENOM

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BACKGROUND

The hymenoptera species most commonly responsible for anaphylaxis in Southern Europe are *Polistes dominula* (PD) and *Vespula* species (VV). Cross-reactivity between their venoms is well-documented and is estimated to be up to 50% across venoms. However, standard in vitro diagnostic methods, even when combined with Prick tests, fail to reliably distinguish between clinically irrelevant cross-reactivity and true double sensitization to vespid venom. This limitation often leads to the inappropriate prescription of costly, long-term double-venom immunotherapy (VIT). The aim of this study was to evaluate the use of CAP-inhibition to differentiate between in vitro double sensitization and genuine double sensitization.

METHOD

We followed a cohort of patients treated between 2018 and 2022 at our hospital, all of whom experienced anaphylaxis following a hymenoptera sting. In cases of in vitro and in vivo double sensitization, CAP-inhibition analysis was performed. Specific IgE determinations were conducted using the automated fluoro-enzyme immunoassay, ImmunoCAP (Thermo Fisher Scientific, Uppsala, Sweden). A cut off of 70% specific IgE inhibition was established as significant.

RESULTS

We included 22 patients, of whom 16 (73%) exhibited in vitro double sensitization to both PD and VV venoms, as evidenced by positive specific IgE values for both venoms. Seven of them were women (44%) and nine were men (56%), with a median age of 58.5 years (IQR 25.5). Of the 16 patients with in vitro double sensitization, only 4 (25%) were confirmed to have genuine double sensitization based on CAP-inhibition analysis. Specific immunotherapy was prescribed according to the results of CAP-inhibition testing.

CONCLUSION

CAP-inhibition is a valuable tool for optimizing specific immunotherapy in patients with in vitro double sensitization to hymenopteran venom. It allows for the differentiation of true double sensitizations from cross-reactivity, thereby preventing the unnecessary and costly prescription of double VIT.

Submission number: 000082
Prefix: P33

HIGH RISK COW'S MILK ALLERGIC CHILDREN AND ORAL IMMUNOTHERAPY: IS IT WORTH IT?

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BACKGROUND

Cow's milk oral immunotherapy (CM-OIT) is a therapeutic approach for children with IgE-mediated cow's milk allergy (CMA). We aim to describe the clinical profile of high-risk CMA patients who followed our CM-OIT protocol.

METHOD

Retrospective study. Clinical histories of CM allergic children with previous anaphylactic reactions and casein-specific IgE (cs-IgE) levels above 100KU/L who underwent CM-OIT between 2009-2024 were reviewed. OIT-CM was performed following Spanish Guideline. We describe demographics and clinical evolution. Desensitization Outcomes: failure <20ml, partial 20-125ml and total >125ml.

RESULTS

Twenty-three patients were selected. 52% (12/23) female. The median age at starting CM-OIT was 9 years [IQR 7-13 years]. 100% allergic rhinitis and 74% allergic rhinitis with asthma. Two patients received Omalizumab due to severe asthma. Dilutions of casein-specific IgE (cs-IgE) were obtained in 20 patients with a median value of 448 KU/L [IQR 196-726].

All patients started our CM-OIT protocol. CM-OIT evolution: 47% (11/23) did not reach the safety dose (20mL CM), 12/23 (52%) reached the desensitization dose: 5/23 partial desensitization and 7/23 total desensitization.

CONCLUSION

More than half of patients reached a dose between 20-200mL, during CM-OIT.

CM-OIT is a treatment option in high-risk patients, although it should be performed in a protected environment, particularly in children with a severe profile.

Submission number: 000061
Prefix: P35

VENOM ALLERGEN IMMUNOTHERAPY IN CHILDREN: SHORT TERM EFFICACY AND IMPACT ON QUALITY OF LIFE

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BACKGROUND

Hymenoptera venom allergy (HVA) is a potentially life-threatening reaction to stings from Apis mellifera (honeybee) or Vespula (wasp) and living with HVA has a negative impact on quality of life (QoL).

