LATE BREAKING POSTER SESSIONS – SUNDAY

Late Breaking Poster Session 1

Clinical and experimental immunology

1736
Long-term follow-up of CD4+ T cells in peripheral blood and CSF after autologous hematopoietic stem cells transplantation in multiple sclerosis patients

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Autologous stem-cell transplantation (ASCT) has been shown to have the potential to induce dramatic and long – term improvements in a range of autoimmune disorders, but the exact mechanisms of ASCT impacts remain largely unknown. Studies on immune reconstitution following ASCT had shown a profound lymphopenia in the first year after transplantation, which was observed to affect the lymphocyte subsets differently, with the recovery of CD4+ T cells consistently delayed. The aim of our study was a long-term follow up of CD4+ subsets in peripheral blood (PB) and cerebrospinal fluid (CSF) after ASCT. Ratio of CD4+ at baseline in all patients was from 44.9% to 75% in PB and from 42.1 to 64.8% in CSF. After ASCT CD4+ T cells in PB dramatically decreased and only slightly recovered during the follow up period. At 12 (24) months after ASCT CD4+ lymphocytes were from 15.6% to 33.3% (25.4–35.7%) in PB and 48.7–57.2% (44.1–59.2%) in CSF. Predominance of CD4+ lymphocytes in CSF of MS patients is consider as document of the pathogenic role of this subsets in MS. ASCT provides a way to achieve the eradication of the existing immune system. Immune reconstitution from haematopoietic progenitors cells after ablation of the mature immune system has the potential to reset the autoimmune disease to an earlier, latent phase of disease development. Successfulness of this way in MS treatment should be affected by certain rate of inviolability of lymphocytes in CNS by immunoablation.

1737
Preterm neonates show a marked leukopenia mediated by increased regulatory T cells values and diminished IL-7 levels

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Background: Advances in neonatology over the last years have contributed to improved survival among premature and low birth weight infants. However, the risk of neonatal death in prematures is much greater than in full-term neonates. The objective was investigate whether the high incidence of infections in preterm infants is due to an immune deficiency and in this case, to identify which immune populations can be implicated in the absence of an adequate immune response.
Method: Frequency and absolute counts of different immune populations including regulatory T cells (Treg) were determined by flow cytometry in 211 cord blood samples from very preterm to full-term neonates. Thymic function and IL-7 plasma levels were also analysed.
Result: We found that absolute counts of all the immune subsets analysed (i.e. monocytes, granulocytes, B cells, NK cells, CD4+ and CD8+ T cells) are markedly decreased in prematures in comparison with full-term neonates. Analysis of thymic function shown that lymphopenia is not due to a lower thymic production of cells. However, we found that plasmatic levels of IL-7 and frequency of its receptor are significantly decreased in preterm infants. Moreover, we determine for first time the presence of Treg in preterm neonates and surprisingly we observed that Treg is the only immune subset that is not decreased in prematures and its frequency is even higher that in full-term infants.
Conclusion: Treg play an essential role in the materno-fetal tolerance, but its suppressive role joined to the observed deficiency in IL-7 could be responsible of the leukopenia and lymphopenia observed in preterm infants. Early identification of leukopenias and implementation of immune therapies could diminish significantly the mortality in preterm neonates.

1738
Study of cytokine status and substance P in frequently ailing children with acute respiratory viral infections

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Background: According to the scientific works, acute respiratory viral infections (ARVI) takes important part in the prognosis of respiratory diseases in childhood. These infections may be the cause of recurrency, complications, changing to the chronical type of respiratory diseases in children with weak immune system. The aim of our work was to study the cytokine status and substance P, mutual connection they in frequently ailing children with ARVI and to detect the influence of their changes to the respiratory diseases. The study included 96 FAC with respiratory diseases aged 3–15 years. The group with seldom ailing children – SAC (the children felt sick of ARVI to three times in a year) included 30 children. The control group included 30 healthy children.
Method: All patients have been examined in an acute period of the disease and during clinical remission. In all patients and healthy children we have defined the levels of cytokines IL-1β, IL-2, IL-6, IL-8, TNF-α, IFN-γ in serum and substance P.
Result: In FAC with respiratory diseases in the acute period of the disease increase of levels proinflammatory cytokines IL-1β, IL-6, IL-8, TNF-α and substance P, decrease of levels IL-2 and IFN-γ was

marked. Clinical remission in these children is not accompanied by normalization of cytokine status and substance P. We also studied the mutual connection between the cytokines and substance P in our patients. High positive correlation between IL-1β and substance P, negative correlation relations between IL-2 and IFN-γ with substance P is found.

Conclusion: The high levels of proinflammatory cytokines and substance P in clinical remission of disease testifies to proceeding of inflammatory process that is possible connected with persistantion of the infections agent. Acute decrease in level of cytokines IL-2 and IFN-γ in these children is caused by the presence of a immunodeficiency of cellular type. In this connection it is necessary to carry out an adequate therapy of FAC with ARVI.

1739
A single center experience of hematopoietic stem cell transplantation for primary immunodeficiency diseases

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Background: Primary immunodeficieny diseases (PID) are rare conditions resulting in increased susceptibility to infections, autoimmunity, malignancies and premature death. Hematopoietic stem cell transplantation (HSCT) has been used for nearly 40 years to ameliorate or cure primary immune deficiency diseases.

Method: We retrospectively analyzed the patients with PID who underwent HSCT at Akdeniz University School of Medicine, Departments of Pediatric Hematology/Oncology and Immunology/Allergy in the period February 2004–April 2010. The Study group included eight Severe Combined Immunodeficiency (SCID), four Wiskott Aldrich Syndrome (WAS), four Severe Congenital Neutropenia (SCN), three Griscelli Syndrome, two Chediak Higashi Syndrome, one Chronic Granulamatous Disease, one Leukocyte Adhesion Deficiency type 1(LAD1), one Hyper IgM syndrome, one CD4 lymphopenia. Twelve patients received cord blood, nine patients peripheral blood stem cell and five patients bone marrow. Conditioning regimen for 20 patients consisted of busulphan (BU) + cyclophosphamide (CY), for two patients BU + CY + Etoposide and for two patients BU + CY + Fludarabine. Two patients did not receive pretransplant conditioning. Cyclosporine A (CsA) was used for graft-versus-host-disease (GvHD) prophylaxis in 11 patients. Antithymocyte immunglobulin (ATG) + CsA + methotrexate (MTx) in three patients, ATG + MTx in three patients, and CsA + ATG in two patients.

Result: The overall survival was 64%. Five SCID, two WAS, one LAD1 and one CD4 lymphopenia were died few weeks after HSCT for disseminated infection (CMV, Candida) and venooclussive disease. Grade 1–3 acute GvHD developed in eight patients, and chronic GvHD in one patient. Disseminated CMV infection was occured in five patients and three of them was treated with Ganciclovir and Foscarnet. BCG reactivation was occured in three SCID patients and treated 6–12 months with multiagent antimycobacterial therapy. Venooclussive disease developed in three patients and two of them were treated. At the time of the last follow-up living four SCID had a complete T function, two patients require IVIG supplementation because of slow B cell reconstitution. The other PIDs are now alive and well with full chymerism.

Conclusion: Our data showed that HSCT appears to be reasonable treatment option for PID in reconstitution and correction of the immune system defects if early recognition, and rapid initiation of adequate supportive treatment were achieved.

1740
Differences in humoral and cellular immunity in young and old individuals

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Background: The immune system changes with the age. In this study we characterized immune changes by performing immunologic screening profiles on aging individuals.

Method: This study was performed at Akdeniz University, in the Faculty of Medicine, Department of Immunology. Healthy volunteers consisted of a young group (22 donors) and an older group (45 individuals). Flow cytometric analyses were performed using Epics Altra, Beckman Coulter devices in the Immunology and Flow Cytometry Unit of Internal Medicine Department of Akdeniz University Medical School. CD3, CD4, CD8, CD16, CD19, CD28, CD40, CD45, CD56, CD80, CD86, CTLA-4 were evaluated by flow cytometry and with ELISA IL-1 â, IL-2, IL-6, IL-10, IFN-γ, TNF-α expression were evaluated, along with and NK activity and induced cytokine expression (by bioassay/ELISA respectively). Results were analysed by Windows SPSS version 14 using descriptive analyses for means, Mann–Whitney *U*-test for nonparametric comparisons and Spearman Correlation and a Kruskal–Wallis test for correlation analysis.

Result: No statistical differences were observed between the two groups in expression of CD3, CD8, CD19, CD80, CD86, CD16, CD56 or CD28. A higher frequency of expression of CD4, CTLA-4, CD40 and CD45 was seen in older subjects by comparison with young subjects. Cytokine profiles expressed by stimulated monocytes from the two groups showed no difference in IL-1 â, IL-2, IL-6, IL-10, TNF-α and IFN-γ production levels.

Conclusion: In summary, we have catalogued changes which occur in a cohort of older volunteer individuals in southern Turkey. We observed no significant changes in a variety of cell surface markers depicting different cell subsets, and in multiple assays exploring cytokine expression and NK activity. However, expression levels of CTLA4, CD40 and CD45 were increased with age, supporting a hypothesis that an important feature of the aging process may be reflected in altered activation/numbers of functional Treg. This has important implications in understanding how best to alter immune responses in the elderly, particularly with response to vaccination (for infectious disease) and immunization strategies for malignancy. We found increased expression levels of CD40 and CD45 levels in healthy older (> 55 years old) *versus* young individuals (media age 28 years). CTLA-4 expression levels were also higher in elderly subjects, with no difference in CD28 expression levels between young/elderly individuals.

1741
Killer cell immunoglobulin-like receptor (KIR)/human leukocyte antigen (HLA)-C gene polymorphism in common variable immune deficiency

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Background: Common Variable Immune Deficiency (CVID), which is characterized by recurrent bacterial infections and failure in production of antibody; a high risk of developing cancer and autoimmunity is a heterogenic group of disease. In this study we aimed to observe Killer cell immuno-

globulin-like receptor (KIR) gene and Human leukocyte antigen (HLA)-Cw alleles in the CVID patients.
Method: Eighteen CVID patients and 15 healthy controls were included in this study. The typing of KIR gene and HLA-Cw alleles was made using polymerase chain reaction-sequence specific oligonucleotide (PCR-SSO) method. In comparing patients with controls Fischer exact test or Chi square test was used.
Result: Between the patients and controls of KIR gene and HLA-C1/C2 group alleles frequency, statistically significant difference was not determined, but HLA-Cw7 allele frequency was significantly low when compared to healthy controls ($P = 0.010$).
Conclusion: This study shows that there isn't any relationship between CVID and KIR gene and HLA-C1/C2 group alleles. But the determination of low HLA-Cw7 allele, which is an inhibitor KIR ligand, may have a partial role in the pathogenesis of this disease.

1742
IgE measurement by ImmunoCAP in thawn EDTA full blood

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Background: Retrospective analysis of blood samples is sometimes impaired as a consequence of inappropriate processing. It was our aim to measure total IgE and specific IgE antibodies for mite/cat/grass/tree in thawn EDTA plasma and thawn EDTA-full blood samples.
Methods: Venous blood from (non)-atopic volunteers ($n = 4$ and 4) was collected in two EDTA tubes/volunteer. Tube 1 was centrifuged and plasma was frozen (−80°C). Tube 2 was frozen directly. After thawing and centrifugation of plasma and EDTA-full blood, specific and total IgE was measured by ImmunoCAP. The putative degradation of antibodies by proteolytic enzymes that could be released after the lysis of blood cells (due to the freezing/thawing) was monitored by adding protease-inhibitors. The measured IgE concentrations were corrected for the diluting effect of the packed cell volume (42% for females, 48% for males) and protease inhibitors (14%) and compared with IgE titers measured in EDTA plasma.
Results: After correction for dilution, measurement of total and specific IgE in thawn EDTA-blood (+/− inhibitors) was comparable with IgE titers measured in EDTA plasma. Also low titers total/specific IgE in both preparations were comparable as was measured by ImmunoCap. The addition of protease inhibitors had no effect on the measured titers.
Conclusions: It is possible to measure sensitively both total IgE and specific IgE antibodies against mite/cat/grass/tree allergens in thawn EDTA-blood despite suboptimal processing of the blood samples. Proteases released after the lysis of blood cells, due to freezing/thawing, do not seem to digest any IgE antibodies but also endogenous protease inhibitors might directly inhibit the action of these proteases. Results showed no significant differences between the different protocols applied. Although standard IgE measurement in serum/plasma in combination with the ImmunoCAP is preferred, this 'alternative' approach using thawn EDTA full blood (initially collected for genetic analysis) could be helpful to analyze blood samples for IgE antibodies that were frozen immediately after donation.

1743
Clinical analysis of 8639 patients with peripheral eosinophilia

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Background: Differential diagnosis of eosinophilia is broad, and absolute count of peripheral eosinophil count, age and gender of the patients might be helpful in the process of reaching the origin.
Method: We extracted all the 8639 patients with peripheral eosinophilia from our electronic medical record from 2003 to 2008, and confirmed maximum eosinophil count. Then we reviewed the patients of medical record to analyze the final diagnosis and divided into three groups based on count of peripheral eosinophil i.e. 500–1499/mm^3, 1500–2999/mm^3 and over 3000/mm^3. We grouped into diagnosed cases and undiagnosed cases, and divided secondary eosinophilia cases into 14 types of diseases.
Result: The majority of patients with high eosinophil count revealed high eosinophil rate. Cases that improved after transient eosinophilia without any intervention were higher in 500–1499 group. About a third of patients with eosinophilia was diagnosed as having allergic diseases. Some specific diseases (i.e. episodic angioedema with eosinophilia, DRESS and Churg-Strauss syndrome) displayed distinctive patterns that may be useful for correct diagnosis. Eosinophil count over 3000/mm^3 or over 5000/mm^3 was more common in female, children with age of less than 10, and over 80.
Conclusion: Understanding epidemiology of eosinophilia is helpful to diagnose clinically important etiologies such as allergic diseases.

1744
Influence of histamine H1 receptor antagonists on osteopontin production *in vitro* and *in vivo*

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Background: Osteopontin (OPN) is well accepted to be a multifunctional proteins, which responsible for the development of inflammatory diseases such as allergic rhinitis and asthma. It is also recognized that oral administration of histamine H1 receptor antagonists so called antihistamine favorably modified the clinical conditions of inflammatory diseases. However, the influence of antihistamines on OPN production is not well understood. The purpose of the present study was to examine the influence of antihistamines on OPN production *in vitro* and *in vivo*.
Method: Human airway epithelial cells, BEAS-2B cells were stimulated with 10 ng/ml TNF in the presence of either fexofenadin, epinastine, azelastine or ketotife for 24 h. The levels of OPN in culture supernatants were examined by ELISA. Pollinosis patients against Japanese cedar pollen were treated orally with 20 mg epinastine hydrochloride once a day for 2 weeks during pollen season. OPN levels in nasal secretions were examined by ELISA.
Result: Treatment of BEAS-2B cells with antihistamines inhibited the production of OPN from cells induced by TNF stimulation. The minimum concentration of the agent, which caused significant suppression was 22.5 ng/ml for epinastine, 200 ng/ml for fexofenadine, 4.5 ng/ml azelastine and 7.0 ng/ml for ketotifen. Oral administration of epinastine to the patients for 2 weeks significantly inhibited the appearance of OPN in nasal secretions.
Conclusion: These results strongly suggest that antihistamines exerted attenuating effects on the clinical symptoms in pollinosis patients through the suppression of OPN production by antigenic stimulation, since it is reported that OPN could induce the production of allergic inflammatory

mediators such as IL-4 and IL-5 from epithelial cells.

1745
Enhancement of thioredoxin production by histamine H_1 receptor antagonists *in vitro* and *in vivo*

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Background: Thioredoxin (TRX) is a redox-active protein that regulate reactive oxidative metabolisms. Some recent studies reported that TRX suppresses allergic airway inflammation. However, the roles of TRX in the development of allergic rhinitis is not well defined. The influence of epinastine hydrochloride (EP) and fexofenadine hydrochloride (FEX), histamine H_1 receptor antagonists, on thioredoxin (TRX) production from Human acute monocytic leukemia cell line THP-1 cells in response to H_2O_2 stimulation was examined *in vitro*. We also examined the influence of EP on the appearance of TRX in nasal secretions obtained from pollinosis patients treated with EP during Japanese cedar pollen season.
Method: THP-1 cells activated with 10 nM phorbol 12-myristate 13-acetate (5×10^5 cells/ml) were stimulated with 50 μM H_2O_2 in the presence of various concentrations of EP or FEX for 24 h. TRX levels in culture supernatants was examined by ELISA. Nasal secretions were obtained from pollinosis patients treated with EP once a day at a single dose of 20 mg for 2 weeks. TRX levels were also examined by ELISA.
Result: Addition of EP or FEX into THP-1 cell cultures increased the ability of cells to produce TRX in dose-dependent manner. The minimum concentration of the agent that caused significant increase was 20.0 or 150 ng/ml. Administration of EP into pollinosis patients also caused increase in TRX levels in nasal secretions.
Conclusion: These results may suggest that histamine H_1 receptor antagonists increase the ability of nasal cells to produce TRX, and results in favolable modification of clinical status of allergic diseases, especially pollinosis.

