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Barbara De Servi et al., J Allergy Ther 2017, 8:3(Suppl)
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Safety and efficacy evaluation of an isotonic manganese-enriched seawater solution on human nasal epithelium reconstituted in vitro

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Statement of the Problem: Nasal irrigation with saline solutions is frequently used for relief of rhinitis symptoms. Literature suggests that manganese (Mn) contributes to a decrease in allergic nasal response. In vitro research studies were conducted on 3D model of airway epithelium to evaluate efficacy and safety of a Mn-enriched seawater solution called Stérimar Allergic Nose (SAN).

Methodology: The 3D Reconstituted Human Nasal Epithelium model (RHNE) was treated with 10 µL of SAN twice a day for four days to simulate repeated use (full strength) or untreated (control). For epithelium integrity (safety), the control and SAN-treated cultures were analyzed for: Trans-Epithelial-Electrical-Resistance (TEER) on days 1 (D1) and 4 (D4) post-treatment, and release of Lactate Dehydrogenase (LDH) and Interleukin 8 (IL-8) daily from D1 to D4. For efficacy, Mucociliary Clearance (MCC) and stimulation of epithelium-regeneration were assessed. MCC was measured by video-microscopy on D1 and D4 after the same treatment regimen. For epithelium-regeneration, RHNE was treated with 30 µL of SAN or saline. After a glass capillary injury, made 1 hour after treatment, regeneration stimulation was assessed as a percentage of wound closure by comparative photography immediately after the injury and 2, 6, 22 and 30 hours later.

Findings: SAN showed an average TEER of 302 and 323 ohm.cm2 ($p<0,001$) on D1 and D4, respectively, safely above tissue integrity limit (100 ohm.cm2). LDH and IL-8 releases were similar for SAN and control at all-time points, also confirming epithelium integrity and safety. SAN showed a significant MCC increase as compared to control ($P<0.01$). Furthermore, SAN showed faster and greater wound closure than control (86.59% for SAN versus 50.65% at 22 hours).

Conclusion: SAN demonstrated efficacy and safety in the in vitro assays. The results support the use of Mn-enriched SAN in relief of rhinitis symptoms.

Biography

Barbara De Servi has obtained a Biology degree at the University of Milan in 1998 and in 2002, she obtained PhD in Physiopathology at University of Milan and at DKFZ, in Heidelberg. In 2005-2006, she was Post-Doctoral Fellow at the University of Verona Medical School. Since 2007, she is the Study Director at VitroScreen, in charge to develop tailor-made "omics" research models and identify toxicity pathways on 3D human tissue models.

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Notes:

Gilbert Glady, J Allergy Ther 2017, 8:3(Suppl)
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Therapeutic use of microRNAs to prevent and control allergic rhinosinusitis

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Inflammatory upper airway diseases, particularly chronic rhinosinusitis (CRS) and allergic rhinitis (AR), have a high worldwide prevalence. CRS and AR involve sustained and exaggerated inflammation that is associated with marked changes in gene and protein expression under tight regulation. MicroRNAs represent one of the fundamental epigenetic regulatory mechanisms used by cells that can mediate posttranscriptional gene silencing of target genes. As fine tuning regulators of gene expression, miRNAs are involved in diverse biologic processes, including cell proliferation, apoptosis, and differentiation, organ development, metabolism, stress responses, and signal transduction. Emerging evidence implicates an involvement of miRNAs in shaping the inflammation pattern in upper airways. Studies regarding the roles of miRNAs in allergic diseases have multiplied during the last 4 years, and the functions of miRNAs in the regulation and pathogenesis of these diseases are more and more better characterized. Recently, miRNAs have been shown to be detectable in cell-free body fluids such as serum and plasma samples. The circulating miRNAs are protected from blood RNAses either by existing in cell membrane-derived vesicles such as exosomes or by forming a complex with lipid-protein carriers such as high-density lipoprotein. So it becomes possible to use such kind of molecules for a therapeutic purpose, and that is what achieve the Bio Immun(G)en Medicine – BI(G)MED – by introducing high diluted microRNAs in nano compounds looking for a fine regulation in different upper airways diseases with an allergic etiology.

Biography

Gilbert Glady has completed his MD from Strasbourg University of Medicine and Postdoctoral studies from Besançon and Paris-Nord Universities of Medicine. He got an expertise in immunology and immunogenetics during all these years and developed interest for alternative medicines. So in 2010, he became Creator of the BI(G)MED method and Director of EBMA, the European association for training the medical profession at the BI(G)MED. He has participated in numerous international congresses in the field of immuno-allergology, infectiology and oncology with posters and oral presentations.

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Tasuku Kawano et al., J Allergy Ther 2017, 8:3(Suppl)
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The increased susceptibility to adult-onset asthma through the inhibition of the development of respiratory tolerance by early life stress

Tasuku Kawano, Ryusuke Ouchi, Tomomitsu Miyasaka, Yuichi Ohkawara, Tomoko Takahashi, Motoaki Takayanagi and **Isao Ohno**
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Statement of the Problem: Allergic asthma is characterized by Th2 type inflammation, essentially due to a breakdown of immune tolerance to an environmental allergen. Etiologically, experiences of early-life stress have been demonstrated to be associated with heightened prevalence of adult asthma. However, mechanisms underlying the stress leading to the development of asthma are poorly understood. Therefore, we examine if early-life stress increases the susceptibility to adult-onset asthma through the inhibition of the development of the respiratory tolerance.