We aimed to evaluate the efficacy of VIT in eliminating the systemic allergic reactions related to re-stings and to assess the impact of VIT on QoL of children with HVA.

METHOD

Seventy-eight patients who experienced grade 3, 4, or 5 systemic reactions and underwent conventional subcutaneous VIT were included. The modified World Allergy Organization grading system was used to grade the systemic reactions. The Turkish version of the Vespid Allergy Quality of Life Questionnaire (VQLQ) was used to assess QoL. Patients were asked if they were re-stung by the culprit Hymenoptera to which they were allergic, and the re-sting reactions were evaluated using a questionnaire.

RESULTS

Seventeen children (21.8%) were allergic to honeybees, and 61 (78.2%) to wasp. The most common symptoms were dyspnea (93.6%), angioedema (93.6%), and generalized urticaria (67.9%). Forty-three patients (55.1%) were re-stung by the culprit Hymenoptera: 19 during VIT and 24 after VIT. Seven of 19 patients (36.8%) and 1 of 24 patients (4.1%) who were re-stung reported systemic reactions during and after VIT, respectively. The median VQLQ score was 2.82 (interquartile range [IQR]: 2.07–3.51) before VIT and 5.62 (IQR: 4.61–6.25) after VIT ($p<0.001$). The scores significantly improved in all subgroups, including gender, type of HVA, and being subjected to re-sting reactions.

CONCLUSION

VIT led to a significant improvement in the QoL of children with HVA. Children with HVA showed a substantial reduction in the severity of re-sting reactions.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000053
Prefix: P36

PEANUT DESENSITISATION WITH STAGGERED ORAL CHALLENGE AND REGULAR CONSUMPTION OF PEANUTS IN PEANUT ALLERGIC CHILDREN

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BACKGROUND

Peanut immunotherapy not licensed in Ireland

METHOD

Peanut desensitisation with staggered oral challenge and regular consumption at home.

RESULTS

Staggered oral challenges with regular consumption at home can effectively desensitize patients and enhance their tolerance to previously harmful allergens

CONCLUSION

This method reduces the severity of allergic reactions and improves quality of life by building food tolerance

Background: Peanut oral immunotherapy using the commercial defatted powder of Arachis hypogaea L., semen costs approximately $4200/patient/year and is not commissioned for use in Ireland by the National Centre for Pharmacoeconomics because of its high cost. Moreover, it is not available in Ireland.

Procedure:

Participants: Eight peanut allergic children attending the Allergy Clinic with a positive skin prick test of 3mm or more**.** We share our experience of desensitization of eight peanut allergic children (3 years - 17 years) using roasted peanuts bought from shop at cost of 49 cents with staggered oral challenge and regular consumption of peanuts.

Method used: Staggered oral peanut challenge starting with 1/8th of a roasted peanut bought from the shop at a cost of 49 cent. The amount of peanut was incrementally increased every 6-8 weeks with one-hour observation in hospital under medical supervision. The child regularly consumed the increased amounts at home.

Safety measures: Parents/guardians and children where age appropriate gave consent to the procedure. They were provided with education and training in the management of any potential allergic reaction and anaphylaxis, as well as in the use of all the Adrenaline Auto-injectors available in Ireland.

Patient Characteristics:

Severity of allergic reaction oFASS	Number of children
Grade 1	0
Grade 2	4
Grade 3	2
Grade 4	2

Atopic comorbidities	Number of children
AD	8
AD + AR	4
AD+AR+ASTHMA	1
AD+CASHEW NUT ALLERGY	1
AD+CMPA+EGG allergy	1

Findings: The findings show that staggered oral challenges can effectively desensitize patients and enhance their tolerance to previously harmful allergens. A staggered oral peanut challenge uses a pack of peanuts costing just 0.49c, providing an affordable and accessible solution to children with peanut allergies. This method reduces the severity of allergic reactions and improves quality of life by building food tolerance. It also reduces anxiety around accidental exposures.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000084
Prefix: P37

POSSIBLE IMMUNOMODULATORY EFFECT OF METHOTREXATE ON HYMENOPTERA VENOM IMMUNOTHERAPY: INFLUENCE ON SPECIFIC IGE LEVELS

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BACKGROUND

Hymenoptera venom immunotherapy (VIT) is the standard treatment for preventing severe allergic reactions after Hymenoptera stings. Immunosuppressive therapies such as corticosteroids and methotrexate (MTX) may influence the immune response to VIT. We present a case suggesting a possible effect of MTX on specific IgE (sIgE) levels during VIT.