1746
Utility of immunoglobulin E and G4 levels to ovomucoid, ovalbumin, ovotransferrin and egg-white during resolution of allergy to well-cooked and uncooked egg

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Background: Egg allergy is common, affecting 7% of children. The allergy resolves with time in most children, who tolerate well-cooked egg initially, followed by uncooked egg. Most studies focus on diagnosis, rather than guiding egg reintroduction during resolution. We characterised IgE/G4 responses to egg components to examine their diagnostic utility in predicting tolerance to well-cooked and uncooked egg.
Method: We enrolled 98 children who had a clear history of egg allergy and sensitisation as shown by positive SPT and serum egg white IgE. Subjects underwent oral challenge with egg. If they could tolerate well-cooked egg in their diet then they were challenged with uncooked egg (pasteurised uncooked egg white and yolk mixture; cumulative dose 2.6 g protein). If they were avoiding all egg then they were challenged initially with well-cooked egg (baked egg in a cake; cumulative dose 1 g protein), and if this was tolerated, uncooked egg. If positive, challenges were repeated annually. For this study the first challenge result for each subject, where a blood test was available, was chosen for analysis. IgE/G4 levels to egg-white, ovomucoid (OVM), ovalbumin (OVA) and ovotransferrin (OVT) were measured by ImmunoCAP (Phadia) at the time of challenge. A best cut-off point was estimated for each allergen (levels of IgG above and IgE below each cut-off predicting clinical tolerance to egg) and conditional on this cut-off the sensitivity and specificity were estimated. We used extensive searches for the 'best' cut-off and avoided overly optimistic estimates of the sensitivity and the specificity by using a sample-splitting procedure.
Result: Ninety-eight children, aged 1–15 years, were enrolled and challenged: 36 were tolerant to well-cooked and uncooked egg and 62 were allergic to egg (17 to well-cooked and 45 to uncooked egg). The following 'best' cut-off points for IgE and G4 for predicting tolerance to any type of egg, with sensitivity and specificity (and 95% CI), were estimated from the data:

Technical reporting limits: IgE 0.1 kU/l and IgG4 0.07 mg/l

Conclusion: We have provided data on levels of egg component IgE/G4 in a large group of children with resolving allergy. Cut-off values were estimated with reasonable specificity for predicting tolerance to egg in this population, using robust statistical methods. These cut-off values for IgE and G4 may add clinical utility in determining when to reintroduce egg into the diet of children with resolving allergy.

Table 1. For abstract 1746.

	IgE	IgE	IgE	IgG4	IgG4	IgG4
	Cut-off (kU/l)	Sens	Spec	Cut-off (mg/l)	Sens	Spec
EW	0.8	0.77	0.72	0.8	0.67	0.77
OVM	1.94	0.68	0.78	0.81	0.67	0.81
OVA	1.92	0.61	0.78	0.35	0.37	0.81
OVT	0.26	0.65	0.89	0.32	0.72	0.81

1747
The use of antiviral drugs for treatment of cancer patients

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Introduction: Since 1997, we have been studying the role of herpes viruses in the development of cancer and trying to determine the reason tumors are invisible to the immune system.
Methods: In the work were used methods of immunology and clinical study methods, clinical laboratory diagnostics.
Results: From 1997 through 2010, 732 people were studied. Among them were cancer patients. We took blood from patients with oncological diseases, separated out the lymphocytes, and using the indirect immunofluorescence method to discover viral antigens under a luminescent microscope, we determined the infection level of the cells of the immune system with herpes group viruses. If the number of infected lymphocytes exceeded 50% and the cells were infected with a minimum of two viruses (cytomegalovirus and the Epstein–Barr virus), resistance to chemotherapy, fast cancer metastasis, and complete insensitivity to conservative methods of treatment were seen in the cancer patients. Sometimes in people who appeared healthy, a high level of blood immunocytes infected with herpes viruses was found, similar to the level in cancer patients, but tumors them-selves were not found. These people often had colds or cardiovascular pathologies. We categorized them in the group of people at risk for contracting cancer. As a result of preliminary trials of the method (inclusion of Valacyclovir in the chemotherapy scheme) on volunteers, a significant increase in the level of effectiveness of the chemotherapy was demonstrated, as were a more significant reduction in the size of tumors in comparison with those of patients not

taking Valacyclovir, a slowing in the tumors' resistance to chemotherapy drugs, an improvement in the patients' bodies' acceptance of chemotherapy, and an increase in the remission periods (periods until the tumors started growing again) by a factor of 3–5. In all cases, the tumors remained sensitive to initial chemotherapy and did not require a change to the combination of drugs.

Conclusion: The inclusion of antiherpes drugs in standard treatment schemes for cancer patients may significantly improve the effectiveness of treatment and the patients' quality of life.

1748
Immunopathology of breast cancer

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Background: Breast cancer keeps leading position in morbidity and mortality in woman. Etiology and pathogenesis of breast cancer is unknown, however immune system plays central role in the process of initiation, promotion and progression of tumor. It is well known about association of breast cancer and type 2 diabetes mellitus. Earlier we have found immunologic predictors of diabetes: it is cell-mediated immunity (CMI) to insulin.

Aim: Investigation of functional activity of suppressive cells (short living suppressive cells, cells with receptors for H2-histamine receptors, prostaglandin synthesizing cells), proliferate activity of lymphocyte to phytohaemagglutinin, and insulin in breast cancer.

Methods: We have investigated 64 patients with breast cancer (63 women, one man, middle age – 61), 19 patients with mastopathy (19 women, middle age – 54), 40 health person (control group, 40 women, middle age – 56). All cases of breast cancer and mastopathy were histological verified. Functional activity of suppressive cells and proliferate activity of lymphocyte to PHA and insulin were investigated in blasttransformation test We have added insulin to the cell culture for revealing of direct CMI, and insulin with cimetidin or indomethacin for revealing indirect CMI to insulin. In these cases we have inhibited of cells with H2-histamine receptors or prostaglandin synthesizing cells.

Results: We have revealed decrease of lymphocyte proliferate activity to PHA and increase of short living suppressive cells functional activity (suppression index in breast cancer 1.37 ± 0.44, in mastopathy 0.99 ± 0.07, in health person 1.03 ± 0.13, $P < 0.05$). Direct CMI to insulin was revealed in 12/56 patients with breast cancer, 4/16 mastopathy and 4/40 control group ($P > 0.05$). Indirect CMI to insulin was revealed in 29/56 patients with breast cancer ($P < 0.001$ in comparison with control group), 5/17 patients with mastopathy ($P > 0.05$). Indirect CMI to insulin is associated with metabolic syndrome.

Conclusion: Breast cancer is associated with high activity of short living cells with suppressive activity. CMI to insulin, inhibited by cells with receptors for H2-histamine receptors and prostaglandin synthesizing cells is associated with metabolic syndrome and breast cancer.

1749
A new method for assessing feather and down serum protein contamination

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Background: Individuals with asthma and allergy used to be advised to avoid feather and down filled pillows. Recent literature conflicts with this prior opinion, there is an absence of data to recommend either natural or synthetic filled bedding items. Data now suggests house dust mite allergen levels are higher in synthetic as against feather and down filled pillows. Allergy to feathers is rare, earlier observations are explained by reactions to contaminants including feather mites (acariformes super family e.g. psoroptidia spp., the parasitoformes super family e.g. dermanyssus spp) and avian proteins (albumin, immunoglobulins). Feather and down filling in the 21st century is subject to intensive processing (filtration, washing, drying and disinfection) and bears little relationship to that of half a century ago. The allergens are found in the feather bloom, a very fine dust containing particles of about 1 μm in diameter. The treatment process must be demonstrated to remove this bloom and hence remove all immunogenic material. The development of highly sensitive assays for the specific contaminating serum proteins (such as albumin, species specific IgG and IgA) is required to ensure their removal has occurred.

Method: An ELISA based detection method for duck IgG immunoglobulin was developed utilising duck anti-IgG, normal goose serum and anti-duck IgG-HRP-detection antibody. The duck IgG absorbance ratio is obtained by dividing the abs of the sample by the abs blank + 2 SD. The concentration of duck IgG is estimated from the standard curve using the reported duck serum IgG concentration.

Result:

Table 1. For abstract 1749.

Unwashed 1	42.41 μg/g duck IgG, 2.5 mg/g protein
Unwashed 2	75.31 μg/g duck IgG, 3.08 mg/g protein
Unwashed 3	12.31 μg/g duck IgG, 1.88 mg/g protein
Washed 1	1.06 μg/g duck IgG, 0.53 mg/g protein
Washed 2	0.05 μg/g duck IgG, 0.55 mg/g protein
Washed 3	2.42 μg/g duck IgG, 1.39 mg/g protein

Conclusion: The feather and down treatment process results in a significant reduction in Duck IgG Immunoglobulin contamination of duck feather bloom. Samples known to have passed international standards which are based upon oxygen number and turbidity were found to be still contaminated with duck immunoglobulin. Only the most extensive processing effectively removes all duck immunoglobulin.

1750
Relationship between level of plasma microparticles and the clinical manifestation of allergic diseases

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Background: Microparticles (MPs) are nanovesicles secreted from wide variety of cells. Although initially they were thought to have no physiological functions, recent studies revealed that they have role in cellular communications in addition to their physiological roles in several diseases such as rheumatoid arthritis, multiple sclerosis and systemic sclerosis. In this study, we investigated roles of MPs in allergic diseases.

Method: Fresh peripheral blood from 37 asthma, six atopic dermatitis and 10 healthy subjects were collected. MPs were isolated via differential centrifugation and subjected to Annexin-V staining together with different cell specific surface markers (CD9, CD14, CD42a, CD69 and CD105) and analyzed by FACS.

Result: FACS analysis demonstrated that number of MPs in ml plasma was $6.9 \pm 1.8 \times 10^5$, $3.0 \pm 2.0 \times 10^5$, $1.9 \pm 0.8 \times 10^5$, and $3.2 \pm 2.2 \times 10^5$ in healthy, atopic dermatitis, asthma controlled and asthma attack subjects, respectively. We observed that in allergic PBMCs most of the MPs secreted were mainly coming from platelets ($52.5 \pm 2.2\%$). Second most dominant cell type was found to be eosinophils

(35.3 ± 10.2%). Moreover, CD69 positive MPs were found to be 8.57 ± 6.0% of total MP population. When cellular origin of MPs were analyzed it was found that platelet derived MPs increased 1.5 fold in allergic patients compared to healthy individuals ($P < 0.05$) while eosinophil and activated cell derived MPs were non significant compared to healthy subjects. When PBMCs isolated from healthy, atopic dermatitis and asthma subjects and incubated with either allogeneic or syngeneic labeled MPs, and checked the level of internalization, it was found that different cells were internalizing MPs at different levels. In asthma patients, lymphocytes took up MPs 2-fold and 1.5-fold more with respect to atopic dermatitis and healthy subjects, respectively. In atopic dermatitis patients, MP uptake by macrophages was found to be 2-fold more than both healthy and asthma subjects.

Conclusion: This study demonstrated that MPs play a critical role in mediating the severity of allergic conditions and may contribute exacerbation of allergic symptoms such as in atopic dermatitis and asthma.

Late Breaking Poster Session 2

Upper and lower airway involvement in pediatric allergy

1751
Recidive laryngitis episodes and its correlation with allergic constitution in childhood

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There is still opacity in aetiology of laryngitis episodes, especially those repeated. The acute onsets of attacks, without signs and symptoms of acute infection, short duration, and early respond on symptomatic therapy lead to conclusion that there is the important role of allergic constitution in childhood. Laryngitis can result from exposure to allergens like pollen, dust, smoke and other irritants. The aim of this study is to determine the degree of correlation between repeated laryngitis episodes and allergic component.

Material and methods: In this study were included 422 children with treated laryngitis for the period of 3 years (2008–2010). From them, 72 (17, 06%) patients have had medical history about repeated laryngitis episodes, with hospital treatment. The emphasis of our investigation was made on these patients. In addition to other clinical investigations, skin prick tests about allergy predisposition were performed in all of them. Personal and familiar evidence about allergy was assessed, too.
Results: Positive results from allergologic skin prick tests were confirmed in 46 (63.8%) children. From them, in correlation with this basic disease, allergic constitution (asthma, allergic dermatitis, and allergic rhinitis) was determined in 32 (69.5%) patients. The most positive allergen causes were: pollens – 22 (68.7%), Dermatophagoides ptt. – 18 (56.2%) patients etc. From those 26 patients with negative results on allergic skin prick tests, 16 (61.5%) had positive anamnesis of personal/familiar allergy, allergic dermatitis in 6, asthma in 4, recidivate broncho-obstructive episodes – 4, positive asthma anamnesis – 3. Only in 11 (42.3%) patients allergy was not evidenced.
Conclusion: Repeated laryngitis episodes have high degree of significant correlation with allergic constitution in childhood. Allergy is appeared as very important factor in repeated laryngitis episodes etiology. The underlying cause of repeated laryngitis episodes must be diagnosed and treated.

1752
Chronic obstructive pulmonary disease in childhood

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Background: Presentation of author personal experience in children and teenagers with diagnosed COPD.
Method: Eighteen patients with COPD (1999–2005). Algorithm: history, status, lab tests (routine, immunological, alpha-1-antitripsin, Mantoux, sweat test), allergy tests, spirometry, imaging methods (native x-ray, HRCT, bronchography), perfusion and ventilation scan.
Result: Previously, the patients were treated as asthma, bronchiectasis or recurrent pneumonia. They were diagnosed as COPD at the age of 5–20 years (mean 15 years). In 2006, patients were 7–27 years old (mean 19 years), except a girl with exitus letalis at the age of 22 years (2002). Clinical features: cough 78%, breathlessness 56%, wheezing 17%, cyanosis 17%, bronchopstruction 94%, other symptoms 50%, deformations (thorax/vertebra) 83%, digital clubbing 67%, weight loss 65/55%. Chest x-ray: interstitial infiltrates 61%, emphysema 61%, hyperinflation 56%, bullae 56%, suspected bronchiectasis 39%, reduced vascularisation 28%, atelectasis 28%, pneumothorax 28%, mediastinal emphysema 6%. HRCT pathological findings had 67% Perfusion scan: one side changes 23%, bilateral 69%. Spirometry: obstruction + restriction 53%, only obstruction 33%. Etiology: (i) Smoking and occupational exposure negative; (ii) Likely: low socio-economic status 56% and indoor air-pollution-wood hitting 77%, passive smoking 78%, smoking during pregnancy 29%; (iii) Possible: pneumonia in first year 32%, recurrent obstructive bronchitis under 3 years 28%, pneumonia (1–2 years) 22%, pneumonia (2–3 years), morbilli and pertussis 6%; (iv) Endogenous factors: alpha-1-A with decreased values 11%, low birth weight 16%, family predisposition 47%, male 71%.
Conclusion: COPD is a disease which 'attacks' young patients. In these respect, our thinking and investigations must be IMERATIVE. Symptoms, findings and results are the sign-post in the discovery of COPD. On this way, it is possible to treat this serious chronic disease.

1753
Evaluation of mean platelet volume in asthmatic children

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Background: Asthma is a clinical picture caused by chronic inflammation of airways. Platelet activation is associated with asthma exacerbations. Mean platelet volume (MPV) has been shown as a simple inflammatory marker and several studies have demonstrated association between MPV, inflammatory cytokine levels and the disease activity. The aim of this study was to investigate MPV values in asthmatic children during asthma exacerbation and in steady state. We also aimed to investigate whether MPV changes in asthma exacerbations reflect disease activity.
Method: Eighty asthmatic and 40 healthy children whose ages ranged between 6 and 16 years were enrolled in the study and were evaluated in three groups. Group 1: Asthmatic patients at the time of asthma exacerbation (n = 40, male/female: 21/19), Group 2: Asthmatics with no symptoms and no recent exacerbation (n = 40, male/female: 20/20). Group 3: Control group (n = 40, male/female: 20/20). Age of the children, duration of disease, atopy history, family history of allergic diseases, smoker in house were evaluated retrospectively. Leucocyte, eosinophil, trombocyte counts, MPV values in complete blood counts, total IgE levels, result of skin prick tests and lung function tests were all recorded.
Results: Groups were similar according to age, gender as well as other demographic features. Duration of disease was 24.6 ± 24.1 months for Group 1 and 26.5 ± 20 months for Group 2. For Group 1, 2 and 3; MPV values were 7.23 ± 0.78, 9.26 ± 1 and 8.68 ± 1.27

respectively. Although there was no significant difference between MPV values for Group 2 and 3 patients with asthmatic attack (Group 1) had significantly lower values compared to other groups ($P < 0.001$). FVC, FEV1 and FEF 25–75 values of Group 1 were significantly lower than Group 2.

Conclusion: MPV may help to evaluate disease activity and predict the exacerbation in children with asthma.

1754
Evaluation of the effects of influenza vaccination on asthma control in school-age children

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Background: Asthmatic exacerbations have been strongly associated with acute respiratory infections due to influenza virus. Annual influenza vaccination is recommended for asthmatics to reduce morbidity and mortality related to this infection. In our study, we aimed to evaluate the effect of influenza vaccination on control of asthma.