Methodology & Theoretical Orientation: Female BALB/c pups were sensitized by intraperitoneal injections of ovalbumin (OVA)/Al(OH)3 on postnatal days (PND) 24 and 29. Respiratory tolerance was induced by the inhalation of OVA on PNDs 18 and 21 before the sensitization. Maternal separation (MS) was used as a model of early-life stress and repeated from PND 17 to 22. On PND 76, the mice were challenged with OVA aerosol. Airway inflammation was evaluated with numbers of inflammatory cells in bronchoalveolar lavage fluid (BALF). The contents of IFN-γ, IL-4, IL-5 and IL-13 in BALF were measured by ELISA. The airway hyper-responsiveness (AHR) was assessed by methacholine-induced airflow obstruction.

Conclusion & Significance: In tolerized mice, the numbers of inflammatory cells, the cytokine contents and AHR were remarkably decreased compared with those in non-tolerized mice. However, these effects of the tolerance were significantly reduced by MS exposure. These results suggested that early-life stress exposure has a potential to increase the risk of adult-onset asthma through the inhibition of the development of immune tolerance.

Biography

Tasuku Kawano completed his PhD at Tohoku Medical and Pharmaceutical University in 2009. He is presently working as an Assistant Professor in the Department of Pathophysiology at Tohoku Medical and Pharmaceutical University. He aims to reduce asthma patients. He studies elucidation of asthmatic onset mechanism based on nerve-endocrine-immunity axis. He has been trying for the creation of new fields for the development of novel medicines and preventive drugs in asthma. He has published a paper, "The involvement of central nervous system histamine receptors in psychological stress-induced exacerbation of allergic airway inflammation in mice" in Allergol Int. 2016 Sep; 65 Suppl:S38-44.

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Heewon Lee et al., J Allergy Ther 2017, 8:3(Suppl)
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Histamine-releasing factor is a potential therapeutic target for OVA-induced allergic rhinitis

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We first reported that translationally controlled tumor protein (TCTP) acts as a histamine-releasing factor (HRF) associated with chronic allergic disease when it forms dimers. Despite the lack of signal peptide, HRF was found in nasal lavages, skin blisters and bronchoalveolar lavage fluids in late phases of allergic reaction. In a preliminary study, we found a significant increase in serum HRF levels in patients with asthma and allergic rhinitis. These results have led us to investigate whether HRF can be a therapeutic target for allergic diseases. By screening a phage-displayed 7-mer peptide library, we identified one peptide that showed strong affinity for the dimer TCTP (dTCTP). The peptide named dTCTP-binding peptide 2 (dTBP2) blocked the action of HRF by inhibiting binding to the cell surface. Specifically, dTBP2 inhibited the release of IL-8, an inflammatory cytokine, by inhibiting dTCTP-induced NF-κB and MAPK from human bronchial epithelial cell line BEAS-2B. In addition, dTBP2 dose-dependently reduced the symptom score and eosinophil recruitment to the nasal mucosa in OVA-induced allergic rhinitis mouse model, suggesting that in vivo inflammation-mediated airway pathology was alleviated. In this study, we showed that inhibition of dTCTP could alleviate allergic pathology and showed that dTCTP could be a new drug target for chronic allergic diseases such as allergic rhinitis.

Biography

Heewon Lee is presently pursuing her MS-PhD integrated course in Pharmaceutical Sciences in College of Pharmacy, Ewha Woman's University, Seoul, Korea. She completed BS in Pharmacy College of Pharmacy, Ewha Woman's University, Seoul, Korea. She was awarded with University Scholarship & also has a Korean Pharmacist License. Her research includes studying the function of TCTP/HRF, a multifunctional protein. TCTP/HRF was found in body fluids of allergic patients and its importance was recognized, but the receptor and its mechanism of action were not yet known. Her ultimate goal was to find the HRF receptor, but attempts to isolate and identify it were unsuccessful. In the process, however, she discovered a functional domain that is thought to be the receptor binding domain of HRF. Antibodies targeting this region are being produced and the antibodies with good efficacy will be selected as HRF inhibitors.

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Boris Ferko et al., J Allergy Ther 2017, 8:3(Suppl)
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Preclinical development of a novel glutarimide derivative – a candidate oral drug for allergic asthma therapy

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We tested the efficacy of a novel biogenic peptidoamine compound, glutarimide histamine (XC8) in mouse, rat and guinea pig asthma models. Sensitized animals underwent oral treatments for at least 10 consecutive days with titrated doses of XC8 or corticosteroid reference drugs. In mice, XC8 efficiently inhibited eosinophilic lung inflammation of acute asthma disease onset, suppressed mucus hypersecretion, antigen-specific serum IgE or IgG1 titres, and methacholine-induced airway hyperresponsiveness (AHR). In Sephadex-induced migration of eosinophils in a rat model XC8 decreased the content of eosinophils in bronchalveolar lavages (BAL) 2.6-6.4 times. In guinea pig models of asthma and antigen-induced bronchospasm, XC8 reduced the number of degranulated mast cells and basophils in the lung tissue and the degree of degranulation. Moreover, XC8 also reduces hyperactivity of the lungs and reduces mortality of the animals from anaphylactic reactions. Chronic toxicity studies in rats and dogs revealed an excellent safety profile of XC8. In vitro experiments indicated that the mode of XC8 action might be associated with the suppression of glutaminyl cyclase - an enzyme that converts the immature form of chemokines (CCL2, CCL7, CCL8, CCL13) into the mature form by the reaction of pyroglutamination, thus suppressing the chemokine-driven migration of eosinophils and other cells into the inflammation area and the degranulation of mast cells and basophils. Our data demonstrate that XC8 efficiently suppresses experimental allergic asthma and provide support for its use as a treatment for human allergic asthma.