METHOD

A 51-year-old male forestry worker presented with systemic allergic reactions following Hymenoptera stings. In 2015, he experienced generalized urticaria and systemic symptoms following *Vespa crabro* stings. Skin testing showed positive intradermal responses to *Vespula* and *Polistes* venoms at 0.01 mcg/mL and to *Apis mellifera* at 1 mg/mL. Specific IgE levels were *Vespula* 28.8 kU/L, *Polistes* 10.08 kU/L, and *Apis mellifera* 2.65 kU/L. VIT with *Vespula* venom was initiated in 2015.

In 2019, the patient was diagnosed with stage II thoracic sarcoidosis, requiring long-term corticosteroids and MTX from April 2019. Throughout immunotherapy, sIgE levels for *Vespula* and *Polistes* showed a progressive decline, with *Vespula* IgE decreasing to 0.96 kU/L in 2020. In July 2020, after three simultaneous wasp stings, the patient experienced generalized urticaria but no anaphylaxis, leading to VIT extension for a sixth year. In 2021, sIgE levels continued declining (*Vespula* 0.72 kU/L), despite a persistent positive basophil activation test (BAT) for *Vespula* spp (94%) and *Polistes dominula* (86%).

RESULTS

VIT was discontinued in 2023 due to declining sIgE levels and milder reactions upon stings. However, in 2024, a suspected European hornet (*Vespa crabro*) sting led to generalized urticaria and angioedema, prompting reconsideration of VIT resumption. By this time, the patient had been off corticosteroids and MTX for three years. Repeat skin tests showed positivity to *Apis mellifera*, *Vespula*, and *Polistes* at lower thresholds than previous tests. sIgE levels increased slightly (*Vespula* spp 1.37 kU/L, *Apis mellifera* 1.16 kU/L, *Vespa crabro* 1.41 kU/L, *Vespa velutina* 1.19 kU/L). A BAT and comparative testing with different venom extracts are pending before VIT reinitiation.

CONCLUSION

This case suggests that MTX, in combination with VIT, may have contributed to a marked decrease in sIgE levels. After MTX discontinuation, sIgE levels slightly increased, and the patient experienced a more significant sting reaction. Further studies are needed to clarify the immunomodulatory role of MTX in VIT and its clinical implications.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

Submission number: 000033
Prefix: P38

HYMENOPTERA VENOM IMMUNOTHERAPY OUTCOMES IN PATIENTS WITH MASTOCYTOSIS

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BACKGROUND

Mastocytosis is a rare disorder characterized by an increase in mast cells in the skin and/or internal organs.

METHOD

This case series aims to assess the outcome of venom immunotherapy (VIT) in patients with Hymenoptera venom allergies and mastocytosis, as well as to evaluate frequency of associated adverse events.

RESULTS

We present three cases of patients receiving VIT, two with systemic mastocytosis and one with cutaneous mastocytosis**.**

Case 1: A 50-year-old female patient diagnosed with indolent systemic mastocytosis developed anaphylaxis following a bee sting. On the 9th month of honeybee VIT, the patient experienced an adverse reaction classified as a grade 3 anaphylactic reaction according to Ring and Messmer's classification, requiring the administration of adrenaline. Following the concurrent use of omalizumab, the patient tolerated subsequent doses without further adverse events. However, VIT was discontinued after 13 months due to the unavailability of venom extracts in Turkey.