Method: Randomly selected fifty children (age; 6–16 years) who were followed in our clinic with mild or moderate asthma enrolled in the study. The children were evaluated retrospectively in two groups either they received influenza vaccine in the recent influenza season or not. (Group1; 25 vaccinated patients, Group 2; 25 unvaccinated patients). Severity of asthma, frequency of acute asthma exacerbations, emergency department visits, hospitalisations, unscheduled policlinic visits, school missing days due to exacerbations in recent year were recorded. Lung function tests performed in September before or at the time of vaccination, in March and June were also evaluated. The impact of asthma exacerbations on school performance and life quality of children were investigated.

Result: Eighteen (72%) of the vaccinated and 21 of the unvaccinated asthmatics had mild persistant asthma. Seven (28%) of the vaccinated, 10 (40%) of unvaccinated children had no asthma exacerbation. No statistically significant correlation was found between two groups according to frequency of asthma exacerbations and asthma control. There was no statically difference between FEV1 values at the beginning and the end of the influenza season as well as at the end of the year.

Conclusion: In our study group we obtained that influenza vaccination had not changed frequency of asthma exacerbation. Vaccination had no effect on control of mild or moderate asthma.

1755
Allergic rhinitis — treatment and compliance in childhood

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Background: Allergic manifestations on the upper airways tract in children are more often presented in the last decade. Consequently, it is very necessary to have special approach in diagnosis, therapy and management for these patients. Our aim was to perceive appearance of the symptoms, their representation and frequency and seasons' manifestation, also. In addition, following of the other clinical entities presentation, therapy and its difficulties during utilization was noticed.

Method: In this study we analyzed data from 105 patients at the age of 5–18 years. Patients were ambulatory followed at the Institute in the period of the last 5 years. Gender distribution was: 57 (54, 28%) male and 48 (47, 72%) female. In all patients were realized ENT, laboratory and allergy investigations.

Result: Pollens and Dermatophagoides pteronyssinus were dominant triggers. In all patients we realized forehead rhinoscopy. Ashy livid slime was detected in 102 (97, 14%). Rhinorea was presented in all children and for 52 (49, 52%) data for manifesting cough was given. Therapy was realized with local corticosteroid in 50 patients (47, 62%), antihistamine -42 (40%) and in the same time application of asthma prevention with topic corticosteroid −38 (36, 19%). Local treatment was discontinue realized, but in 11 (10, 47%) patients we had no good response on the local treatment. It has to be notice that with those children and their parents we had not very good compliance.

Conclusion: Because of the good health benefit in relation with used therapy it is necessary to have very good compliance between physician form the one side and parents/child, from the other side. In that case, possibility for patients dissatisfaction and because of that treatment withdraw will be minimal.

1756
Allergy treatment in children with recurrent or chronic sinusitis

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Background: Diagnosis and treatment of Chronic and recurrent sinusitis in children is of the potential importance and many factors have an influence on it. In addition, the prevalence of Upper Respiratory tract infections and allergy in children is relatively high. The aim of this study is to assess children with Chronic and recurrent sinusitis, its affecting factors and the Role of allergy in the process and treatment of this disease.

Introduction: Diagnosis and treatment of Chronic and recurrent sinusitis in children is of the potential importance and many factors have an influence on it. In addition, the prevalence of Upper Respiratory tract infections and allergy in children is relatively high. The aim of this study is to assess children with Chronic and recurrent sinusitis, its affecting factors and the Role of allergy in the process and treatment of this disease.

Materials and methods: In this survey, 106 children with the diagnosis of chronic and recurrent sinusitis who were referred to specialty clinics of otolaryngology and allergy during 12 months were studied. History and physical examination of patients were recorded and allergy skin Prick test was done for all of them. Then the Response to treatment was evaluated.

Results: From 106 children, 54 of them (50.9%) were male and 52 of patients (49.1%) were female. The mean age of patients was 6.5 ± 2.9. Skin Prick test was positive in 69.8% of them. Response to allergy treatment was seen in 86.8% of patients. Patients with positive skin Prick test had a better response to treatment than the patients with negative skin prick test.

Conclusion: The prevalence of allergic disease in children with chronic and recurrent sinusitis is considerable and allergy treatments can lead to favorable outcomes in children with sinusitis.

1757
Relevance of serum immunoglobulin levels in recurrent lower respiratory tract symptoms of preschoolers

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Introduction: Recurrent respiratory tract infections (RRI) associated with wheezing, crackles and cough are a substantial cause of morbidity in preschoolers. Recurrent respiratory symptoms have been linked to genetic predisposition, a variety of environmental factors and immune alterations, such as atopy.

Materials and methods: We studied the basic immunologic profile of 84 (50 boys) otherwise healthy children aged 1–6 years who were referred to our paediatric allergy clinic for RRI. Clinical symptoms occurred mostly during autumn and winter. There was no personal history of atopic disease and the majority of children were attending kindergarten. Chest x-ray and sweat test were normal. All underwent immunologic screening that included complete blood count, ESR, CRP and serum concentrations of IgG, IgA, IgM and IgE. All skin prick tests to common aeroallergens were negative and total IgE was within normal limits. Major immunoglobulin isotypes were quantified by rate nephelometry. Children with selective IgA deficiency were excluded. Patients were subdivided into five groups (1–2, 2–3, 3–4, 4–5 and 5–6 year old) and the concentrations of their immunoglobulins were compared to the published normative data available for healthy Greek children. Low immunoglobulin levels were considered those at or below the 5th centile for age.

Results: Children with RRI had significantly lower IgG concentration as compared to the general population ($P < 0.0001$). IgG levels at or below the 5th centile were detected in 4/9 in the 1–2, 5/15 in the 2–3, 6/23 in the 3–4, 5/18 in the 4–5 and 4/19 in the 5–6 year old group (Fisher's exact test $P = 0.0030$, $P = 0.0037$, $P = 0.0067$, $P = 0.0116$, $P = 0.0581$ respectively). On the contrary the percentage of children with low IgM values in the RRI group were similar to the general population.

Conclusion: A significant subgroup of preschoolers with RRI exhibit immune immaturity associated with low IgG levels. This may represent a transient phenomenon, therefore prolonged follow-up of the clinical symptoms of these patients is mandatory to detect whether they outgrow their symptoms. Moreover, these children may require a different management approach, as increased doses of inhaled and/or systemic corticosteroids may delay the clearance of viruses form the respiratory tract, thus prolonging symptoms.

1758
Asthma, rhinoconjunctivitis and eczema symptoms in children in urban and rural residential sectors in Valdivia, Chile

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Background: Allergic diseases have increased worldwide over the last years, also in Chile. Different hypothesis include environmental factors as a cause of developing this diseases. In Europe several studies indicate that living in rural areas, especially on a farm, might protect from respiratory diseases. This has been attributed to a higher bacterial load in these environments. However, results from Latin America are inconclusive. In this study, the prevalence of allergic diseases in different residential areas in southern-central Chile was evaluated.

Method: The standardized ISAAC questionnaire for children of 13–14 years was applied to children living in urban ($n = 3104$), semi-urban ($n = 159$) and rural ($n = 100$) residential sectors in the Region de los Rios, Chile. Data were statistically analyzed with SPSS using logistic regression with adjustment for potential confounders.

Result: Odds ratio for children living in urban areas was set to 1. Asthma symptoms: urban: Odds ratio (OR) 1; semi-urban: OR (95% confidence interval) 0.65 (0.39–1.11); rural: 0.40 (0.17–0.92). Rhino conjunctivitis symptoms: urban: 1; semi-urban: 0.70 (0.46–1.07); rural: 0.35 (0.18–0.67). Non-allergic asthma symptoms: urban: 1; semi-urban: 0.51 (0.24–1.10); rural: 0.47 (0.17–1.29).

Conclusion: In this region of Chile the manifestation of allergic diseases in children is different when analyzed by residential sector, being the prevalence of asthma and rhino conjunctivitis symptoms higher in urban areas compared to rural areas. The present results support the hygiene hypothesis for Chile.

1759
Indications and results of the flexible bronchoscopy in the childhood period: analysis of 922 procedures from a single center

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Background: Flexible bronchoscopy (fb) is becoming increasingly utilized and safe in the childhood period. It is critical to emphasize the indications and results of FB in order to make more precise and prompt diagnoses of pediatric respiratory diseases. It is objected to document our FB indications and their clinical outcome.

Method: We retrospectively gathered FB data between 2007 and 2010.

Result: A total of 922, 533 male (58%) patients, with a median 60 months (1 month–17 years) of age having a median 6 months (1–120 months) duration of history were enrolled to the study. Most common indications for FB are chronic cough (*n*:320, 35%), persistant wheezing (*n*:137, 15%), persistant infiltration (*n*:105, 12%), atelectasis (*n*:51, 6%), asthma refractory to treatment (*n*:44, 5%), stridor (*n*:37, 4%), hemoptisis (*n*:35, 4%), and tuberculosis (*n*:28, 3%), where as FB is less likely performed for lymphadenopathy or mass in the mediastinum, localized bronchiectasis, localized hyperaeration and recurrent croup. FB results were non-pathologic in 388 (42%) patients. Most common pathologic findings were laryngomalacia (*n*:110, 12%), trakeomalacia (*n*:33, 4%), purulent secretion (*n*:93, 10%), foreign body aspiration (*n*:40, 4%), endobronchial tuberculosis (*n*:33, 4%), less frequent diagnoses were external obstruction of bronchus, congenital anomalies, mucous plug and cyst hydatid membrane.

Conclusion: Our series is one of the largest series that show pediatric FB is a highly valuable tool in determining the accurate and rapid diagnosis when properly utilized.

1760
Reference values of fractional exhaled nitric oxide for 6–14 years old healthy children in East China

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Background: Fractional exhaled nitric oxide (FENO) was proposed as a biomarker of airway inflammation, there are no published papers describing normal FENO values measured with standardized methods in a large group of healthy children in China. The aim of this study was to establish FENO reference values of children from Eastern China according to the international guidelines, and to assess the determinants of FENO in healthy children.

Method: We investigated 225 healthy children (107 boys, 118 girls, age range 6–14 years) recruited from two public schools of Soochow. The subjects were examined with regard to FENO, pulmonary function, anthropometric variables, and blood eosinophil, and completed a respiratory questionnaire. The associations between different determinants and FENO were analyzed with stepwise multiple regression analysis.

Result: The Geometric mean of FENO in 225 children was 10.8 parts per billion (ppb) [95% confidence interval (C.I.), 4.2–27.5 ppb]. No difference was found between boys (mean value, 11.1 ppb; 95% C.I., 4.0–30.7 ppb) and girls (mean value,

10.5 ppb; 95% C.I., 4.5–24.8 ppb). In the random sample of children, EOS was found to be the best independent variable for the regression equation for FENO, which on average showed an increase in the EOS range of 0.3–4.0% from 9 to 20 ppb. Height was the second independent variable for the regression equation for FENO, which on average showed an increase in the height range of 116–176 cm from 10 to 15 ppb. No significant correlation was found between age, weight, BMI or spirometric data and FENO levels.
Conclusion: This study establishes a reference range for FENO values measured by NIOX in children age range 6–14 years. Based on our results, we suggest that the values for healthy subjects should be considered to fall between the following ranges: 4–30 ppb. FENO in healthy children depends on EOS and height. Measurement of FENO by NIOX is simple and safe and has a good repeatability. The observed levels are independent of age, gender, and lung function, and can be used to monitor airway inflammation in asthmatic children.

1761
Evaluation of the Phadiatop test in the diagnosis of allergic sensitization in a pediatric asthma and allergic rhinitis patients

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Background: The presence of specific IgE against common environmental aeroallergens represents the classical definition of atopy In clinical practice, evidence of allergic sensitization can be elucidated by two methods, namely skin prick tests (SPT) and specific serum IgE assays [2]. Despite the fact that skin prick test (SPT) is very important in diagnosis of allergic diseases SPT may be subjected to a number of problems such as choice and storage of allergens, prick test technique and individual interpretation. Advantages of serum specific IgE assays are convenience for the patient, lack of risks and the possibility of testing subjects unable to stop medications that could alter the results of SPT Phadiatop is a commercially available qualitative serological test employed for screening of allergic sensitization in patients with suspected allergic diseases.
Aim: In our study, we aimed to determine the sensitivity and specificity of Phadiatop specific IgE antibodies by comparison with SPT.
Method: The study included 140 asthma and allergic rhinitis patients, among which 53% were boys and 47% were girls, with a mean age of 8.28 ¡1/3 3.28 years. Skin prick test was performed on 140 of these patients specific IgE results were compared between patients who were atopic and non-atopic according to the SPT. Phadiatop test (UniCAP method) was performed in serum samples from 140 of these subjects. Skin prick tests to a panel of 13 relevant aeroallergens in the studied area (including mites, pollens, moulds, and animal dander) were employed as the reference diagnostic procedure. Subjects with at least a positive skin prick test (>3 mm, $n = 140$) were considered to have allergic sensitization.
Results: Phadiatop sensitivity was 93.8% (95% CI 91.7–96.6%), specificity 94.7% (95% CI 91.0–95.5%), positive predictive value 92.6% (95% CI 83.5–95.3%), negative predictive value 87.7% (95% CI 86.2–92.8%).
Conclusions: Phadiatop is a valuable tool for the diagnosis of allergic sensitization in a pediatric allergic population.

1762
Systematic review of the usefulness of exhaled nitric oxide in management of childhood and adolescence asthma

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Background: Asthma is a chronic inflammatory disorder of the airways in which involves many cells and cellular elements. The measurement of biomarkers that are more closely related to inflammation of the airways may improve asthma control. Among these biomarkers related to inflammation emphasizes the fraction or exhaled nitric oxide exhaled (FENO). Several studies have demonstrated the relationship between FENO and asthma, which supports the theory that the FENO can be used as a biomarker of inflammation in asthma and it could be used in asthma control.
Objective: To determine the usefulness of FENO measurements in the control of childhood and adolescence asthma.
Method: There has been a focused literature search to identify systematic reviews and health technologies assessment reports in the Cochrane Library, CRD, INHATA, ECRI and HAYES. In addition, we searched for primary studies in MEDLINE and EMBASE databases, until January 2010. There has been a critical reading of pairs of the selected articles to identify the methodological problems that could affect the internal and external validity of studies.
Result: The literature search identified four clinical trials, one systematic review and two health technology assessment reports. Selected studies didn't provide significant correlations between FENO levels and clinically relevant outcomes such as the optimal therapy, lower doses of inhaled corticosteroids (ICS) or a more appropriate use of drug combination, reduced number of exacerbations or decreased symptoms. Furthermore, the diversity of secondary outcomes arising each study, significant differences were detected only in some of them.
Conclusion: According to available evidence, the use of the determination of FENO does not improve important outcomes in asthma such as: reduction of symptoms and prevention of crisis or exacerbations, improved lung function and reducing or better management of treatment with inhaled corticosteroids in relation to practice, based on symptoms with or without spirometry. The studies analyzed did not demonstrate the clinical utility of FENO levels to control childhood and adolescence asthma.

1763
Severe asthma attack causing pneumothorax in children

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Background and aims: Although pneumotorax may occur in patients with asthma it rarely occurs spontaneously during an acute exacerbation in children. To show four children with pneumomediastinum because of uncontrolled and under diagnosed asthma disease.
Methods: In a period of 10 years four children in our Institute appeared with pneumomediastinum due to asthma attacks. All necessary investigations were done.
Results: All of the patients had sudden onset of symptoms, positive family history for atopy, positive skin prick tests and increased IgE levels in serum. Two of them have had pneumo-mediastinum in the last year (asthma attacks were ignored from parents and physicians). None of them was asthma prevented. In three patients additional diagnosis was pneumonia.
Conclusions: Lack of recognition of life-threatening asthma in children can have devastating consequences. Proper diagnosing and asthma prevention guidelines use can prevent severe asthma attacks.

1764
Comparison of the efficacy and side effects of intramuscular, intravenous and oral methylprednisolone used in the acute exacerbation of childhood asthma: a randomized clinical trial

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Objective: Corticosteroids are recommended for the emergency management of acute asthmatic attack. This study was designed to compare the effectiveness and side effects of oral, intravenous and intramuscular steroids used in the acute exacerbation of childhood asthma.
Methods: We performed a randomized trial involving children with acute mild or moderate exacerbation of asthma requiring treatment with steroids. The treatment protocol was planned according to the GINA 2008 Guideline. All had been treated with standard bronchodilator regimens followed by 1 mg/kg/dose methylprednisolone which has been given randomly by oral, intramuscular or intravenous route. All the groups were evaluated at 90-120-240th minutes for the efficacy of treatment in terms of respiratory rate (RR), PIS and PEF values and for the probable side effects in terms of blood glucose and arterial blood pressure. For the comparison of side-effects; patients with mild attacks who did not need steroids were used as the control group.
Results: Sixty-five children with acute mild or moderate exacerbation of asthma requiring treatment with steroids, aged 5–18 years were enrolled to the study. Baseline characteristics were comparable in the oral ($n = 19$), intravenous ($n = 17$) and intramuscular ($n = 21$) methylprednisolone groups. After steroid treatment, the mean (SD) PEF, PIS and RR in three groups improved statistically over baseline values ($P < 0.001$). There was a statistically significant difference in terms of mean percentage change of RR between the three groups ($P < 0.001$). RR improvement in oral methylprednisolone group was statistically significantly better than that in intramuscular and intravenous groups ($P = 0.001$). The most common side effect observed in this study was acute hyperglycemia (>200 mg/dl) and the least hyperglysemic systemic steroid route was found to be the oral route ($P < 0.05$).
Conclusion: The results of our study showed that the oral systemic steroid therapy is the most effective and the most reliable form in the treatment of acute exacerbation of childhood asthma.