Biography

Boris Ferko is presently working at EURRUS Biotech GmbH, Austria.

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Luiz Werber-Bandeira et al., J Allergy Ther 2017, 8:3(Suppl)
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The clinical importance of genetic diversity of the β2-adrenergic receptor gene assessed by mapping of the encoding region and by single-based polymorphisms present in a Brazilian population

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Background: The gene encoding the adrenergic β2 receptor (ADRβ2) located on chromosome 5q31-32 presents a high allelic diversity characterized by the presence of several single nucleotide polymorphisms (SNPs) associated with different receptor activities at the cellular levels. 45 SNPs have been identified along this gene, some with significant effect on clinical response to β2-agonists. The allelic distribution varies with ethnicity and due to alterations in sensitization and down regulation of these receptors. The existing studies refer to ethnically homogeneous populations, with no data on the distribution of these SNPs in ethnically mixed populations, although certain haplotypes appear to directly affect receptor function.

Objective: The objective of this study was to determine the prevalence of previously described SNPs in the coding region of the ADRβ2 gene, as well as to identify new SNPs in a group of individuals living in Rio de Janeiro through sequencing technique.

Patients & Methods: DNA samples from 162 individuals were subjected to PCR amplification and genotyping by sequencing.

Results: Analysis of the sequences generated identified the presence of nine different SNPs 46 (G>A), 66 (C>T), 79 (C>G), 252 (G>A), 455 (T>G), 470 (T>G), 491 C>T, 523 (C>A) e 579 (C>T) within the sequenced region (899 bp), from which, three: 455 (T>G), 470 (T>G), and 579 (C>T) were not yet described, and the characterization of 14 different haplotypes. The SNPs in codons 27 and 164, two of the most studied, showed different frequencies from those observed in other populations. The SNP in codon 27 was: 8.1% versus 24% in Caucasian-Americans and versus 18.7% in African-Americans. The SNP in codon 164 was: 4.6% versus 1% in Caucasian-Americans and versus 2% African-Americans. The SNP at codon 16, Arg16Gly, showed similar frequency to the one found in the literature in Caucasians and Chinese ethnicity: 54.9% vs. 39%, and 42% and 51% respectively.

Conclusion: The results of this study, although represent a partial mapping of the coding region of the ADRβ2 gene, demonstrated the diversity of this gene, of great clinical importance. The results represent the first data on the partial mapping of the gene ADRβ2 in an ethnically mixed population.

Biography

Luiz Werber-Bandeira is the Head of Clinical and Experimental Immunology Unit - Santa Casa de Misericórdia do Rio de Janeiro, Brazil. He has a degree in Medicine; completed his Post-doctorate in Immuno-Genetics and; PhD in Medicine-Immunology-Dermatology at Federal University of Rio de Janeiro. He is also specialized in Clinical Immunology-Allergy at Federal University of Rio de Janeiro. He is Reorganizer of the Clinical and Experimental Immunology Unit - Santa Casa da Misericórdia, Rio de Janeiro.

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Tatiana Chioro et al., J Allergy Ther 2017, 8:3(Suppl)
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Allergic onset against hyaluronidase used to treat overcorrection of hyaluronic acid filler injection

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Hyaluronic acid (HA) is biocompatible, easy-to-use, and reversible filler which is broadly-based filler in cosmetic medicine. More and more, non-expert physicians and non-physicians practitioners have been performing fillers in a large number of patients, which notices a high risk of unwanted outcomes, either in efficacy and safety fields. Unwanted results can mean overcorrection and asymmetries, as well as adverse events against these injectable fillers. Although HA-based fillers are defined as temporary materials, they can last up to 12 months or longer. Hyaluronidase is an endogenous enzyme that has a potent activity, which lets it to hydrolyze tissue HA, which is the key element of connective tissue. Given that, commercial hyaluronidase, when injected in areas wherein HA-based filler was placed, destroys HA and gives the possibility to adjust overcorrection and asymmetries. Although hyaluronidase has been used worldwide, only a few allergic reactions have been reported. Most of the described patients showed allergic reactions after peribulbar anesthesia for eye surgery despite the large use of HA fillers in aesthetic medicine. A 29-year-old Brazilian female patient was subjected to a 0.01 mL hyaluronidase injection (Pineda Laboratories, Sao Paulo, Brazil) in order to treat a malar hypercorrection as result of filling with HA. After about 10 minutes, she evolved with discrete erythema and edema at the injection site. A vial of 1 mL intramuscular injection of 5 mg/mL betamethasone dipropionate+2 mg/mL betamethasone disodium phosphate 2 mg/mL (BetaTrinta, Eurofarma, Sao Paulo/SP, Brazil) was immediately administered. After 1 hour, however, the patient presented an intense edema in her left hemiface, which suggested angioedema onset; this adverse event was immediately treated by injecting 4 mL of 500 mg hydrocortisone sodium succinate which helped her to clinically overcome such condition. Though, the patient was discharged to home with 40 mg/day/3 days of micronized prednisolone. A complete clinical improvement was observed in five days. In summary, side effects against hyaluronidase injections are rare in accordance with already published scientific literature; however, it is extremely important for professionals of cosmetic medicine to be an emergency conduct at their office.