Case 2: A 57-year-old male patient with systemic mastocytosis received VIT for both honeybee and wasp venom allergies. The patient successfully continued VIT for four years without adverse reactions. During the maintenance phase, he developed a mild local reaction after a field bee sting, but no further complications occurred. VIT was discontinued after 50 months due to the unavailability of venom extracts in Turkey.

Case 3: A 44-year-old female patient diagnosed with cutaneous mastocytosis received VIT for wasp venom allergy. The initial reaction was classified as Mueller grade 4. During the

maintenance phase of VIT, the patient experienced a field sting from a wasp, resulting in a Mueller grade 2 reaction. The patient is currently in the maintenance phase of VIT.

CONCLUSION

In this case series, VIT was demonstrated to be effective during treatment, resulting in a reduction in reaction severity compared to the baseline field sting reactions. Furthermore, adverse reactions associated with VIT were generally manageable in patients with mastocytosis.

Table 1. Demographic and Clinical Characteristics of Mastocytosis Patients Treated with VIT

Characteristic	Case 1	Case 2	Case 3
Age	51	58	45
Gender	Female	Male	Female
Mastocytosis type	ISM	ASM	Cutaneous
Basal Tryptase Level (µg/L)	64	10.5	6.72
Honeybee (Apis I1)-specific IgE level (kU/L)	0.52	1.51	4.23
Wasp (Vespula I3)-specific IgE level (kU/L),	0.01	0.82	12
Mueller score at baeline field sting, (Median Grade)	4	4	4
Type of VIT	Honeybee	Honeybee and Wasp	Wasp
Adverse Events Related to VIT	Yes	No	No
Adverse Events During Induction Phase	No	No	No
Adverse Events During Maintenance Phase	Yes	No	No
Concomitant omalizumab			
Field Stings During VIT	No	Yes	Yes
Mueller Score At Field Stings During VIT	-	Grade 0	Grade 2
Duration of VIT (Months)	13	50	42
Treatment of mastocytosis	Follow up	Midastaurin	Follow up

VIT: Venom Immunotherapy, ISM: indolent systemic mastocytosis, ASM: Aggressive Systemic Mastocytosis (ASM), SM: systemic mastocytosis, µg/L: Micrograms per liter, kU/L: Kilounits per liter

CONFLICTS OF INTEREST

The authors did not specify any links of interest.

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LOCAL AND SYSTEMIC REACTIONS DURING CLUSTOID/HYMNOX SUBCUTANEOUS ALLERGEN-SPECIFIC IMMUNOTHERAPY (SCIT) IN PEDIATRIC PATIENTS

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BACKGROUND

Allergen-immunotherapy (AIT) is an efficacious and disease-modifying treatment option for IgE-mediated diseases. Subcutaneous immunotherapy (SCIT) is generally considered a safe and well-tolerated option. However, SCIT can lead to a range of adverse effects, from mild localized reactions to severe systemic anaphylaxis, which can complicate its practical implementation. This study aimed to evaluate the frequency of both local and systemic reactions observed during SCIT in pediatric patients.

METHOD

In this study, safety data, demographic characteristics and risk factors for adverse reactions of patients who were initiated on allergen-specific immunotherapy (Clustoid, Hymenox, Roxall, Germany) due to allergic rhinitis/asthma diagnoses and venom-associated anaphylaxis between January 2023 and December 2024 were examined.

RESULTS

This study consisted of 61 children (44 males, 72.1%) with a median age of 11.1 years (IQR: 9.0–13.9) at the initiation of SCIT, with male predominance (72.1%). SCIT was administered to 48 patients for pollen, 7 for house dust mites, 4 for venom, 1 for Cupressus, and 1 for Alternaria. Thirty-five (57.4%) of the patients had concomitant asthma. Twenty-seven (44.3%) patients were polysensitized by skin prick test (SPT). Five patients (8%) experienced reactions during SCIT. Three of these were with venom-based SCIT, and two with pollen-based SCIT. A total of 12 (1%) local reactions were observed: one reaction in 3 patients, 4 reactions in 1 patient, and 5 reactions in another patient. Out of 800 injections, local reactions occurred in 9 (0.01%) cases and large local reactions in 3 (0.003%). No systemic reactions were observed. There were no statistically sigmificant difference between venom AIT and other allergen specific immunotherapies with respect to gender, asthma and total Ig E level ($p>0.05$). However, reactions were more frequent in patients receiving SCIT for venom compared to other allergens ($p=0.01$).