1765
Respiratory function and smoking behavior in young asthmatics – addiction in childhood or behavioral pattern?

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Aim: To examine changes in respiratory function between young asthmatics active smokers and nonsmokers, and to explore what was the main reason they started to smoke.
Method: According to questionnaire, clinical examinations, lung function and skin prick tests we separated 54 adolescents with asthma out of 1134 pupils of one high school. They were followed-up every 4–5 years up to 15 years.
Results: We had 62.9% of female and 37.1% male subjects. Average age at the beginning was 16.3 and 29.6 years at the end of the study. In the first year of life 13.0% of subjects manifested their asthma, 72.2% started with asthma symptoms between 2 and 6 years of age and 14.8% after 7th year. Percent of smokers cumulatively increased from 16.7% at the beginning up to 58.5% at the end of the study. Number of cigarettes increased from 7.5 to 16.5 ciggaretes per day per smoking asthmatic during the study, no difference according to sex. Average duration of smoking experience was 11.5 years, no difference according to gender. At the age of 21, values of VC, FVC, FEV1, PEF and MEF75 were lower in asthmatics who were active smokers, but with no statistical difference. At the age of 30 Tiffeneau index, MEF25 and MEF50 (the 2nd spirometry) were statistically decreased in the smoking group compared to their values at the age of 21 (the 1st spirometry). In the group of no smoking young adults, there was no statistic difference between the 1st and 2nd spirometry. We had 71% of smoking families, dominant smoker in the family was mother (69%) compared to father (37%). If both parents smoke, 95% of children with asthma will start to smoke, if only mother smoke 50% will start, and in nonsmoking family 30% will start to smoke — the same percent as in our population (influence of society and peers).
Conclusion: Smoking did affect lung function of active smoking young asthmatics – Tiffeneu index, MEF25 and MEF50 were statistically decreased as early as at the age of 30. Predominant influence to asthmatic child to start smoking was if both parents smoke – was it influence of addiction and behavior, or both?

1766
Reaction of children with asthma to inhaled corticosteroid therapy and environmental tobacco smoke exposure

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Background: The aim of this study was to investigate if there is any difference in respiratory function test in asthmatic children on inhaled corticosteroid therapy who were exposed or not exposed to environmental tobacco smoke (ETS).
Method: We investigated a group of 234 children with diagnosed asthma (6–16 years old), previously hospitalized or out – patiently treated in our hospital (49% of boys, average age 10.5) who were treated with inhaled corticosteroid therapy (average dose was 2×169 mcg of fluticasone per day for 6 months). We used the questionnaire, spirometry at the beginning and at the end of the study, and detection CO in exhaled air with smokerlyzer.
Result: Fifty percent of fathers and 46% of mothers were smokers. Twenty percent of all families were smoke-free and although 77% were smoking families, only 56% of them admitted smoking in front of children with asthma. There were 21% of families with one, 41% with two and 15% with three smokers. We compared spirometry taken at the beginning and at the end of the study and we found statistically significant improvement of lung function test values. However, in the 1st spirometry (taken at the beginning of the study) children with asthma exposed to environmental tobacco smoke had lower values of lung function test parameters with no statistic difference, only MEF 25 was statistically lower ($P < 0.05$). In the 2nd spirometry (taken at the end of the study) children with asthma exposed to ETS had MEF 25 and 75 statistically lower ($P < 0.05$) then children not exposed to ETS, which may mean that growing rate of lung function test parameters was decreased or response to inhaled corticosteroid therapy was lower, or both.
Conclusion: Environmental tobacco smoke exposure has negative impact on respiratory function of children with asthma, and negative effect on inhaled corticosteroid therapy improvement, and it is necessary to prevent ETS exposure of children with asthma.

1767
Characterisation of expression of TGF-β, activin-A and ALK-4 in nasal biopsies from allergic rhinitis and nasal polyposis subjects

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Background: Changes in expression of transforming growth factor beta (TGF-β), Activin-A and its receptors ALK (activin-like kinase) have been reported in allergic inflammation and remodelling in lower airways in asthma. However, their expression in upper airways in allergic rhinitis (AR) are unknown. Our aim to investigate the expression TGF-β, Activin-A and its receptor, ALK-4 in nasal biopsies from allergic rhinitis patients compared with biopsies from nasal polyposis subjects.
Method: Nasal biopsies were obtained from subjects with grass pollen-associated seasonal AR (both in- and out-of-season, $n = 23$) and house dust mite-associated perennial AR ($n = 23$). Nasal biopsies from healthy subjects ($n = 19$) and nasal polyposis patients ($n = 11$) were used as negative and positive controls respectively. Immunoreactivity of Activin-A, ALK-4 and TGF-β in the biopsies was assessed by immunohistochemistry and image analysis.
Result: There were no significant differences in the numbers of Activin-A and ALK-4 immunoreactive cells between seasonal, perennial and healthy control groups. No differences in immunoreactivity of these molecules were observed between in- and out-season biopsies. However, the numbers of Activin-A and TGF-β immunoreactive cells in nasal polyposis group were significantly higher than those in – season ($P < 0.001$), perennial ($P < 0.001$) rhinitis and healthy controls ($P < 0.01$).
Conclusion: The lack of a consistent difference in immunostaining for Activin-A, ALK-4 or TGF-β in the nasal mucosa in moderate-severe seasonal or perennial rhinitis compared to normal healthy controls (in contrast to nasal polyposis) argues against the presence of significant remodelling changes in allergic rhinitis.

1768
Abstract withdrawn

Late Breaking Poster Session 3

Asthma in adulthood: epidemiology, co-morbidities and treatment

1769
Serum soluble TRAIL levels in patients with severe persistent allergic asthma: its relation to omalizumab treatment

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Background: The pathogenesis of allergic asthma and other allergic conditions are believed to be closely interrelated because of the similar dynamics of allergy-inducing cells and molecules, and the independent evidence for their clinical overlap. In this study we compare the diseases and the effect of Omalizumab treatment on the dynamics of cell apoptosis regulating molecules.
Material and methods: Severe persistent allergic asthma patients ($n = 14$) were subjected to measurement of serum soluble TRAIL levels during the active disease phase and stable phase 4 months after Omalizumab treatment. Serum sTRAIL concentrations were measured by a solid phase sandwich enzyme linked immunosorbent assay. Levels were compared with those in newly diagnosed patients with allergic asthma ($n = 14$) and age-sex matched healthy controls ($n = 14$).
Results: As shown in Figure 1, no significance difference was seen in the mean values for sTRAIL in severe persistent allergic asthma patients before omalizumab treatment ($n = 14$; 1663 ± 120.4 pg/ml), newly diagnosed allergic asthma patients ($n = 14$; 1873 ± 142.9 pg/ml) and healthy controls ($n = 14$; 1751 ± 161.6 pg/ml). In contrast, serum sTRAIL levels in patients with severe persistent allergic asthma were lower after omalizumab treatment ($n = 14$; 1443 ± 80.93 pg/ml), with this difference reaching significance ($P < 0.05$) when compared with levels in newly diagnosed allergic asthma patients. Three individuals of the 14 severe persistent allergic asthma patients showed an increase or no change in sTRAIL levels as seen in Figure 2. These patients whose sTRAIL levels were increased or unchanged, represented the individuals for whom the omalizumab treatment showed clinically efficacy only after the twelfth dose, while in all other patients a decrease in symptoms occurred after the second or third dose. The individual whose sTRAIL level increased ˜2-folds developed diabetes mellitus after the omalizumab treatment had started.
Conclusions: Our study provides a novel perspective on severe persistent allergic asthma and the effect of omalizumab treatment on cell apoptosis, using serum sTRAIL measurements. In summary, we speculate that the physiological functions of sTRAIL in allergic conditions, and the elucidation of the molecular mechanisms by which sTRAIL:TRAILreceptor signals cells, will be of significant interest to the scientific allergy community in the coming years.

1770
Including variability as a criteria, increases diagnostic accuracy in elite asthmatic swimmers after mannitol and exercise challenge

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Background: An increased frequency of asthma have been reported among swimmers possibly due to a mix of endurance training and exposure to chloramine in indoor environments. At the same time many tests have a low sensitivity to detect asthma among elite athletes. The aim of the present study was to investigate the prevalence of asthma among elite swimmers, to compare sport specific exercise test with Mannitol provocation test and explore the tests ability to detect asthma.
Method: One hundred and one elite or elite aspiring swimmers (14–24 years) were investigated with both Mannitol provocation and a sport specific exercise test. Mannitol positivity was defined as either direct FEV1 PD15 with a cumulative dose of < 635 mg, or as a beta2-reversibility > 15% after challenge (= extended criteria). A direct positive exercise test was defined as a drop in FEV1 of 10% compared to baseline or a difference in FEV1 of > 15% either spontaneous, variability, or with beta2-agonist, reversibility (= extended criteria).
Result: We found a high prevalence of Mannitol and/or exercise positivity. Twenty six were Mannitol direct positive while 43 were positive with the extended criteria (including reversibility). Fourteen were direct exercise positive, while 24 were positive when using extended criteria (including variability and reversibility). When including reversibility and variability to define a positive test the sensitivity to detect current asthma, with or without exercise induced symptoms, increased while the specificity roughly remained unchanged. Direct positivity for Mannitol or exercise poorly overlapped using ordinary criteria. The conformity between the tests were better using the extended criteria.
Conclusion: We found a high prevalence of EIA among elite swimmers. The use of variability and reversibility as additional criteria to define a positive test increased the ability to detect asthma, with or without exercise induced symptoms, without lowering the specificity, and should therefore be considered in the interpretation of the tests.

1771
Effect of skipping one dose during omalizumab therapy

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Background: Omalizumab, an anti-IgE mAb, is an effective treatment for severe allergic asthma, whose efficacy is generally appreciated starting from 8 to 16 weeks of its regular administration. One important question regarding omalizumab therapy is the consequence of skipping dose on the asthma control. Omalizumab withdrawal after < 1 year treatment is known to result in a clinical state and IgE level similar to those of pre-treatment period.
Method: We investigated the effect of skipping one dose of omalizumab, during patients' holidays, on symptoms (ACT = asthma control test), FEV1 and exhaled nitric oxide (FENO) in nine non

smoking patients, six women and three men, age range 41–75 years. The duration of omalizumab treatment was 4 years in five patients, and 1 year in four patients. FEV1, FENO, ACT obtained after one dose skipping were compared to the values observed in the 3 months before and after the missing dose by the analysis of variance for repeated measures. The same evaluation was performed in the following years of omalizumab therapy at the time of skipping dose during patients' holidays in the five patients who were on treatment for 4 consecutive years.

Result: As expected, in all the treated patients omalizumab produced a significant clinical improvement in asthma control, with a decrease in asthma exacerbation rate from 3.8 (SEM 0.52) to 1.2 (SEM 0.15) per year. After skipping one dose, following the first year treatment, there was a significant decrease in FEV1 (from 1970 ± 259 to 1632 ± 186 ml, $P = 0.014$) and ACT (from 22 ± 0.9 to 20.2 ± 0.9, $P = 0.003$), and an increase in FENO (from 35.1 ± 7 to 58.6 ± 9.1 ppb, $P = 0.01$), in all patients. In the five patients on long term treatment, the effects of skipping one dose were appreciated only in the first year of treatment.

Conclusion: These findings suggest that omalizumab should be administered regularly, at least in the first year of treatment.

1772
The allergic sensitisation as a risk factor of bronchial asthma in the residents of one area of Moscow

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Background: Allergic sensitization is the risk factor for the development of bronchial asthma (BA). Purpose of the study: to estimate the frequency of allergic skin sensitivity on 12 allergens in healthy people and in the patients with BA of one region of Moscow.

Methods: The study was conducted in accordance with GA2LEN follow up program among the population of eastern division of Moscow. On the basis of population sample 300 patients of 15–74 years old were selected. Among them there were 21 man and 50 women with BA (71 people) confirmed by the doctor, and 17 men and 54 women without any symptoms (71 people) as a control. Respiratory symptoms were studied by the main questionnaire GA2LEN. The sensitization on 12 standard allergens was investigated by the skin prick test. The size of papule equal and more than 3 mm was considered as a positive result (largest + perpendicular diameter/2 (mm) of wheal after 15 min). The rate of sensitivity on different allergens in the patients with BA and healthy people was compared.

Result: Allergic sensitivity to one and more allergens in the control group was revealed in 31.0% (22 people), and to three and more allergens – 8.5% (six people) but in group BA – 62.0% (44 people) (OR = 3.63; 95%CI 1.71–7.74; $P = 0.0002$) and 29.6% (21 people) accordingly (OR = 4.55; 95%CI 1.58–13.71; $P = 0.001$). The skin sensitivity on Artemisia (12.7%), cat (9.9%), dog (9.9%), blatella (8.5%) allergens was found most frequent in healthy people. The sensitization to cat (33.8%), dog (31.0%), birch (21.1%), Artemisia (21.1%), Alternaria (19.7%) allergens was most frequent in the patients with BA. OR was calculated for the group of BA patients: OR cat 4.67 (95%CI 1.73–13.09; $P = 0.0005$), OR dog 4.10 (95%CI 1.51–11.59; $P = 0.001$), OR birch 9.24 (95%CI 1.90–61.20; $P = 0.0008$), OR Artemisia 1.85 (95%CI 0.69–5.00; $P = 0.18$).

Conclusion: Allergic sensitization was widespread among the adult population of Moscow. Compared with healthy people skin sensitivity to one and more allergens in BA patients was found 3.5 times more frequent.

1773
Epidemiology of asthma: about a representative population of Tunisia

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Background: Asthma is a chronic respiratory disease characterized by airway inflammation requiring a comprehensive approach. Recently, surveys show an increase in asthma prevalence. In Tunisia, epidemiological data are rare. The study was carried out to estimate the prevalence of current asthma among adult and children and identify associated disease.

Method: A cross-sectional survey, single pass, representative of the general population was carried out in the capital of Tunisia in subjects aged from 2 to 50 years. Informed consent was obtained. Prevalence was determinate through questionnaires, validated and used in international surveys, corresponding to the asthma screening and lung function test. Statistical analysis was performed using SPSS 18.0.

Result: The study included 4470 subjects. There was 40.2% male and 59.8% female. Current asthma prevalence was 6.8% in adults and 5.9% in children. Prevalence in Men was higher than women (respectively 7.2% and 6.6%) but not significantly. There was no significant variation in prevalence rate with regard to age and Body Mass Index. Lung function test showed reversibility in 20%. A positive correlation was found between asthma and rhinitis (76%), asthma and skin allergy (12.3%). Smoking was higher in asthmatics subjects (20%) than non asthmatics (14%).

Conclusion: Our results indicate a correlation with the major epidemiological studies. There is evidence of a rising trend in the prevalence of asthma among adults since the early 1990s in data. Over the more recent period prevalence of asthma appears to be stable. In contrast to some overseas studies, we didn't found convicting evidence that asthma is higher in boys than girls neither in women than men.

1774
Phenotyping in severe asthma cases

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Background: Phenotyping uncontrolled asthma patients despite optimal therapy can lead us to algorithmic managements. There is need for confirmation of recent subphenotyping systems of severe asthma (SA).

Aim: To phenotype our SA patients.

Method: A group of SA cases followed up in an allergy clinic assigned as 'treatment resistant asthma patient' according to the WHO definition of severe asthma were included in the study. The patients were phenotyped according to SARP cluster analyses and WAO clinical presentation by their own doctors. Groups were compared for demographic and clinical characteristics.

Results: Ninety five patients (F/M: 68/27) were included in the study. Mean age and asthma duration were 45.97 ± 9.44 years and 11.41 ± 7.9 years, respectively. 30.5% of the patients were ex-smoker and 5.3% were current smoker. Analgesic hypersensitivity, nasal polyposis were detected in 34.7% and 48.4% of the group. While atopy rate was 37.9%, nearly half of the group was obese. Mean minimum FEV1 was 49.49 ± 13.9%. According to the WHO definition of severe asthma, 44.2% of the patients were in the uncontrolled treatment resistant severe asthma (Group A)

and 55.8% were in the controlled treatment resistant severe asthma (Group B) groups.

In cluster analysis patient rates for group 1–5 were 2.1%, 31.6%, 10.5%, 33.7%, 22.1%, respectively. According to clinical presentation 48.4% were in exacerbation prone group, 26.3% were in fixed obstruction group. Twenty six point three of the patients remained unclassified in this classification.

No demographic and clinical difference was found between group A and B except analgesic hypersensitivity. Analgesic hypersensitivity was higher in Group B (Group A/Group B: 30.3%/69.7%) Patients in the fixed obstruction group were older and had lower FEV1 and FEF 25–75 rates compared with exacerbation prone and unclassified groups. While mould hypersensitivity was higher in exacerbation prone group, analgesic hypersensitivity was higher in unclassified group. The patients with fixed obstruction were only in group 4 and 5.