Biography

Tatiana Chioro is a Brazilian Physician with experience in Cosmetic Dermatology. She is Member of Brazilian Society of Dermatology, American Academy of Dermatology and European Academy of Dermatology and Venereology. She is also an MSc candidate at Hospital do Servidor Público Estadual – IAMSPE, Brazil.

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Tomomitsu Miyasaka et al., J Allergy Ther 2017, 8:3(Suppl)
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Male-dominant suppressive activity of CD8+ T cells on CD4+ T cells: Assessing female-dominant allergic airway inflammation

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Statement of the Problem: Bronchial asthma is more severe in females than in males after puberty because of stronger Th2-oriented immune response in females. However, the mechanism of the sex difference in asthmatic immune response remains unclear. CD8+ T cells play an important role in regulating the asthma immune response through their suppressive effect on Th2 polarization within the localized lymph nodes.

Theoretical Orientation: In the present study, we investigated the sex-specific effect of CD8+ T cells on the female-predominant asthmatic immune responses using a mouse model.

Results: The number of eosinophil in bronchoalveolar lavage (BAL) fluid, lung Th2 cytokine levels, and IL-4 production by bronchial lymph node cells were significantly higher in wild-type female compared with male mice, whereas no such sex differences were observed between cd8α-disrupted (CD8KO) male and female mice. The adaptive transfer of wild-type male, but not female, CD8+ T cells reduced the number of inflammatory cells in the recovered BAL fluid of CD8KO male, but not female, recipient mice. Male CD8+ T cells produced higher levels of IFN-γ than female CD8+ T cells. Treatment with anti-IFN-γ antibody completely abrogated the sex difference in the suppressive activity of CD8+ T cells on IL-4 production from CD4+ T cells. However, IFN-γ receptor expression on CD4+ T cells was higher in male mice than in female mice. rIFN-γ treatment increased the proportion of IFN-γ receptor α+ CD4+ T cells in male naïve CD4+ T cells more than in female naïve CD4+ T cells.

Conclusion & Significance: These results suggest that female-dominant asthmatic immune responses are induced by the reduced production of IFN-γ by CD8+ T cells and the lower expression of IFN-γ receptor on CD4+ T cells caused by exposure to IFN-γ in females compared with males.

Biography

Tomomitsu Miyasaka completed his PhD at Tohoku University, Japan. He is an Assistant Professor at Tohoku Medical and Pharmaceutical University, Japan. His research area is Allergy, and he is interested in determining the mechanism(s) that are responsible for the altered asthma severity by sex or related to psychological stress.

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Areum Kim et al., J Allergy Ther 2017, 8:3(Suppl)
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Immunomodulatory potency of *Sargassum horneri* via increasing regulatory T cells and suppressing the mast cell activation

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Sargassum horneri, a species of brown macro algae, has been reported to have several health promoting effects such as anti-viral, anti-coagulant effect, and anabolic activity on bone metabolism or higher plumbum absorption. In the present study, we investigated the immunomodulatory activity of *S. horneri* using murine splenocytes and bone marrow cultured mast cells. *S. horneri* was enzymatically hydrolyzed using the celluclast (SHC). Polyphenol-rich fractions from S. horneri (SHP) were also used for assessing the anti-allergic activity in BMCMC. SHC induced the proliferation of splenocytes without cytotoxicity. Treatment with SHC led to a significant increase in the population of CD8+ T cells, CD8+CD25+ regulatory T cells, and granulocytes. SHC also increased the secretion of IFN-γ. Meanwhile, SHP didn't show any cytotoxicity in BMCMC but significantly decreased the release of β-hexosaminidase in stimulated BMCMC. SHP also decreased the mRNA expression of IL-4, IL-6, IL-13, and TSLP in BMCMC. These findings indicate that *S. horneri* might modulate the Th2-type immune responses in immune-mediated disease. Therefore, *S. horneri* could be an excellent candidate for an anti-allergic agent.

Biography

Areum Kim is a PhD student at Jeju National University, Republic of Korea. He has research interest in Immunology and Radiobiology. He completed his BA in Nuclear and Energy Engineering at Jeju national University, South Korea from 2009-2013 and; MS in Interdisciplinary Graduate Program in Advanced Convergence Technology & Science at Jeju National University, Korea from 2013-2016.

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Jinhee Cho et al., J Allergy Ther 2017, 8:3(Suppl)
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The role of CD244 on pathogenesis of experimental autoimmune encephalomyelitis

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CD244 is a member of the signaling lymphocyte activation molecule (SLAM) family and can exhibit either activating or inhibitory effect on the cytotoxic activity of cells, depending on the density of its ligand CD48 and the availability of its adaptor protein SLAM-associated protein SAP. Although the role of CD244 has mainly been studied in virus infection, its role in autoimmune disease has not been well defined. In the present study, we examined the regulation of CD244 expression in experimental autoimmune encephalomyelitis (EAE), an induced model of autoimmune disease, and determined that the role of CD48 expression on T cells was markedly changed during EAE progression. To determine the type of CD244-expressing cells affected during the EAE progression, flow cytometry analysis was performed. In the spleen of naïve mice, most of the CD244-expressing cells were NK1.1+ NK cells although NK cells were not the major population in the spleen compared to T cells. In addition, the number of CD244+ NK cells was significantly decreased in early and peak stages of EAE compared to the naïve control. At the recovery phase, the numbers of CD244+ CD4+ T cells and CD244+ CD8+ T cells were increased relative to naïve levels, respectively, while the number of CD244+ NK cells returned to the naïve level, consistent with other reports which considered CD244 as one of exhaustion markers in various diseases. In addition, high CD48 expression was associated with IL-17a production. The reduction of CD244 expression in NK cells that infiltrated into the CNS appeared more dramatic than that in the periphery. Our results suggest that CD244 expression correlates with NK cell function during EAE progression.