CONCLUSION

SCIT is a safe treatment option for allergic rhinitis/asthma and venom anaphylaxis in children. Local reactions are observed more frequently with venom immunotherapy.

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CASE REPORT OF SUCCESSFUL WASP IMMUNOTHERAPY AFTER ANAPHYLAXIS

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BACKGROUND

Venom immunotherapy (VIT) is the leading treatment for preventing severe allergic reactions in individuals sensitive to Hymenoptera stings. This therapy effectively modulates the immune system, promoting long-term tolerance and significantly reducing the risk of systemic reactions.

METHOD

We present a case of a patient with documented life-threatening wasp anaphylaxis who was stung by wasp during not completed VIT.

RESULTS

A 35-year-old man experienced a severe allergic reaction after being stung by a single wasp. Within 20 seconds, he developed a generalized urticarial rash, intense itching, widespread swelling, difficulty of breathing, blurred vision, a drop in blood pressure, and loss of consciousness-clear signs of anaphylaxis. Notably, one month before this incident, he had been stung by 12 wasps without exhibiting any symptoms.

Laboratory tests were conducted on Phadia 250 ImmunoCAP system, revealing the following results: Total IgE: 47.1 kU/l; Allergen component rVes v 5: 7.52 kUA/l; Allergen component rPol d 5: 16.4 kUA/l; Allergen component rApi m 1: 0.00 kUA/l; Serum tryptase: 2.91 ug/l.

The patient was provided with an emergency treatment plan, including an epinephrine auto-injector, and was advised to undergo VIT for wasp venom allergy. In 2022, he initiated allergen-specific immunotherapy. One year after starting VIT, he was stung by a wasp again but exhibited no clinical symptoms, not even a localized reaction. The patient is currently continuing a course of immunotherapy (up to 5 years).

CONCLUSION

VIT proved to be an effective and life-changing treatment for the patient, offering protection against severe systemic reactions to insect stings. The patient's successful transition from experiencing severe anaphylaxis to having no clinical symptoms upon subsequent wasp stings highlights the importance of VIT in managing insect sting allergies. Continual follow-up and research are essential to further understand the long-term benefits of VIT, ensuring the safety and well-being of allergy sufferers worldwide.

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SUCCESSFUL PREVENTION OF SYSTEMIC REACTIONS TO VENOM IMMUNOTHERAPY WITH OMALIZUMAB: A CASE REPORT

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BACKGROUND

Venom immunotherapy (VIT) is a life-saving treatment for patients with Hymenoptera venom allergies, effectively reducing the risk of severe allergic reactions, including anaphylaxis. However, despite its efficacy, patients allergic to venom may also exhibit allergic responses to VIT itself, posing significant challenges in its administration

METHOD

We report a case of a male patient with a history of multiple anaphylactic reactions to wasp stings. Due to the severity of his reactions, he was started on venom immunotherapy (VIT). However, during the administration of the first dose of depo-solutiom aluminium based, he experienced an anaphylactic reaction classified as WHO Grade 2.

RESULTS

To prevent a reaction to VIT, we administered omalizumab at intervals of 5, 3, and 1 week prior to initiating a 4-day rush protocol VIT using an aqueous solution. The patient subsequently experienced only localized reactions at the injection sites.

CONCLUSION

Omalizumab proved to be successful in preventing systemic reactions to VIT in this patient, allowing for the safe initiation and completion of the 4-day rush protocol. This case highlights the potential role of omalizumab as a pre-treatment strategy to enhance the safety of VIT in high-risk patients.

CONFLICTS OF INTEREST

The authors did not specify any links of interest.