Conclusion: Distribution of our severe asthma patients according to different phenotyping systems were presented and indicate that there is still lacking in phenotyping SA.

1775
The safety and efficacy of budesonide/formoterol in long-term administration patients with asthma – a prospective study

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Aim: This study was conducted to evaluate the safety and efficacy of long-term use of budesonide/formoterol combination drug in Romanian adult patients with bronchial asthma.

Methods: In an open label, B/F 160/4.5 μg 1 or 2 inhalations twice daily (bid) as starting dose was given to Romanian adult patients (n = 137) with asthma whose FEV1 was ≥50% of predicted normal, and who had been treated with inhaled corticosteroid (ICS) and other concomitant asthma drug as a basic asthma treatment. The dose was adjusted to 1–4 inhalations bid by the investigator based on the patient's condition and the dose adjustment criteria during the 2 years treatment period.

Results: B/F was well tolerated and there was no trend of increase in incidence of adverse events (AEs) over time during the 2 years treatment period, and there was no sign of increase in severity of AEs or change in AE pattern with increasing dose to four inhalations bid. Most of drug-related AEs were class-related events for β2-agonists or ICS. B/F did not result in any apparent effect on basal plasma cortisol levels or ACTH stimulated plasma cortisol. Improvement from baseline was observed in pulmonary function and asthma control during the treatment with B/F 160/4.5 μg 1–4 inhalations bid. The improvements were seen within the first few weeks after the start of the treatment, and these were maintained during the treatment period.

Conclusion: This study indicates that long-term treatment with B/F 160/4.5 μg 1–4 inhalations bid can be well tolerated in Romanian adult patients with asthma, and its clinical efficacy can be also maintained during the treatment period of 2 years

1776
Asthma and mechanical ventilation – do we have any correlation?

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Background: Mechanical ventilation in neonates using for treatment of respiratory disorders and hypoxia. Approximately 50% of neonates in neonatal intensive care units underwent mechanical ventilation. The short-term and long-term consequenses are discussing. The aim of our investigation to find the relationship between mechanical ventilation in neonatal period aand asthma development.

Method: We have been reviewed 420 case histories of neonates underwent mechanical ventilation in neonatal period and 50 case histories of neonates without mechanical ventilation. The asthma episodes were detected in both groups.

Result: 13.1% children underwent mechanical ventilation had asthma in comparison with 8% children without previous mechanical ventilation ($P < 0.01$).

Conclusion: Mechanical ventilation in neonatal period provide an impact in development of asthma in children.

1777
Study of comorbidities in asthmatics

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Background: Gastro esophageal reflux disease (GERD) is the most commonly associated comorbidity in asthmatics, and often debated as to whether being the cause or effect. However other comorbidities, especially in the elderly asthmatics are also observed. Hence this study was undertaken to analyze spectrum of comorbidities amongst elderly and young asthmatics.

Method: Spectrum of comorbidities amongst 50 elderly (≥65 years old) and 50 young (<40 years) asthmatics presenting to the Department of Tuberculosis and Chest Diseases, Government Medical College, Patiala were noted and analyzed.

Result: 68/100 (68%) patients were having comorbidities. Out of these, 49/50 (98%) elderly and 19/50 (38%) young were having comorbidities. In 17/50 (34%) elderly, ≤4 comorbidities were noted. The elderly were having statistically significantly higher comorbidities than the young. Most common comorbidities observed were GERD, Hypertension, Visual Impairment and Depressive symptoms in 51%, 33%, 31% and 30% of asthmatics respectively. Osteoarthiritis, Hearing Impairment, Benign Hypertrophy of prostate (BHP) and Senile Dementia were exclusively seen in elderly.

Conclusion: Since 68% of asthmatics were having comorbidities, so comorbidities need to be diagnosed and managed concurrently. Simultaneous addressal of comorbidities can improve compliance and quality of life in asthmatics. Limitations of the Study: Sinusitis and upper respiratory comorbidities were not studied.

1778
Effect of health education on compliance in asthma

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Background: Asthma is a chronic disease. Non compliance is a major problem in chronic disorders. The problem of non compliance may get multiplied in elderly because of socio economic and physical problems. Health education can improve compliance. Study was undertaken to observe causes of non compliance in elderly asthmatics and effect of health education on compliance.

Method: One hundred patients of bronchial asthma presenting to the Department of Tuberculosis and Chest Diseases, Government Medical College, Patiala, Punjab, India were studied and divided into: Group A 50patients ≥65 years old, Group B 50 patients < 40 years. Initial compliance and reasons for non compliance were studied. Patients were educated on asthma and

inhalational techniques and followed up at 15th day, 1st, 2nd and 3rd month for changes in compliance and lung functions.
Result: Initially, non compliance was observed in 30 (60%) elderly and 15 (30%) young. Cause for non compliance was cost in 6, memory in 11, both cost and memory in 7 and relief of symptoms in 6 in elderly and 4, 0, 0 and 11 in young respectively. There was statistically significant difference between elderly and young with respect to all the above factors. The health education regarding the various reliever and controller medications and techniques of inhalation resulted in significant improvement in compliance in both groups, but more in young. Compliance for medications improved from a base line of 40% to 88% and 70% to 96% amongst elderly and young respectively. Mean PEFR improved statistically significantly from 75.25% to 81.13% in elderly and 84.38% to 89.74% in young.
Conclusion: Non compliance asthmatics should be specially addressed in elderly. Health education can significantly improve compliance.

1779
Increased body mass index and gastro-esophageal reflux are risk factors in control of bronchial asthma

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Background: Bronchial asthma (BA) is a public health problem as it leads to hospitalization and eventual death, particularly in its severe forms. Many studies have demonstrated an association between obesity and BA. The aim of this study was to investigate the relationship between obesity, gastro-esophageal reflux (GER) and BA control in a group of patients at an outpatient reference center in Albania.
Method: This prospective study was conducted in Specialties Policlinic No 3 in Tirana. It included 156 subjects with BA (95 f, 61 m) and above 40 years of age. Of them, 135 were with treated allergic rhinitis (AR) and 101 with positive skin prick tests for aeroallergens. From study were excluded subjects with untreated AR, tobacco smokers, and other chronic diseases (cardiac ones, diabetes, rheumatoid arthritis, etc). All the participants completed a clinical questionnaire to collect information on their BA and comorbidities, such as AR and gastro-esophageal reflux (GER), including a 5-item asthma control test (ACT) questionnaire with internal consistency reliability (see *J Aller Clin Immunol* 2004;**113**:59–65). Participants also had their weight and height in order to calculate their body mass index (BMI).
Result: Study analysis demonstrated a positive association between increased BMI (range 29–34) and uncontrolled BA (ACT range under 19 points) for 104 subjects. The rest of them (42) showed a controlled BA (ACT score 19–25), associated with significantly lower BMI (range 23–26, the cut point between normal and overweight 25, – $P < 0.05$). BA was associated to GER in 83 subjects (77/104 among uncontrolled BA, 6/42 among controlled BA subjects, – $P < 0.001$).
Conclusion: In our sample of patients, those who were obese were more likely to have uncontrolled BA and GER than patients with a normal BMI. Nevertheless, this is not conclusive evidence for a direct causal association between obesity, GER and poor asthma control. Future studies are necessary to dissect the relationship between obesity, GER and asthma outcomes.

1780
A study of estimation of poor asthma control and its causes by administering asthma control test

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Background: Various recent guidelines on asthma management are emphasizing control of asthma. Poor control of asthma mean excessive morbidity & mortality and health care expenditure. Many patients of asthma are found to be having uncontrolled asthma when they visit physicians in their clinic or in the hospital.
Method: One hundred consecutive patients of asthma attending Tuberculosis and Chest Department of Govt. Medical College Patiala were observed as regards to demographic characteristics, clinical history, physical examination and were subjected to spirometry and PEFR estimation. The 30 Second Asthma Test (GlaxoSmithKline Inc, Canada) was administered to all of them.
Result: Eighty-four percent patients were having uncontrolled asthma and only 16% patients had controlled asthma. All of them were matched as regards to age, sex, rural/urban status, education and socioeconomic status. Significant co-relation was found between uncontrolled asthma/controlled asthma on factors as shown in table given below:

Table 1. For abstract 1780.

Various Factors	Uncontrolled Asthma	Uncontrolled Asthma	Controlled Asthma	Controlled Asthma
	Yes (%)	No (%)	Yes (%)	No (%)
Poor exercise	68 (80.96)	16 (19)	7 (43.75)	9 (56.25)
Combination of Asthma Symptoms	75 (89.28)	9 (10.71)	11 (68.75)	5 (31.25)
Irregularity of treatment	72 (85.71)	12 (14.29)	8 (50)	8 (50)
Felt better & Discontinued treatment	54 (64.29)	30 (35.71)	3 (18.85)	13 (81.25)
Stigma of use of inhalers	51 (60.70)	33 (39.30)	5 (31.25)	11 (68.75)
Abnormal Spirometry	83 (98.8)	1 (1.19)	8 (50)	8 (50)
Abnormal PEFR	83 (98.8)	1 (1.19)	7 (43.75)	9 (56.25)

Conclusion: Irregularity in treatment, discontinuation of treatment on symptomatic relief are main causes of poor asthma control, need to be addressed. The 30 Second Asthma Test (GlaxoSmithKline Inc, Canada) correlated well with abnormal spirometry and PEFR.

1781
Adverse events associated to administration of omalizumab

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Background: Anti IgE therapy is the ultimate therapeutic option for severe atopic

conditions, not controlled by conventional treatment. Its efficacy and safety was described in several peer reviewed reports. Here we report the events temporally related to the administration of near two hundred doses of the only monoclonal Anti IgE antibody available for health insurance in our country.

Method: Retrospective analysis of clinical charts of patients receiving Omalizumab, considering those events presented in the 72 h after administration of it, which were not present before the procedure or as a concomitant condition of the patient. Vital signs, respiratory and cardiovascular evaluation, and dermatological inspection were performed during the hour after administration of corresponding doses, and patients were received in unscheduled visits if having any kind of complains.

Result: One hundred and ninety-two doses of 150 mg Omalizumab were given from April 2007 to March 2010; 176 for severe asthma treatment, eight for chronic idiopathic urticaria and eight for severe atopic dermatitis. The events considered related to drug administration were: Local eritema and edema 1.5% (mild); dermatitis exacerbation 0.5% (moderate). Adverse events considered not related to drug administration were: muscle pain 2.1% (moderate), bruises 1% (mild), headache 0.5% (mild), and earache 0.5% (mild). No systemic events or alterations in vital signs were found in these patients.

Conclusion: Our patients had no severe adverse events in almost two hundred doses given. Administration of Omalizumab is safe when given as indicated. (Self Funded)

1782
Association of asthma with common aeroallergens in the Maltese population

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Background: The Mediterranean climate favours the growth of specific allergenic species of flora and fauna. According to previous studies carried out in Mediterranean countries, Parietaria judaica (W21), Olea europaea (T9), Acacia spp (T19) and Periplantea americana (I6) all show a significant relationship in sensitization to asthma. As these species are all common in the Maltese environment but have never been tested for locally, there is a significant likelihood that allergen producing species are influential in the patho-physiology of asthmatics in the Maltese population. The aims of this study were fourfold. To test for the presence of sensitization towards W21, I6, T9, and T19. Moreover, D1 (House dust mite) and E1 (Cat dander/Epithelium) were also tested in the Maltese asthmatic population under study. To test for any statistical relationship between SPT and serologic results. To test for any relationship between allergic rhinitis and the sensitization to any of the allergens under study. Finally to check for a relationship between serum sIgE level in sensitized patients and age.

Method: Seventy-four asthmatic patients took part in the study. Some of these patients suffered also from rhinitis. Patients had an SPT performed simultaneously with the blood analysis. The samples were analysed by the IMMULITE® 2000 automated analyser using Chemiluminescent sandwich immunoassay.

Result: 63.5% of the study population was found monosensitized to at least one allergen; of which 10 patients (13.5%) were reactive to D1, three patients (4.1%) to E1, and four patients (5.4%) to W21 whilst the rest were sensitized to more than one allergen. The higher sIgE serum levels were only detected in D1 and W21.

Conclusion: Sensitization towards the allergens of interest is significant in the Maltese asthmatic population. It was also found that the SPT and serum sIgE results corresponded very well with house dust mite (D1) and cat (E1) SPTs but not with olive (T9). Of note is the direct relationship between allergic rhinitis and sensitization to D1. This relationship was less clear with the other allergens. The relationship between serum sIgE level and age is not clearly defined. Finally, D1 and W21 are of significance and should also be tested for in the Maltese asthmatic population.

1783
Evaluation of the CD14-159 C/T polymorphism and endotoxin exposure in cotton textile workers: gene-environment interaction

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Background: The interaction between the genes and environmental exposures is a significant determinant of disease and disease phenotypes in asthma.

Aim: To evaluate the effect of CD14-159 C/Tpolymorphism on pulmonary functions in cotton textile workers exposed to various concentrations of endotoxin.

Methods: One hundred and eight cotton textile workers completed a symptom and work exposure questionnaire, went through allergy skin prick testing, and spirometry. Sixty-five workers were genotyped for the CD14-159T C/T polymorphism. Airborne endotoxin was measured with Limulus Amoebocyte Lysate (LAL) assay in four different workplaces in the factory: slaughterhouse, repository, packing department and administrative office.

Results: Endotoxin concentration was 154.5 EU/mg in the office 45.1 EU/mg in the slaughterhouse, 129.7 EU/mg in the repository and 80.9 EU/mg in the packing department. Among the workers with the CC genotype, FEV1% was 84.5 (75–94) in the office where the endotoxin concentration was highest and 98 (90.5–99.5) in the remaining work places combined. Even though there was a trend towards lower FEV1 in those who were exposed to higher endotoxin concentrations, the difference failed to reach significance ($P > 0.05$).

Conclusion: The level of endotoxin exposure may influence lung function in cotton textile workers. This effect may partly be determined by the individual genotype at the CD14 C/T locus.

1784
Occupational allergic asthma: epidemiological profile and etiological agents in the centre of Tunisia

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Background: Nowadays, asthma is the respiratory occupational disease the most common in industrialized countries and also in many developing countries, well above pneumoconiosis. The aim of our study is to establish the epidemiological profile and determine the most relevant allergens in the workplace in the center of Tunisia.

Method: Exhaustive study of the cases of occupational allergic asthma compensated during 8 years by the medical comities of occupational accidents and diseases, empowered to fix the rate of permanent partial disability (IPP) in the Tunisian center. Data were collected from medical register of the The National Health Insurance Fund (CNAM) and from the investigations of its engineers.

Result: One hundred and twenty-nine patients were compensated for occupational allergic asthma during the study period, with an average age of 41 ± 7.7 years

(22–59 years). The sex ratio was 0.62. The average anteriority in office was about 16.42 ± 9.29 years (0–40 years). Family history of asthma was reported in 3.8% of cases. Atopy was noted in 38 patients (29.4%) and pre-existing asthma in seven of them (5.4%). Respiratory symptoms were isolated in 38% of patients and associated with rhinitis in 37.2% of them. The most represented sectors were clothing and textile ones (96 cases equivalent to 74.4% of patients compensated). Other industries have been found especially automotive, plastics and wood. The etiologic agents of occupational allergic asthma were mainly in textile plant dusts (72.9% of cases), flour (5.4%), wood (4.7%) and isocyanates (4.7%).
Conclusion: Although allergens in cause of occupational asthma are diverse and continue to multiply in industrial sectors witch are in constant evolution; our work highlights a relatively limited number of industries and allergens summarizing the large majority of cases compensated in the region. Undoubtedly this distribution is largely impacted by the nature of the industries located in the center Tunisian. Thus, it seems important, at first to raise occupational conditions particularly among workers engaged in one of these areas, and secondly, to develop plans and targeted prevention priority.

1785
Life quality of workers compensated for allergic occupational asthma in Tunisia center

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Background: The aim of our study is to assess factors influencing quality of life of employees compensated for allergic occupational asthma in the Tunisia center.
Method: Cross-sectional study of the life quality of patients recognized compensated for occupational allergic asthma during 8 years in the Tunisian center. We referred to the Asthma Quality of Life Questionnaires (AQLQ) in its French version. It was completed with the physician investigator during an interview with the patient. This questionnaire is composed of 32 items divided into four domains: symptoms, activity limitation, emotional function, environmental stimuli.
Result: In total, 129 cases of occupational asthma have been compensated, with an average age of 41 ± 7.7 years (22–59 years) and a sex ratio equal to 0.62. The average rate of the permanent partial disability (PPD) accorded to the patient was of 26.3 ± 13.8%. Professional consequences and life quality score was evaluated in 106 patients (82.17%). In 56.6% of cases, employees have kept the same post of work, with conversion and adjusting of work conditions in 25.5% of cases. Eighteen employees were laid off (17%); 7.5% have abandoned their posts and 2.8% received an early retirement. The average global life quality score were 3.65 ± 0.75. This global score was <4 in 82 workers (77.3%) corresponding to the group having a 'bad' quality of life. The workstation maintenance has been significantly correlated with a poor quality of life ($0 = 0.04$) and with a lower rate of PPD ($P = 0.00$). On the other side, the adjusting of the work post and the improvement of work conditions were correlated with a higher global life quality score ($P = 0.00$). The analytic study concluded also, that the limitation of the symptoms domain was influenced by work in the textile sector ($P = 0.04$) and the association between rhinitis and occupational asthma ($P = 0.02$). While, the age was the major factor influencing the limitation activity field ($P = 0.006$).
Conclusion: Our study emphasizes the need to improve eviction procedures for occupational allergic asthma victims; by strengthening preventive measures and thanks to the development of technical structure that ensures the rehabilitation of these patients.