Biography

Jinhee Cho is a PhD student at Jeju National University, Republic of Korea. He has research interest in Immunology, especially Th1/Th2 type immune responses. He completed his BA in Veterinary Medicine at Jeju National University, South Korea from 2008-2014 and; MS in Veterinary Medicine at Jeju National University, South Korea from 2014-2016.

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Inhwa Choi et al., J Allergy Ther 2017, 8:3(Suppl)
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Effectiveness and safety of combination treatment of herbal medicines and oral antihistamines for atopic dermatitis: A retrospective chart review

Inhwa Choi, Younghee Yun, Jaewoong Son, Kyuseok Kim, Bo-Hyeong Jang and Seong-Gyu Ko
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Patients with atopic dermatitis (AD) exhibit various symptoms, especially itching. Recently, herbal medicines (HMs) are being used in combination with antihistamines for the treatment of AD in Korea. While oral ntihistamines can alleviate itching, HMs appear to exert anti-inflammatory effects with minimal side effects. However, there is little evidence regarding the effectiveness and safety of using HMs in combination with antihistamines for AD. To observe the effectiveness and safety of combination treatment with HMs and antihistamines, we performed a retrospective chart review of inpatients with AD who received this combination treatment for at least 7 days in a hospital. Of 163 inpatients, 40 met the inclusion criteria. All patients received HMs three times, and one or two antihistamines, a day after HM intake. A large proportion of patients received first-generation antihistamines. HMs comprised a mixture of an average of 20.69 different herbs in decoction. The mean total, objective, and subjective SCORing Atopic Dermatitis scores showed a significant decrease after combination treatment. Changes in the mean levels of aspartate transaminase, alanine transaminase, blood urea nitrogen, and creatinine were not statistically significant among treatments. There were no adverse events of pseudoaldosteronism or interstitial pneumonia. We observed that the short-term use of HMs in combination with oral antihistamines was safe and effective, with a low risk of adverse reactions. This study was limited by its retrospective design, and prospective studies with long-term follow-up periods are warranted to further elucidate the safety of this combination treatment for AD.

Biography

Inhwa Choi is working for Kyung-Hee University Hospital at Gangdong. Her specialties are in the areas of atopic dermatitis (AD) and allergic diseases, such as allergic rhinitis, asthma and allergic contact dermatitis. Her special interests include disorders of the immune system and she has devoted her time and knowledge to help her patients reinforce and strengthen their resistance to these ailments through Korean medicine.

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Notes:

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e-Poster

Zubchenko S et al., J Allergy Ther 2017, 8:3(Suppl)
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Molecular approach to optimal choice of specific immunotherapy of patients with sensitization to weed pollen allergens

Zubchenko S and **Danylo Halytsky**
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Introduction: The problem of pollen allergy including pollen of weeds is important for the population of Western Ukraine, including Lviv region.

Aim: Aim of this study is to compare possibility of SPT and component diagnostics to select appropriate specific immunotherapy.

Materials & Methods: 48 patients of both the sexes, aged 18-65 years, residents of Lviv region with seasonal allergic rhinitis/conjunctivitis, were selected according to primary stay in the first week of August this year. SPT performed to extract pollen allergens from local sources including a mixture of weeds, grasses and extracts of ambrosia, ragweed and timothy. ImmunoCAP was used for molecular researches of sIgE.

Results: In 50% of patients, positive SPT was found to mixture of weed, extracts of ambrosia, ragweed and grass mixtures. This indicated co-sensitization to various sources of allergens. 30% of patients had mono-sensitization to weeds pollen, and 20% mono-sensitization to grass pollen. However, simultaneous sensitization to pollen of ambrosia, ragweed and timothy has not been proven by molecular researches. Instead, 20% of patients identified sensitization to ragweed and ambrosia, 30% of people identified mono-sensitization to ambrosia and 20% mono-sensitization to ragweed. Most (70%) of patients with mono-sensitization to pollen of weeds identified specific IgE to Art v1 and/or Art v3, and/or Amb a1. False positive results of SPT indicated that co-sensitization to grasses and weeds can be explained by the presence of sIgE for cross-reactive markers of profilin Phl p 12 and polcalcin-Phl p 7.

Conclusion: On the basis of SPT and molecular researches, doctor takes a fundamentally different decision on the selection of extracts for specific allergen immunotherapy. Optimal allergic immunotherapy is based on the identification of primary sensitizer and cross-reactivity markers.

Biography

Zubchenko S is pursuing her PhD in Medical Sciences and is an Assistant Professor at Danylo Halytsky Lviv National Medical University in Department of Clinical Immunology and Allergology. She is a Clinical Immunologist and Allergologist. She was a participant of numerous congresses, conferences, training courses, which are organized by EAACI.