1786
National safety data of post-marketing use of omalizumab in severe persistent asthma in Turkey

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Background: The real life safety data of omalizumab mostly belongs to European and North American countries. Omalizumab has been using in Turkey since 2008. Although real life efficacy has been demonstrated in our country, there is no data about Real life safety. Therefore we aimed to evaluate side effects of omalizumab in Turkish patients in the post-marketing period.
Material and Methods: Patients treated with omalizumab because of uncontrolled severe allergic asthma despite receiving high dose inhaled steroids plus long-acting beta2 agonists were included to the study from 16 asthma centers located different geographic regions in Turkey. Dosing of omalizumab was performed according to the labeling indication. A structure questionnaire developed by the authors was used to evaluate the local and systemic side effects of omalizumab.
Results: The study population consisted of 130 adult (M/F: 35/95), and 13 pediatric patients (M/F: 7/6), and the mean ages were 46.96 ± 5.12 and 14.23 ± 1.06 years, respectively. The vast majority of the patients were sensitized to house dust mites in both age groups (83% and 92%). The ratio of polysensitization in adults and pediatrics was almost same as 38%. The total number of injection was 2093. Omalizumab was stopped in 19 patients (three pediatric, 16 adult) due to lack of efficacy, difficulties with health care and side effects. Local and/or systemic side effects including fatigue, vertigo, hypertension, generalized pruritis, exanthema, erythema nodosum, flu-like syndrome, >10 cm edema at the site of injection, bronchospasm, thrombocytopenia, parasitic infestation, prostatic carcinoma and colon adenocarcinoma were seen in 12 adult patients. Among 12 patients, only four patients had to stop taking omalizumab (two patients with carcinoma, one flu-like syndrome and one erythema nodosum). None of these malignancies was related with omalizumab treatment. Neither dosing nor duration of omalizumab treatment appeared to be related with the development of side effects was effective.
Conclusion: This national real life data showed that omalizumab seems to be safe for Turkish patients with uncontrolled

severe allergic asthma in real-life clinical settings.

1787
Efficacy and safety of anti-TNF-α chimeric monoclonal antibody (infliximab) in the treatment of Churg-Strauss syndrome

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Background: Severe asthma may be complicated by the onset of Churg–Strauss Syndrome (CSS), a small-sized vessel necrotising systemic vasculitis with a widespread but quite variable organ involvement. Corticosteroids and immunosuppressants (mainly cyclophosphamide) are by far the most effective therapy currently available for CSS treatment, but more than three-quarters of all the patients will remain corticosteroid-dependent, mostly because of residual asthma and/or eosinophilia.
Methods: In this study we analysed the clinical and immunological outcomes of infliximab treatment in six patients suffering from CSS with persistent severe hypereosinophilic asthma despite standardized therapy. These patients have been selected among 77 patients (F/M: 46/31) due to their high serum levels of TNF-α (324 ± 72.6 pg/ml). Infliximab has been administered at 5 mg/kg. The length of treatment was of 14.8 ± 3.1 months and number of infusions/patient were 9.8 ± 1.6.
Results: All treated patients well tolerated infliximab administrations, with no any side effects. None developed anti-infliximab antibodies. Five out six patients displayed a good clinical response to the treatment, as shown by a significant increase of the Asthma Control Test score (9.2 ± 1.5 *versus* 18.3 ± 2.9, $P < 0.02$), a significant decrease of circulating eosinophilia (31.2 ± 6.6% *versus* 8.3 ± 2.9%; $P < 0.02$) and of daily steroid dosage (prednisone 21.2 ± 2.9 *versus* 10 ± 4.5 mg, $P = 0.05$). During the treatment patients also displayed the reduction of serum eotaxin (532.6 ± 58.5 *versus* 215.5 ± 29.1 pg/ml).
Conclusion: Our preliminary data suggest a role for infliximab in the treatment of persistent severe bronchial asthma and hypereosiniphilia in patients with Churg–Strauss Sindrome not responder to traditional immunosuppressive drugs.

1788
Obesity, overweight and pulmonary function

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Background: Asthma and obesity are both inflammatory state. Obesity may directly affect individuals with asthma predisposition by direct mechanical effects, by immune response enhancement through related genetic mechanisms, and by sex-specific hormones. The purpose of this study was to examine the effects of overweight, obesity on pulmonary function among community-dwelling adults suffering from asthma.
Method: Forty five subjects, 17 male (mean age 65.35 ± 15.45 years, mean BMI 27.38 ± 3.59 kg/m^2, mean forced expiratory volume in one second (FEV1) 75.17 ± 19.22%, mean forced vital capacity (FVC) 95.5 ± 18.46%), 28 female (mean age 60.21 ± 14.43 years, mean BMI 31.29 ± 5.65 kg/m^2, mean FEV1 92.82 ± 23.85%, mean FVC 113.28 ± 18.23%), were included in a cross-sectional observational study. The body mass index was used to classify subjects as normal weight, overweight, or obese on the basis of international reference values. Each subject performed pulmonary function testing in the seating position.
Result: One-way ANOVA was used to analyze means of grouped data-group of nine subjects with normal BMI mean age 61.78 ± 15.23 years, mean BMI 22.63 ± 1.77 kg/m^2, mean FEV1 77.4 ± 18.27%, mean FVC 99.78 ± 22%, group of 17 subjects with overweight BMI mean age 62.59 ± 17.46 years, mean BMI28.37 ± 1.1 kg/m^2, mean FEV1 86.76 ± 21.78%, mean FVC 108.3 ± 19. 67%, group of 19 subjects with obese BMI mean age 61.95 ± 12.87 years, mean BMI 34.51 ± 3.85 kg/m^2, mean FEV1 89.74 ± 27.25%, mean FVC 108.21 ± 20%.
Conclusion: Effects of overweight, obese on pulmonary function were not observed. This could be explained by small sample size, study design and sex specific effects.

Late Breaking Poster Session 4

Inflammation and innate immunity

1789
Inflammatory markers in exhaled breath condensate in patients with asthma and rhinitis

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Background: To determine malondialdehyde and total protein levels in exhaled breath condensate (EBC) in patients with asthma, rhinitis, asthma and rhinitis and healthy subjects.
Method: Fifty-three patients with rhinitis, 12 patients with mild asthma, 16 patients with asthma and rhinitis and 13 healthy controls were included in the study. Asthmatic patients were patients recently diagnosed, none were on inhaled or systemic corticosteroid therapy. Rhinitis patients were symptomatic for at least 1 year and were recently diagnosed, not on nasal corticosteroid therapy. Patients with asthma attack were not included in the study. Skin prick test was performed in patients and healthy controls to determine atopic status, atopic subjects were excluded from the control group. Nasal smear was studied in all subjects to determine nasal eosinophilia. Smokers were not included in the study. EBC was collected from the subjects and malondialdehyde and total protein were measured.
Result: Age and gender were similar in the patients with rhinitis, asthmatic patients, patients with asthma and rhinitis and healthy controls. No statistical difference was found in the malondialdehyde and total protein levels in EBC between four groups ($P > 0.05$). More patients were atopic in the rhinitis and asthma plus rhinitis groups. Atopy and nasal eosinophilia were not related to malondialdehyde and total protein levels in EBC.
Conclusion: Total protein in EBC is not a differentiating marker in various pulmonary diseases, besides it is commonly dependent on the measurement techniques. Although malondialdehyde in EBC is elevated in asthmatics due to airway inflammation, in the present study it was not different between asthmatics and control group. This may be a result of that the patients included had mild asthma and were not in attack period. In rhinitis patients normal levels of malondialdehyde in EBC suggests that airway inflammation is not significant in those patients.

1790
Copy number variation of CCL3L1 influences asthma risk by modulating IL-10 expression.

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Background: This study was conducted to assess the role of chemokine ligand 3-like 1 (CCL3L1) in asthma by both association analyses of human subjects and *in vitro* functional analyses.
Method: We analyzed the copy number of the CCL3L1 gene in 533 Korean subjects (372 controls and 161 asthma patients) by real-time polymerase chain reaction, and investigated the effect of recombinant CCL3L1 proteins on THP-1 human monocytic cells that were stimulated with house dust mite extract.
Result: The mean copy number of CCL3L1 in asthma subjects was significantly lower than that of control subjects (3.18 *versus* 3.75, $P = 0.001$). A low copy number of ≤1 was significantly associated with increased asthma risk with an odds ratio of 2.47, and a high copy number of ≥5 was associated with decreased asthma risk with an odds ratio of 0.40. Subjects with < 1 copy of CCL3L1 had significantly lower mRNA levels of CCL3L1 in peripheral blood cells, and significantly higher serum IgE levels ($P > 0.05$). In the house dust mite extract-simulated THP-1 monocytic cells, CCL3L1 protein dose-dependently up-regulated the expression of IL-10, an anti-inflammatory cytokine.
Conclusion: It can be suggested that the copy number of CCL3L1 may influence asthma risk and serum IgE level by modulating IL-10 expression.

1791
IRAK3 gene variants associate with asthma. A replication study and metaanalysis

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Background: Asthma is a chronic inflamatory disease affected by both genetic and environmental factors. Interleukin-1 receptor-associated Kinase 3 (IRAK3) gene has recently emerged as a new candidate for suscetibility as a result of positional cloning of early-onset persistent asthma in Sardinian families, with two single nucleotide polymorphisms (SNPs) further replicated in the same study in a case-control Italian sample.
Methods: We aimed to replicate the association of IRAK3 common variants with susceptibility to asthma in case-control Spanish samples. Using re-sequencing data from 23 kilobases of non-repetitive gene regions from 32 healthy Spanish subjects, we selected a set 15 tagging SNPs and conducted genotyping in 607 astmatic cases from the genetic of Asthma (GOA) study in the Spanish population and 1407 population-based controls.
Result: Multiple SNPs distributed across the gene were associated with asthma ($P = 0.038$) and atopic asthma ($0.008 < P\text{-value} < 0.040$), and remaining significant after adjusting for population stratification. Haplotypes of SNPs distributed from intron 2to 6 of the gene demostrated association with susceptibility to asthma and atopic asthma ($0.001 < P\text{-value} < -0.043$). These finding extended and replicated, at allele and haplotype level, association of IRAK3 with asthma. Congruently, a meta-analysis including 3846 unrelated samples demonstrated consistent directionality of effects in associated SNPs among Italian and Spanish

(min $P = 2.9 \times 10^{-7}$) for rs 1370128), but not with East Asian samples.
Conclusion: Taken together, our results confirm that variants of IRAK3 gene might play an important role in the asthma pathogenesis in European populations. Regional scientific research.

1792
Leukotactin-1/CCL15 induces cell migration and differentiation of human eosinophilic leukemia EoL-1 cells through PKCδ activation

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Background: Leukotactin-1 (Lkn-1)/CCL15 is a CC chemokine that binds to the CCR1 and CCR3. Lkn-1 functions as an essential factor in the migration of monocytes, lymphocytes, and neutrophils. Although eosinophils express both receptors, the role of Lkn-1 in immature eosinophils remains to be elucidated. In this present study, we investigated the contribution of the CCR1-binding chemokines to chemotactic activity and in the differentiation in the human eosinophilic leukemia cell line EoL-1.
Method: Chemotaxis assay was performed to determine the migration of EoL-1 cells in response to Lkn-1. Activity of PKCδ kinase was determined using PKCδ kinase assay. Flow cytometry was used for evaluating the expression of CCR1-5.
Result: Lkn-1 induced the stronger migration of EoL-1 cells than other CCR1-binding chemokines such as RANTES/CCL5, MIP-1α/CCL3 and HCC-4/CCL16. Lkn-1-induced chemotaxis was inhibited by pertussis toxin, an inhibitor of Gi/Go protein; U73122, an inhibitor of phospholipase C and rottlerin, an inhibitor of protein kinase C delta (PKCδ). Lkn-1 increased PKCδ activity, which was partially blocked by the pertussis toxin and U73122. Lkn-1 enhanced the butyric acid-induced differentiation via PKCδ after binding to the increased CCR1 because Lkn-1 caused EoL-1 cells to change morphologically into mature eosinophil-like cells. Likewise, Lkn-1 increased the expression of both eosinophil peroxidase (EPO) and the major basic protein (MBP). PKCδ activation due to Lkn-1 is involved in migration, as well as the butyric acid-induced differentiation.
Conclusion: This finding contributes to an understanding of CC chemokines in eosinophil biology and to the development of novel therapies for the treatment of eosinophilic disorders. This study suggests the pivotal roles of Lkn-1 in the regulation of the movement and development of eosinophils.

1793
Corticosteroid-resistant expression of CX3CL1, CCL5 and CCL11 by TNF/IFN in airway smooth muscle (ASM) from healthy, COPD and asthmatic patients is reversed in the presence of a KCa3.1 channel inhibitor

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Background: The K+ channel KCa3.1 is expressed by several inflammatory and structural airway cells including mast cells and airway smooth muscle (ASM). We have proposed that this channel may play roles in the development of both airway inflammation and remodelling in asthma and COPD. The role of KCa3.1 channels in chemokine secretion by ASM is not known.
Aims: To investigate the expression of KCa3.1 in ASM in the airways of healthy and asthmatic subjects, and its function in ex vivo cultured primary human ASM cells.
Methods: Tissue was collected at bronchoscopy from subjects with asthma and healthy controls, and either processed into GMA for immunohistochemistry, or dissected for the culture of ASM. Further ASM samples were cultured from patients with COPD undergoing lung resection for carcinoma. To examine ASM chemokine production, we used our well-established cellular model of corticosteroid resistance (TNFα-IFNγ treated ASM cells).
Results: KCa3.1 immunostaining was evident in the ASM in healthy subjects and patients with asthma. There was no difference in the level of expression between healthy subjects ($n = 7$), and moderate ($n = 5$) and severe ($n = 6$) asthma. In cultured ASM cells exposed to TNFα/IFNγ, both ELISA and RT-PCR demonstrated expression of CX3CL1 or CCL5 which were (i) synergistically produced at 24 h and (ii) completely resistant to fluticasone pre-treatment (100 nM). We found that KCa3.1 block alone attenuated the secretion of CX3CL1 but had no effect on CCL5 or CCL11 expression. Interestingly, the inability of fluticasone to inhibit CX3CL1, CCL5 and CCL11 expression in response to TNF/IFN combination was reversed by both TRAM-34, a selective blocker of KCa3.1 channels, and knockdown using adenoviral-delivered shRNA. The increased anti-inflammatory action induced by the TRAM-34-fluticasone combination was observed in cells derived from healthy ($n = 3$), asthmatic ($n = 3$) and COPD ($n = 4$) patients. In addition, restoration of corticosteroid sensitivity by the KCa3.1 blocker was associated with an increased GR phosphorylation on serine 211 residues.
Conclusions: Together, these data suggest that KCa3.1 channels play an important role in cytokine-induced corticosteroid insensitivity in airway smooth muscle cells and could serve as a novel therapeutic target for the treatment of steroid resistance in airway diseases.

1794
Suppressive effect of *Petasites japonicus* extract on ovalbumin-induced airway inflammation in an asthmatic mouse model

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Background: Asthma is a disease marked by airway inflammation. *Petasites japonicus* (Pj) is known as an herb for treating asthma, oxidant stress and gastric ulcer in traditional Oriental medicine. In this study, the inhibitory effects of Pj extract on asthmatic responses were examined both *in vitro* and *in vivo*.
Method: The Pj extract was acquired from whole plants of *P. japonicus* using 80% ethanol. Cytotoxicity of the Pj extract on Jurkat cells and THP-1 cells was determined using MTT assay. ELISA was performed to determine the expression levels of cytokines, chemokines, and IgE. BALB/c mice were used for an OVA-induced asthmatic mouse model. Reactive oxygen species (ROS) production was stained with 2,7-dichlorofluorescein diacetate and measured by fluorescence-activated cell sorting analysis. The effects of the Pj extract on leukocyte infiltration and mucus production were determined using periodic acid-Schiff staining as well as hematoxylin and eosin staining.
Result: The Pj extract inhibits the increased release of interleukin (IL)-2, IL-4, IL-5, IL-13, and TNF-α due to house dust mite in Jurkat cells and blocks IL-6 expression in THP-1 cells without cytotoxicity. In the asthmatic mouse model, the Pj extract inhibits eosinophil infiltration, mucus hypersecretion, and IL-5 level in bronchoalveolar lavage (BAL) fluid, and it has a scavenging effect on ROS production of cells in BAL fluid.
Conclusion: The Pj extract has suppressive properties for the pathogenesis of airway inflammation and may be used as a potent agent for the treatment of asthma.

1795
Combination therapy with corticosteroid and long acting beta 2 agonist may prevent airway remodeling

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Background: Asthma is a worldwide chronic disorder that is characterized by airway inflammation and airway remodeling, which results in intermittent airflow obstruction and subsequent perception of symptoms and exacerbations. Airway remodeling is an important feature of chronic airway disease, but the mechanisms involved remain unclear. Since TGF-β has been implicated in the development of airway remodeling in asthma based on its strong capacity to induce extracellular matrix (ECM) production.
Method: We analyzed using by real time RT-PCR and Western blotting method. We thought to determine the relationships between collagen type I production in normal human bronchial cell line (NHBE).
Result: NHBE cells stimulated with Th2 type cytokine TGF-β or combination with fluticason and salmeterol. Production levels of type I collagen was expressed in cultured epithelial cells NHBE stimulation with TGF-β. Furthermore, collagen type I production in NHBE cells stimulation with TGF-β was up-regulated in a dose and time dependent manner. And also we found that protein levels of collagen type I were increased from activated NHBE cells stimulating with TGF-β. In contrast, combination with ICS and LABA decreased collagen type I expression in NHBE cells.
Conclusion: In conclusion, these findings suggested bronchial epithelial cells may produce collagen type I and combination therapy with corticosteroid and long acting beta 2 agonist is a key target therapy, possibly make an important role of airway remodeling.

1796
Effects of diesel exhaust particles on human airway epithelial cells in an *in vitro* inflammation model

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Background: Epidemiological studies suggest that there is an association between increases in particulate air pollution and respiratory morbidity; however, the underlying mechanisms are unclear. We have previously demonstrated that diesel exhaust particles (DEP) induce human lung epithelial cell (A549) proliferation under serum free condition. However, it is not known whether DEP have any effects on cell viability in the presence of serum, a condition that may be seen in inflamed airways.
Method: We cultured A549, BEAS-2B and primary bronchial epithelial cells (BECs) and incubated with 50–1000 ìg/ml DEP under 1–10% fetal calf serum (FCS), in the presence and absence of *N*-acetylcysteine (NAC), an inhibitor of JNK (SP600125), an inhibitor of ERK (PD 98059) and NF-κB inhibitor (SN50) for 48 h. The cell viability determined by MTT assay, whereas apoptosis was assessed by Annexin V/PI staining using FACS. p21, p27 and p53 mRNA expression was studied by RT-PCR.
Result: DEP significantly decreased A549 cell viability under presence of 1–10% FCS after 48 h, however, the marked effect was observed by 50 μg/ml [optical density (OD) = 1.8, $P < 0.01$], 100 μg/ml (OD = 1.76, $P < 0.0001$), 200 μg/ml (OD = 1.50, $P < 0.0001$), 400 μg/ml (OD = 1.52, $P < 0.0001$) and 1000 μg/ml DEP (OD = 0.92, $P < 0.0001$) in the presence of 3.3% FCS, as compared to the control cells (OD = 2.01). Similarly, higher concentrations of DEP significantly decreased BEAS-2B and primary BECs viability. NAC (3.3–33 mM), and inhibitors of JNK (10 and 33 μM), ERK (3.3–33 μM) and NF-κB (3.3–33 μM) significantly inhibited the viability of A549 cells treated in culture medium containing 3.3% FCS. Furthermore, the highest concentrations of 33 mM NAC and 33 μM JNK inhibitor further decreased viability of A549 cells treated with 200 μg/ml DEP in 3.3% FCS. Although, DEP did not show any effects on apoptosis of A549 cells, 50–100 μg/ml DEP significantly increased mRNA expression of p53. The release of IL-8 was significantly decreased by 200 μg/ml DEP under presence of 3.3% FCS.
Conclusion: These findings suggest that DEP may play a role in the pathogenesis of inflammatory airway diseases such as asthma and chronic obstructive pulmonary diseases by modulating cell viability, p53 expression and release of inflammatory cytokines.

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1797
The role of innate (natural) physical forces and man made agents in enhancing the allergy population

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Background: In the era of scientific advancements, the allergy population is increasing at an alarming rate in modern urban society. In this context, the influence of the natural physical forces like humidity and man made agents in enhancing the allergy population is investigated.
Method: The connection of humidity in enhancing the allergy population has been investigated in two cities namely Visakhapatnam, a coastal city and Anantapur, a non-coastal and dry weather city of Andhra Pradesh State in India, and the number of allergic population has been determined basing on the physical presence of allergic symptoms and estimating the absolute esinophil count and peak expiratory flow rate.
Result: Visakhapatnam city with an average humidity around 70% is found to trigger allergic conditions in 30% migrants to that of Anantapur city with an average humidity around 40% made only less than 10% migrants to be allergic. The innate physical forces like rainy season, onslaught of monsoon, dampness, spores, animal danders and exposure to the rays of sun light at certain angles or man made non-immunogenic agents like smoke/odors/perfumes and direct exposure to air conditioned breeze could trigger the spontaneous allergic rhinitis/asthma. Furthermore, a small change in humidity from room to room in the same building can trigger allergic reactions in susceptible individuals. These allergic symptoms can be prevented by regulating or changing the speed of the fan, or the directions of the air-conditioned breeze. And also, it is observed that allergic symptoms appear more frequently in indoors rather than in outdoors, this is due to humidity, soiled robes, the other agents like house dust mite, unhygienic conditions or combination of other factors.
Conclusion: There are certain kinds of physical agents which can induce allergic symptoms and also certain perfumes can relieve off existing asthmatic symptoms. Further, the optimum humidity around 35–50% is found to be appropriate for getting away from allergic symptoms.

1798
Broad assessment of host responses to a wide range of infectious agents in samples with small cell numbers

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Background: There is a great interest regarding the role of early life infections in development of host defence and asthma and allergy. One difficulty in investigating responses to various infectious agents in birth cohort studies is the small volume of sample that can be obtained from young subjects.
Objectives: To develop a method that uses a small number of cells, allowing assessment of an increased number of stimuli on samples obtained specially from paediatric populations.
Methods: Traditionally $\sim 2 \times 10^6$ PBMC in 2 ml media have been needed per condition in order to generate enough supernatant to investigate several cytokines & chemokines using classic methods. Here, we used 2×10^5 PBMC from normal donors in 0.2 ml media. Cells were infected with HRV (16 and 1B types), RSV, Strept pneumo and H. influenzae and stimulated with viral and bacterial TLR ligands (15 stimuli in total and media control). Supernatants were harvested after 24 h and 21 parameters (IFN-α2, IFN-β, IFN-γ, IL-1β, IL-2, IL-4, IL-5, IL-6, IL-8, IL-10, IL-12p70, IL-13, TNF-α, IP-10, MIP-1β, Eotaxin, Eotaxin-3, MCP-1, MCP-4, MDC and TARC) were analysed using MSD multiplex kits.
Results: Many analytes were significantly induced by many stimuli, for example RV-16 induced induces IFN-α2, IFN-β, IFN-γ, IL-1β, IL-6, IL-8, TNF-α, IP-10, MIP-1β, Eotaxin, Eotaxin-3, MCP-1, MCP-4, MDC and small amounts of IL-2. H. influenzae induced a different spectrum of analytes: IFN-γ, IL-1β, IL-6, IL-8, IL-10, IL-12p70, TNF-α, MIP-1β, Eotaxin and MDC (all $P < 0.05$ *versus* media).
Conclusion: A broad range of host defence responses against a variety of organisms can be studied with a low number of cells in human samples. This is of particular interest in birth cohort and other pediatric studies where only a small amount of blood can be collected.

1799
Impaired innate immunity to rhinovirus in severe asthmatic children

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Background: The pathogenic mechanisms of rhinovirus-induced asthma exacerbations are incompletely understood. Impaired production of innate IFN-β and IFN-λ have been identified in bronchial epithelial cells and bronchoalveloar lavage macrophages from atopic mild moderate asthmatics upon rhinovirus infection *in vitro*. These cells display similar production of pro-inflammatory cytokines when compared to cells cultured from non-asthmatic, non-atopic individuals, and are observable in steroid treated and steroid naive individuals.
Methods: In the present study, bronchial epithelial cells were cultured from severe asthmatic children ($n = 8$, mean age 11 years, range 9–15, 63% male) and non-atopic non-asthmatic controls ($n = 10$, mean age 7 years, range 2–15, 70% male). Cells were infected with rhinoviruses RV1B, RV16, or culture medium and mRNA and protein expression and virus release was measured at 8–48 h post infection.
Results: Cells from severe asthmatic children displayed significantly reduced IFN-β ($P < 0.05$) IFN-λ1 ($P < 0.05$) and IFN-λ2/3 ($P < 0.05$) at 24 h compared to cells cultured from non-atopic non-asthmatics. IFN-λ2/3 was more impaired than IFN-β or IFN-λ1. There was no significant difference between rhinovirus induced IL-8 or ENA-78 mRNA between the two groups. Cells cultured from severe asthmatic children had significantly higher RV1B ($P < 0.01$), RV16 ($P < 0.05$) release at 48 h, compared to controls. Impaired RV1B induced IFN-β and IFN-λ2/3 also showed strong negative correlations with increased virus load ($r = -0.79$, $P = 0.013$ and $r = -0.65$, $P = 0.015$ respectively). RV1B induced IFN-λ2/3 from severe asthmatics also showed strong negative correlations with total serum IgE ($r = -0.75$, $P = 0.04$) and a trend for a negative correlation with total number of positive RAST tests which was not significant ($r = -0.69$, $P = 0.06$).
Conclusion: This is the first report of impaired innate immunity in severe asthma, and support the previous findings of impaired IFN production in asthmatics.

1800
Prostaglandin E_2 suppresses polyI: C-stimulated cytokine production via EP2 and EP3 in human ocular surface epithelial cells

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Background: PGE_2 is produced during inflammatory responses and suppresses the production of cytokines and chemokines induced by LPS stimulation in macrophages and dendritic cells. Human conjunctival and corneal epithelial cells produce cytokines such as IL-6, IL-8, and IFN-β in response to stimulation by polyI:C but not LPS. In this study, we examined the expression of PGE_2 receptors in human conjunctival and corneal epithelial cells and investigated whether PGE_2 down-regulates polyI:C-induced cytokine production.
Method: We used ELISA and quantitative RT-PCR assay to examine the effects of PGE_2 on the polyI:C-induced production and mRNA expression of IL-6, IL-8, CCL5, CXCL10, and CXCL11 by primary human conjunctival epithelial cells (PHC-jEC) and immortalized human corneal-limbal epithelial cells (HCLE). We performed RT-PCR to assay the mRNA expression of the PGE_2 receptor EP1-4 in human conjunctival and corneal epithelial cells.
Result: PGE2 significantly attenuated the productions and mRNA expressions of CCL5, CXCL10, CXCL11, and IL-6 but not of IL-8. *in vivo* human conjunctival and corneal epithelial cells expressed the mRNA expression of EP2, EP3, and EP4, but not for EP1. EP2 agonist significantly suppressed the polyI:C-induced production and mRNA expressions of CCL5, CXCL10, and CXCL11 but not of IL-6. EP3 agonist significantly suppressed the production and mRNA expressions of CCL5, CXCL10, CXCL11, and IL-6. On the other hand, EP4 agonist failed to suppress the cytokine production induced by polyI:C stimulation.
Conclusion: Our results show that PGE_2 attenuated the mRNA expression and production of CCL5, CXCL10, and CXCL11 via both EP2 and EP3, and that the IL-6 mRNA expression and production of IL-6 was attenuated only by EP3.

1801
Bifidobacterium breve C50 supernatant induced anti-inflammatory human dendritic cells through TLR2 pathway

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Commensal gut bacteria are essential for the development and maintenance of the gut's immune system. Some probiotic bacteria strains, such as Lactobacillus and Bifidobacterium species, have been reported to provide protection from allergic and inflammatory bowel diseases. However, the interaction between the probiotics and the immune system is poorly understood. A fermentation product of *Bifidobacterium breve C 50* (BbC50) is known to have a benefical effect on mice gut diseases. Human dendritic cells (hDC) can induce either specific immune response or immune tolerance, depending on the state of maturation, co-stimulatory molecule expression and cytokine secretion. The maturation process can be influenced by probiotics or bacterial molecules such as zymosan or LPS. Here, we investigated the effect of a bacteria-free supernatant fermented by BbC50 (BbC50sn) on the maturation of hDC. BbC50sn was able to mature hDC after 48 h of stimulation shown by the expression of maturation markers such as CD25 and CD83 compared to other maturation agents. In addition, hDC stimulated by BbC50sn secreted more the pro-tolerogenic cytokine IL10 than IL12, a pro-inflammatory one. The maturation pathway activated by BbC50sn was shown to be at least through the Toll Like Receptor 2 (TLR2) pathway. The precise mechanism of the anti-inflammatory pathway activated by BbC50sn via TLR2 engagement remained currently unknown. Probiotics modulated transcriptomic and protein expression of some innate pro-inflammatory immune receptors such as TREM1 and IFNAR1. TLR2 pathway seemed to inhibit also protein expression of these receptors. These data show that BbC50 supernatant was able to induce the maturation of dendrtic cells and to skew towards a protolerogenic profile by inducing IL10 secretion. These properties of BbC50sn are thought to act via TLR2. The supernatant of probiotic of BbC50 could have anti-inflammatory and anti-allergic effects in the gut environment and might therefore protect against intestinal immune disorders.

1802
Overlap among inflammatory disorders identifies new genetic risk factors for atopic dermatitis

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Background: Genome wide association studies (GWAS) have provided tremendous insight into the genetic determinants of complex disorders. Most of the genetic risk factors identified in GWAS are common variants conferring moderate to low disease risk. Unfortunately, large samples sizes are needed to detect these low-risk variants at the genome-wide significance threshold required in a study testing a large number of markers (for example 0.05/1 million tests = $P < 5 \times 10^{-8}$). Therefore, a major challenge in the GWAS era is the identification of true risk factors among the thousands of markers that show evidence for association but do not reach genome wide significance (the so called 'GWAS grey zone'). Recent GWAS results point to shared disease-risk variants for various chronic inflammatory disorders. For example, the atopic dermatitis (AD) susceptibility factor rs7927894[A] on chromosome 11q13.5 is also a risk factor for the chronic inflammatory bowel disease (Crohn's disease).
Method: We aimed to use this common genetic background among inflammatory disorders in order to prioritize GWAS results for atopic dermatitis. The underlying assumption is that a genetic risk factor for a given disorder will have a higher probability to play a role in a related disorder than a randomly selected marker. Thus we inspected the database of GWAS results (http://www.genome.gov/gwastudies/) in order to select all genome wide significant hits for phenotypes physiologically related to inflammation. We defined a set of 277 candidate SNPs (Single Nucleotide Polymorphisms or SNPs) that were then screened for association with atopic dermatitis in a GWAS meta-analysis consisting of 2890 AD cases and 2030 controls from Germany and England.
Result: Various new AD risk factors were identified. For example, we observed association with Interleukin 23-Receptor (IL23R), a gene previously associated with Crohn's disease, ulcerative colitis, psoriasis, ankylosing spondylitis, and Behcet's disease. We are currently genotyping SNPs in 11 different loci for replication in a panel of case-control studies from Germany, Poland and Czech Republic in order to firmly establish the association of these new loci with atopic dermatitis.
Conclusion: The present study will increase our knowledge on the genetic determinants of atopic dermatitis and on the physiological pathways underlying common inflammatory disorders.

1803
The eczema risk variant on chromosome 11q13 (rs7927894) in the population-based ALSPAC cohort: a novel susceptibility factor for asthma and hay fever

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Background: In a genome-wide association study, a common variant on chromosome 11q13.5 (rs7927894[T]) has been identified as a susceptibility locus for eczema.
Method: We aimed to analyze the effect of this risk variant on asthma and hay fever, and to determine its impact on the general population level in over 9300 individuals of the prospectively evaluated ALSPAC birth cohort.
Result: We demonstrate an association of rs7927894[T] with atopic asthma and with hay fever. The largest effect sizes were found in patients with the combined phenotypes atopic asthma plus eczema (OR = 1.50; 95% CI 1.20–1.88; $P = 3.7 \times 10^{-4}$) and hay fever plus eczema (OR = 1.37; 95% CI 1.15–1.62; $P = 3.8 \times 10^{-4}$). We replicated the effects of rs7927894[T] on eczema-associated asthma and hay fever independently in the German GENUFAD study, and show that they are significantly larger than the effect observed in eczema. The estimated population attributable risk fractions for eczema, associated atopic asthma, or hay fever were 9.3%, 24.9%, and 23.5%, respectively. Finally in eczema, we found a synergistic interaction of rs7927894[T] with filaggrin gene (*FLG*) mutations, which are a major cause of epidermal barrier dysfunction, and replicated the interaction in the German MAS birth cohort.
Conclusion: The synergistic effect of rs7927894[T] and *FLG* mutations on eczema risk, as well as the association of both variants with eczema-associated

atopic asthma and hay fever point to an involvement of rs7927894[T] in a functional pathway that is linked to the barrier defect.