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Marta Lomikovska, J Allergy Ther 2017, 8:3(Suppl)
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Clinical picture, diagnostics and condition of the immune system in patients with reactive arthritis against the background of Epstein-Barr virus infection

Marta Lomikovska
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Introduction & Aim: The problem of reactive arthritis (ReA) is related to its prevalence, diagnostic difficulties, involvement of many organs and systems in the pathological process, insufficiently effective treatment. Aim of this study is to study the clinical and immunological features of the course and diagnostics of ReA against the background of Epstein-Barr virus infection.

Materials & Methods: 24 patients with clinical manifestations of arthritis have been examined. General laboratory, immunological, serological and molecular genetic studies to determine EBV-infection has been conducted for the patients.

Results & Discussion: Clinically, all patients experienced arthralgic. In addition, six (25%) people have been diagnosed with long-lasting subfertility, 16 (66.67%) - chronic fatigue syndrome, seven (29.1%) - respiratory immunodeficiency. According to the results of research, five (20.8%) patients had positive rheumatoid factor, six (25.0%) - increased ESR, 10 (41.7%) - increased AS (L) O level, and five (20.8%) - increased concentrations of CRP. High titers of specific antibodies of class IgM, IgG to capsid and nuclear antigens EBV and EBV-DNA have been found in saliva, mucous membrane scraping and blood of the patients by the method of polymerase chain reaction. The immunogram analysis more often pointed to the presence of immunodeficiency by the combined lymphocytic-phagocytic type in 18 (75%) of the examined, among whom lymphocytosis was observed in seven (29.1%) patients. The increased number of natural killer cells was determined in nine (37.5%) patients, and in 13 (54.1%) - changes of CD8+-lymphocytes. 13 (40.6%) patients had increased levels of T-helper cells which can be interpreted as a prerequisite for the formation of auto aggression. Patients were treated with antiviral, immunotropic, symptomatic therapy, specific immunoglobulins.

Conclusions: ReA of EBV-origin was most often found in women (70.8%) aged 18-35, and was characterized by an increase rheumatoid factor (20.8%), CRP (20.8%), AS (L) O (41.7%), ESR (25%) against the background of the absence of autoantibodies specific for rheumatoid arthritis.

Biography

Marta Lomikovska completed her Medical Studies at Danylo Halytsky Lviv National Medical University and internship on Speciality Therapy at Lviv National Medical University and Lviv Regional Clinical Hospital. From 2003 to 2008, she worked at the Sokilnyky Medical Clinic as a Therapist. From 2011 till 2013, she is working in Clinical Immunology and Allergology Department at Lviv National Medical University. From 2014 and till now, she is also working as Assistant Professor in the same department. She is an author of 15 scientific publications in national and international journals.

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Notes:

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Accepted Abstracts

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Normocomplementemic urticarial vasculitis in a pediatric patient with chronic sinusitis: A case report

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An eight-year-old female presented with generalized multiple, non-pruritic, erythematous, well-defined irregular-bordered lesions and wheals which blanched upon pressure on trunk and extremities. The patient had seven months history of recurrent sinusitis being treated with antibiotics. The lesions were noted one day after discontinuation of seven days of coamoxiclav. The lesions transformed into erythematous to a slightly violaceous, slightly pruritic non-blanching type, associated with pain, warmth and edema on joints of the hands, palms and soles. Skin biopsy initially showed findings consistent with urticaria but clinically, the patient was managed as a case of small vessel vasculitis. The patient was maintained on oral steroids. Complement levels were normal and lupus panel was negative. There was a diagnostic dilemma between chronic urticaria and small vessel vasculitis. Re-evaluation of the skin biopsy specimen was done which confirmed urticarial vasculitis; hence, colchicine was added to the treatment regimen. There was still persistence of the lesions hence she was referred to a specialty center for allergic conditions in the USA for further evaluation and management. The case was finally diagnosed as normocomplementemic urticarial vasculitis probably due to chronic infection versus drug-induced (coamoxiclav versus clindamycin). Hydroxychloroquine was added to control the symptoms and oral steroids were weaned until finally discontinued. The lesions resolved and the disease was treated accordingly with favorable outcome.

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Animal Models of Asthma in drug discovery: Bench to bedside

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Statement of the Problem: Asthma is a complex syndrome with many clinical phenotypes in children and adults. Despite the rapidly increasing prevalence, clinical investigation and epidemiological studies of asthma, the successful introduction of new drugs has been limited due to the different disease phenotypes and ethical issues. Number of drugs that have been shown to have some efficacy in animal models of asthma have shown little clinical benefit in human asthmatics. This may be due to a number of factors including the species of animal chosen and the methods used to induce an asthmatic phenotype in animals that do not normally develop a disease that could be characterized as asthma. The range of animal models available is vast, with the most popular models being rodents (inbred mice and rats) and guinea-pigs, which have the benefit of being easy to handle and being relatively cost effective compared with other models that are available.

Despite of many advances in technology, there are a number of issues with current animal models of asthma that must be recognized including the disparity in immunology and anatomy between these species and humans, the requirement for adjuvant during senitization in most models, the acute nature of the allergic response that is induced and the use of adult animals as the primary disease model.

Research in this area continues to expand, the relative merits and limitations of each model must be defined and understood in order to evaluate the information that is obtained from these models and to extrapolate these findings to humans so that effective drug therapies can be developed. Despite these issues, animal models have been, and will continue to be, vital in understanding the mechanisms that are involved in the development and progression of asthma.

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Latin American consensus on the supportive care of patients suspected or diagnosed with SCID before curative treatment

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Background: Severe Combined Immunodeficiency (SCID) is lethal without treatment. Hematopoietic stem-cell transplantation (HSCT) and gene therapy represent the only way to rescue the phenotype and cure the patient. Developed countries diagnose more and earlier SCID and are able to carry HSCT within 3 months in the majority of their patients. Latin American countries represent part of the developing world were diagnosis and treatment are severely delayed maximizing vulnerability and negatively affecting clinical outcomes in patients with SCID. Supportive care is crucial in order to keep patients alive and in fit status to receive definitive treatment. Clinical scenario of patients from Latin America are very different from developed countries and require specific interventions, which to the best of our knowledge is very heterogeneous between different countries.

Objective: Provide a practical guideline for supportive treatment based in consensus from experienced immunologists in Latin America.

Methods: We performed an extensive literature review and asked for advice and local guidelines from experienced immunologists at specialized centers from USA, Canada, Italy, England, France, Sweden, Germany, Argentina, Brazil and Colombia) to develop a list including all the supportive and general treatment measures for SCID patients. We then developed a consensus via modified-Delphi technique to agree on the pertinence of applying such interventions within the context of Latin America reality.

Results: We developed a final document consisting of 86 agreed diagnostic and therapeutic interventions grouped in 8 domains (i.e. protective isolation; antimicrobial prophylaxis, intravenous human immunoglobulin replacement; immunizations; nutritional interventions; infections and antimicrobial treatments; use of blood-products; laboratory work-up; imaging and other studies; multisciplnary work).

Conclusions: This is the first document that tries to homogenate clinical decisions in the diagnosis and treatment of SCID patients in the context of Latin America reality. We think this will serve to give a starting point to analyse and develop further improvements in the care of such vulnerable patients. This document is useful not only for immunologists, but also primary care physicians and other specialists involved in care for SCID patients.

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Decrypt the link of the ongoing leak: A case of idiopathic systemic capillary leak syndrome (Clarkson's disease): A case report

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Introduction: Idiopathic systemic capillary leak syndrome (ISCLS) or Clarkson's disease is an extremely rare and fatal condition characterized by episodic attacks of capillary leakage of plasma from the intravascular to the interstitial space resulting in hypotension, hemoconcentration, and hypoalbuminemia. If not diagnosed early, it has a high morbidity and mortality rate. Treatment is supportive, focusing on aggressive but cautious fluid resuscitation together with pharmacologic treatment to control capillary leakage. Each attack varies in severity and can be life features threatening due possible organ failure secondary to poor perfusion.

Aim: This study aims to raise awareness of the main presentation of ISCLS, to explain the possible pathophysiology, clinical course of the disease, to differentiate with other causes of distributive shock and to present the latest recommendations on treatment and prevention based on limited evidences available.

Case Presentation: Our case is a 38 year old male who initially experienced flu-like symptoms such as body malaise, headache and generalized weakness. He was previously treated as a case of community-acquired pneumonia, high risk, admitted at intensive care unit. He claimed to have a history of allergy to seafood and medications such as paracetamol and antibiotics. In the emergency room, patient was hypotensive and was managed as a case of anaphylactic shock. He was hydrated, started on inotropic agents and corticosteroid. Work-up tests revealed severe hemoconcentration, hypoalbuminemia, metabolic acidosis, and hyperkalemia. No focus of infection was documented. He remained stable with negative fluid balance until the fourth hospital day, when he suddenly developed pulmonary edema. Patient was managed with diuretics, airway support and inotropics. Patient condition improved and was discharged on 10th hospital day.

Conclusion: ISCLS is a rare and fatal disease that has a high mortality if not detected early. Therefore, prompt recognition is important in the effective management of the disease and its complications.

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HAGE-derived vaccines for the treatment of patients with TNBC patients that are predicted to have high risk of relapsed and poor survival rate, as assessed by a newly identified immune-gene signature

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Triple Negative Breast Cancer (TNBC) consists of very heterogeneous subgroups of breast cancers with significant clinical challenge, the prognosis and treatment of which remains poor and limited due to the lack of targeting structures for existing therapies. We hypothesised that disease recurrence and therapeutic resistance in those patients could be influenced/predicted by tumour-related immune-regulatory events that are reflected by changes in the immune phenotypes in the periphery. It is conceivable that the analysis of immune gene transcripts in the blood will inform clinical decisions and help predict which patients are likely to respond/benefit from chemo- and/or immune-therapy. Although, breast cancer has not traditionally been viewed as being particularly susceptible to immunotherapeutic approaches, recent evidence has demonstrated a role for immune surveillance in determining patient outcome. Moreover, recent data suggest that some patients with TNBC may benefit from immune-stimulating therapies that may act synergistically when combined with chemotherapeutic drugs and tumour vaccines targeting cancer specific antigens (CSAs) expressed in TNBC. We have found that the cancer testis antigen HAGE (DDX43, CT13) is expressed in 43% of patients with TNBC. In this study, we have assessed the potential value of a newly identified HAGE-derived vaccine, as administered using two different delivery systems, for the treatment of TNBC patients using pre-clinical models. We have also used the nanoString nCounter™ FLEX amplification-free gene profiling platform to determine whether the immune-related-gene profiles in the PBMC of TNBC patients could predict patients with high risk of recurrence and poor survival rate. We therefore propose that TNBC patients with such a gene profile may benefit from a HAGE-derived vaccine.

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Asthma management according to bts (british thoracic society) guidelines at Ealing hospital

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Asthma is a common condition which produces a significant workload for general practice, hospital outpatient clinics and inpatient admissions. Much of this morbidity relates to poor management particularly around the use of preventative medicine. In 1999 the British Thoracic Society (BTS) and the Scottish Intercollegiate Guidelines Network (SIGN) agreed to jointly produce a comprehensive new asthma guideline. Between 2004 and 2012 sections within the guideline were updated annually. Subsequently, updating moved to a biennial basis, beginning with the 2014 update. The new guideline was issued in 2016. The guideline provides recommendations based on current evidence for best practice in the management of asthma.

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Hepatopulmonary syndrome (HPS)

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Case Presentation summary: 55 year old gentleman, Married with three children, currently unemployed, normally fit and well, Known Type 2 Diabetes Mellitus (on metformin) Pancytopenia with Macrocytosis(two Bone marrow biopsies. Reduced Cellularity and bone marrow trephine was inadequate. HIV negative)Patient presented to Ealing Hospital on 9/9/16 with a dry cough and increased shortness of breath, on a background of chronic progressive dyspnoea. CT Chest excluded pulmonary embolism or significant pneumonic process. CT study of the abdomen showed moderate cirrhosis of the liver, with portal hypertension and splenic and gastric varices. OGD confirmed oesophageal varices. The aetiology remains unclear; liver screen showed normal autoantibodies, Heptititis screen negative along with negative gene for haemachromatosis in the past as per Gastroenterology clinic letters.Ventilation perfusion studies of the lung showed evidence of a right to left shunt, although could not determine cardiac or pulmonary origin.Subsequently he had an initial TOE which showed Normal RV size and function with no evidence of cardiac shunt on Doppler studies.The TOE suggested the possibility of a right to left shunt but the picture quality was suboptimal Patient had another review by cardiology Consultant who performed a contrast TTE on 12/12/2016 which confirms the presence of a Right to Left shunt with agitated gelofusine microbubbles appearing in the left atrium 5 cardiac cycles after appearing in the right atrium. Cardiac MRI does not show evidence of a cardiac shunt and with a Qp:Qs ration of <1.0 supports the possibility of a right to left shunt.In summary the above findings are compatible with Pulmonary Right to Left shunt.Patient will be presented in the cardiac MDT and was given cofmirmed diagnosis of HPS Patient was reviewed by the Gastroenterology team while in patient and discharged home with Home oxygen and referred to Liver transplant unit king's college London.

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Standardized testing of filter systems regarding their separation efficiency in terms of allergenic particles and airborne germs

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Airborne germs and allergens in indoor air rank among the most important environmental risk factors for human health resulting in inflammatory diseases of the airways, such as asthma or allergic rhinitis. Besides medical treatment methods, the simple prevention of allergen contact is the most effective allergy protection strategy. As each person spends about 80% of his life in an indoor environment, air conditioning and ventilation devices have to meet very high standards regarding the separation of bioactive substances. Filters are generally tested using well defined mineral test dusts in order to obtain information regarding separation rates for certain particle sizes. However, from the separation rates for mineral dust particles, no direct conclusion on allergens and germs can be drawn. The separation efficiency of particularly fine, respirable particles is beside their particle diameter and shape, also defined by density and physicochemical properties. Numerous studies have shown that not only the intact pollen but also much finer particle fractions show an allergenic effect, which due to their potential for lung deposition, may even pose an added health risk to humans. In this context, particulates (fine dust) also seem to play an important role as carrier for allergenic proteins. However, filtration tests with dust from the environment are not sufficiently standardized. The OFI developed a test system that allows a standardized testing of filters regarding the separation of bioactive substances. Besides allergens from intact and fractured pollen, also allergenic proteins bound to particulates and spores of allergenic moulds (e.g. *Cladosporium cladosporioides*) can be used to classify filters regarding their separation rates. The test procedure, which is done in laboratory scale, was validated regarding its sufficiency to cover real life situations by up-scaling using air conditioning devices showing great conformity. Additionally, a clinical study with allergy sufferers was performed to verify analytical results.

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Audit assessing Omalizumab treatment for Chronic Spontaneous Urticaria to NICE guidelines

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Background: Chronic spontaneous urticaria (CSU) is an autoimmune skin disease defined by recurrent hives and angioedema over 6 weeks with no identifiable triggers. Omalizumab, a recombinant humanised monoclonal antibody, is approved by NICE as an add on therapy for CSU in patients over 12 years since 2015.

Objectives: To examine how Omalizumab treatment for CSU meets standards set by NICE guidelines TA339.

Method: A retrospective study of 37 patients who commenced their first course of six monthly subcutaneous injections between July 2015-January 2017 at the Regional Immunology and Allergy Unit, Newcastle-Upon-Tyne Hospitals Trust were identified on the department database. 9 patients who have not completed 6 doses were excluded from the treatment part of the analysis.

Results: Of the 37 patients (age range 19-82, average 48, Female/Male: 33:4) 100% have no response to antihistamine and montelukast documented and 87% have a significant objective score >28 completed. Of the 36% who did not respond to treatment at the 4th dose- 20% stopped treatment appropriately, 50% did not stop treatment, 20% were not recorded and 10% stopped from adverse reactions. Of those who continued to finish 6 doses 80% stopped while 20% did not stop.

Conclusion: Pre injection standards and treatment stopped after 6 doses were met well. Non-responders did not stop treatment after the 4th dose due to adjustments made to disease flares, other immunosuppressant medications taken during treatment and extended gaps between doses.

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