1804
Copy number variant in the human beta-defensin gene cluster (8p23) is not associated with atopic dermatitis

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Background: Atopic dermatitis (eczema, AD) is a common chronic inflammatory skin disease arising from multiple genetic and environmental factors that determine disease susceptibility. AD patients have an increased susceptibility to bacterial and viral skin infections. Moreover, 90% of patients are colonized with *Staphylococcus aureus* pointing to a defect in the cutaneous immune defense. The beta-defensins are antimicrobial peptides secreted by epidermal cells and constitute an important component of the cutaneous innate immune system. The genes encoding the epidermally expressed beta-defensins *DEFB4*, *DEFB103A* and *DEFB104A*, are located in a gene cluster on chromosome 8p23 that varies in copy number. Individuals carry between 2 and 12 copies of this gene cluster. The copy number has been shown to be correlated with beta-defensin gene expression levels. Furthermore, a deficiency in the expression of antimicrobial *DEFB4* has been observed in lesional AD skin rendering the copy number variant of the beta-defensin gene cluster a prime candidate locus for the genetic susceptibility to atopic dermatitis.
Method: In an association study comprising 750 German children with early onset AD and 750 German control individuals we investigated the relationship between the beta-defensin gene copy number state and AD. As a representative for the complete beta-defensin gene cluster we determined copy numbers of the *DEFB4* gene only. *DEFB4* copy number typing was performed using the paralog ratio test in which a heat shock protein pseudogene upstream *DEFB4* is co-amplified with a single-copy paralog on chromosome five in a single PCR reaction. The enzyme restricted PCR products were size fractionated and relative differences in peak areas corresponding to both amplification products, in conjunction with standards with known *DEFB4* copy number, where taken to calculate the number of *DEFB4* copies.
Result: A robust likelihood ratio test revealed no significant evidence for association of *DEFB4* copy number and AD ($P = 0.33$). The power to detect an association between AD and *DEFB4* copy number was approximately 80%, indicating that the analyzed study group was large enough.
Conclusion: We conclude that the *DEFB4* copy number state does not play a major role in determining susceptibility to atopic dermatitis.

1805
Anti-inflammatory effects of bepotastine besilate on human mast cell degranulation and cytokine secretion *in vitro*

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Background: Several anti-allergic drugs have been demonstrated to stabilize mast cells and have selective anti-inflammatory effects. The aim of this study was to investigate the *in vitro* effects of bepotastine besilate on human mast cell secretion of histamine and cytokines.
Method: Human cord blood $CD34^+$ stem cells (CBMC) were cultured in Stemspan™ serum-free medium containing stem cell factor (SCF) (100 ng/ml) and IL-6 (50 ng/ml), with IL-3 (1 ng/ml) added during the first 14 days. At week 11, fully differentiated CBMC were confirmed by immunostaining for CD117 (c-kit) and FcεR1 expression. For cross-linking, CBMC were incubated with 4 μg/ml IgE for 16 h before 25 μg/ml anti-IgE Ab was added. Culture supernatants were harvested at 1 h (for histamine detection) and 24 h (for cytokines). CBMC (1×10^6 cells/ml) were cultured in 96-well plates, bepotastine (at concentration of 0.01, 0.1, 1.0 and 10 μg/ml) was added to the culture medium (at 0, 5, 10, 15 and 30 min' prior to FcεR1 cross-linking). Phorbol 12-myristate 13-acetate (PMA; 25 ng/ml)/ionomycin (1 μg/ml) was used as a positive control for CBMC activation. Untreated cultures were used as negative controls. For comparison, other drugs were also assayed in parallel: azelastine, fluticasone, olopatadine, nedocromil, ketotifen. Cytokine (IL-1β, IL-2, IL-4, IL-5, IL-6, IL-10, IL-13, IL-23, TNFα, TNFβ, TGFβ, CXCL9) and chemokine (CXCL8, CCL2, CCL3, CCL4, CCL5) levels were determined by multiplex bead arrays for flow cytometric analysis. Platelet activating factor (PAF) was assayed by ELISA.
Result: Under resting conditions, cells secreted < 80 ng/ml histamine, which was significantly reduced by bepotastine (10 μg/ml). Pre-exposure of cells to bepotastine (0.1–10 μg/ml) at 0, 5, 10, 15 min' prior to stimulation induced a significant decrease in histamine secretion. There was also a significant decrease in secretion of CCL2 ($P < 0.01$) and PAF ($P < 0.05$) in the presence of bepotastine (10 μg/ml), with no adverse effect on cell viability.
Conclusion: This data suggests bepotastine exerts anti-inflammatory effects on human mast cell IgE-mediated responses *in vitro*.

1806
BAY 41-2272 activates effector and immunoregulatory functions of human mononuclear phagocytes and lymphocytes

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Background: Considering that phagocyte and lymphocyte activation is critical for host defense against several pathogens, the development of alternative drugs to activate these cells is an important topic for advancing primary immunodeficiencies (PID) treatment. We investigated the effects of BAY 41-2272 — a guanylate cyclase activator — in human peripheral blood monocytes (PBM) and lymphocytes, and THP-1 cells.
Method: Reactive oxygen species (ROS) production was assessed by luminol-chemiluminescence, while gp91PHOX and p67PHOX gene expression was investigated by quantitative PCR. Phagocytosis and microbicidal activity were evaluated by co-incubation of leukocytes respectively with Zymosan particles and *E. coli*. TNF-α and IL-12p70 production was assessed by ELISA. Lymphocyte phenotype and activation was evaluated on flow cytometry by the expression of CD62L, CD154 (CD40L), and CD69. We also assayed IFN-γ production by lymphocytes alone and/or co-cultured with BAY 41-2272-treated PBM.
Result: BAY 41-2272 treatment (1 and 3 μM) for 2 or 24 h increases leukocytes activation and priming. BAY 41-2272 augments ROS release (at least 50%), and also increases gp91PHOX and p67PHOX gene expression (20–40 times) by PBM and THP-1 cells. BAY 41-2272 also augmented phagocytosis of Zymosan (three times), as well as the microbicidal activity against *E. coli* (twice) by both PBM and THP-1 cells. In addition, BAY 41-2272 promoted TNF-α release and IL-12p70 production

(there was no basal production in control group). BAY 41-2272 treatment (1 and 3 μM) for 24 h did not alter the CD4:CD8 positive lymphocytes ratio. BAY 41-2272 increased the number of positive CD 62L, CD69 and CD154 among CD4 lymphocytes, and increased the expression of CD62L (MFI) (all measures increased at least 30%). Among CD8 positive lymphocytes, BAY 41-2272 did not alter the number of CD62L, CD69 and CD154 positive cells, but significantly augmented the expression of CD62L (MFI) (at least 45%). BAY 41-2272 also increased the IFN-γ production by lymphocytes and this increase was even higher when lymphocytes were co-cultured with BAY 41-2272-treated PBM.

Conclusion: BAY 41-2272 is a novel immunomodulatory drug with pro-inflammatory properties, and with a great potential for activating human mononuclear phagocytes and lymphocytes. BAY 41-2272 may be useful for controlling infections in clinical practice.

LATE BREAKING POSTER SESSIONS – MONDAY

Late Breaking Poster Session 5

Cutaneous and systemic allergic reactions

1807
Key factors determining carers' competence with adrenaline autoinjectors

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Background: Adrenaline autoinjectors are considered first line treatment for patients in the community suffering from anaphylactic reactions. In many cases these devices would not be effective due to a lack of familiarity by potential users. Improving user competence with these devices is a priority for more effective allergy management.
Method: Over the 6 years period between 2004 and 2010 standardised data were prospectively collected at a specialist paediatric allergy centre regarding not only the clinical indications leading to prescription, but also the factors determining carer's competence with adrenaline autoinjectors.
Result: Seven hundred and ninety-three children [491 (62%) male, median age 10 years] prescribed adrenaline autoinjectors for food allergy [peanut (476 (60%)], tree nut [175 (22%)] or milk/egg allergy [55 (7%)] were studied. one hundred and thirty-one (17%) did not carry devices at any time, 80 (10%) had incorrect dosing, 247 (31%) would not have been able to effectively use the device and 153 (19%) did not understand the correct indications. Multi-regression analysis showed that rather than age, gender, severity of previous allergic reactions, number of clinic appointments or time since last clinic appointment, the key factor determining their understanding of indications, but particularly competence and carriage of the device was advice from specialist paediatric services [Odds ratio 15 (5–47)] and to a lesser extent awareness/involvement in allergy self-help groups [Odds ratio 2 (1–4)].
Conclusion: Advice and training by specialist allergy services are most important if patients and carers are to able to use adrenaline autoinjectors in an emergency.

1808
Urticaria and infections in India

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Background: Infections as etiology of urticaria are well known in acute rather than chronic urticaria. We identified two patients having recurrent genital herpes simplex infection associated with CSU. Episodes of genital herpes were especially associated with acute exacerbation of urticaria. We also found tinea infection as a cause of urticaria. Malaria and scabies are other two diseases which can cause urticaria.
Method: We identified two patients having recurrent genital herpes simplex infection associated with CSU. Episodes of genital herpes were especially associated with acute exacerbation of urticaria. Anti-Herpes simplex 2 antibodies markedly raised Tzanck smear was positive in one case and was negative in the other patient. Clinical and laboratory investigations for genital lesions supported a diagnosis of herpes simplex. CSU, which was inadequately controlled mere by antihistamines, responded dramatically to addition of acyclovir therapy. Upregulation of cytokines with the acute phase response, leading to temporary state of enhanced mast cell releasability is the probable mechanism for aggravation of urticaria during viral infections. We present four cases of tinea infection with urticarial id eruption, which successfully resolved with oral anti fungal therapy. All of our cases had typical history of chronic spontaneous urticaria, whose cause was possibly tinea infection as suggested by disappearance of urticaria with resolution of tinea following antifungal therapy. We report three pediatric patients who presented as urticaria and itching and thorough clinical examination and investigations revealed scabies. We report 10 patients who presented with urticaria with or without fever as a manifestation of malaria. All of them had malarial trophozoites in the blood and administration of antimalarial treatment cured the urticaria. In an endemic area, the presentation of fever and urticaria should give physicians a clue of an underlying malarial infection and call for appropriate investigations. Malarial parasitemia, nonresponsiveness of the urticarial rash to antihistamines and response to antimalarial therapy supports the presumptive diagnosis of malaria being the cause of urticaria in our patients.
Result: Treating physician must look for associated infections in urticaria. Treatment of associated infections may cure urticaria.
Conclusion: Cause of urticaria can be hidden in routine clinical examination.

1809
Endotoxin affects the severity of atopic dermatitis

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Background: To investigate whether serum endotoxin level increases in atopic dermatitis and affects its severity.
Methods: Subjects of the experiment are 31 of childhood atopic dermatitis (AD) and 15 normal controls. Three milliliters of blood was collected each other and centrifuged serums were reacted with Limulus Amoebocyte Lysate and measured the endotoxin levels using Endo-Chek (Diatech Diagnostics, Inc., Korea). The severity of AD was estimated with SCORAD index and existence of atopy was determined by skin test and Immuno CAP TM Rapid device.
Result: The mean age of AD and controls were 39 ± 8 and 30 ± 6 months, and 20 of atopic and 11 of non-atopic AD were included in the experiment. The serum endotoxin levels of AD and controls were 0.0389 and 0.0334 EU/ml, respectively, which showed significantly elevated in AD ($P = 0.05$). The levels of atopic AD and non-atopic AD were 0.0374 and 0.0423 EU/ml, showed not different significantly. There were inverse relation between

the serum endotoxin levels and severity of AD (r = -0.378, P = 0.033) and the relation was more distinct in atopic AD.
Conclusion: The level of serum endotoxin increases in AD, and there is inverse relationship between the level and severity of atopic AD.

1810
Prevalence of atopic dermatitis in schoolchildren living in rural and urban area in Montes Claros, MG, Brazil

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Background: Allergic diseases, including atopic dermatitis (AD), are increasingly becoming a clinical problem in developing countries.
Methods: To investigate the prevalence of AD symptoms and the potential effects of environmental in its etiologies in schoolchildren living in rural and urban area of Montes Claros, Minas Gerais, a semi-arid sub-tropical region in Brazil, we used the written questionnaire (WQ), of International Study of Asthma and Allergies in Childhood (ISAAC). The information about allergic disease symptoms and lifestyle factors was gathered by ISAAC, WQ, previously translated and validated to the Brazilian culture. Data obtained were transcribed manually into a database (Epi-Info) and were statistically analyzed by the SSPS-17 software, and was approved by ethics committee of Universities (Unimontes and Unifesp).
Results: This questionnaire was applied to 1131 schoolchildren, 361 rural and 770 urban, aged from 6 to 14 years old, 557 male and 554 female. A positive response to an itchy flexural rash in the last 12 months was used as the main outcome measure. The prevalence of flexural eczema represented for the question: 'itchy rash ever in characteristic places in the last 12 months', reached 12.2% for schoolchildren of rural area and 9.2% urban area, OR: 0.6 (IC95%) 0.4–0.9. P = 0.017. For the question: 'ever had eczema (physician-diagnosed eczema)', the prevalence reached 10.8% for schoolchildren of rural area, and 6.4% for urban area, P = 0.003. About the gender, there was a slightly higher prevalence for the female in both questions.
Conclusion: The prevalence of AD symptoms was largest in the rural schoolchildren and confirms that the prevalence of eczema and related symptoms is variable in Brazil regions, where, the highest prevalence is found in the north and northeast. We must be careful because this is a chronic disease and can be the initial step of the 'atopic march', i.e. be followed by allergic rhinitis and asthma.

1811
Urticaria due to an antivaricose pomade

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Background: The antivaricose hidrosmine is widely used both in everyday life and in the nursing care. It is usually well tolerated, and there are scarce reports of allergic reactions in our environment.
Method: We report on a 54-year-old male who, immediately after of the topical application of hidrosmine in left inferior limb developed acute urticaria in this limb, which reverted in approximately 2 h with systemic steroids. She had previously tolerated this product without any problems. Skin prick-tests with hidrosmine (0.2 mg/ml) and latex were realized in the patient. Skin prick-tests with hidrosmine were realized in eleven healthy control subjects.
Result: Skin prick-test with latex was negative in the patient Skin prick-test with hidrosmine was positive in the patient (12×4 mm) The prick-tests with hidrosmine were negative in eleven healthy control subjects.
Conclusion: We report on a case of contact urticaria due to hidrosmine and triggered by an immediate, probably IgE-mediated, hypersensitivity mechanism. Some of the drug used in daily clinical practice can cause allergic contact urticaria and should therefore be borne in mind.

1812
Development of an international specific questionnaire for the assessment of health-related quality of life in adult patients with hereditary angioedema due to C1 inhibitor deficiency (IHAE-QoL): pilot study preliminary results

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Background: No specific Health-Related Quality of Life (HRQoL) questionnaire for Hereditary Angioedema (HAE) due to C1 inhibitor deficiency is available. A process of cross cultural adaptation of the Spanish draft version of HRQoL questionnaire for HAE (HAE-QoL v 1.0) was carried out, obtaining the IHAE-QoL v 1.1.version as well as an additional clinical questionnaire (CQ v 1.1). Pilot study was next step in the questionnaire validation process for subsequent assessment of validity and reliability of the measure under construction.
Method: The pilot study was carried out with a group of HAE adult patients in different countries. The patients were asked to complete IHAE-QoL v 1.1, clinical CQ v 1.1 and generic SF-36 v 2.0 in a first phase. A retest phase was performed in part of the sample 1 month later, with a retest clinical questionnaire and IHAE-QoL v 1.1 to study possible clinical differences and to assess stability of IHAE-QoL answers during the recall period.
Result: Twelve countries participated in the pilot study phase with a total of 291 patients that fully completed the first phase and 118 patients that completed retest phase. The participating countries and the number of patients who completed first phase and re-test phase are shown below (first phase/re-test). If the data are uncompleted UC is used: Argentine 16/UC, Austria 21/UC, Brazil 35/18, Canada 21/11, Denmark 27/UC, France UC/UC, Germany 38/21, Hungary 37/22, Israel 10/UC, Poland 23/11, Romania 19/7 and Spain 44/28. Data from questionnaires were double entered into an Access Database by two different persons in Spain as part of the centralized procedure. Both databases were compared for accurating data.
Conclusion: The international pilot study phase for the development of a specific HRQoL questionnaire HAE is completed. Descriptive and psychometric evaluation will be performed in Spain in order to obtain the final valid and reliable version ready to use for the HRQoL study in HAE.

1813
Health-related quality of life in adult patients with hereditary angioedema due to C1 inhibitor deficiency (HAE-C1-INH) assessed by SF-36v2: preliminary results of an international study

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Background: There is a lack of health-related quality of life (HRQoL) studies in HAE-C1-INH.

Method: A prospective multicenter cohort study was performed in 11 countries. The SF-36 v2 generic HRQoL survey was self-administered to 286 adult patients with HAE-C1-INH as part of the pilot study for the validation process of IHAE-QoL questionnaire. The recall period was 4 weeks. Subscales scores (PF, SF, RP, RE, MH, VT, BP, GH, HT), PCS (Physical component summary) and MCS (Mental component Summary) were calculated for every patient. Mean subscale scores, PCS and MCS were also calculated for every country and for the whole sample. For each of the components and the summary scores, higher scores indicate better functioning. All available data from the survey were used for the analysis; no data were imputed. Descriptive statistics were used to characterize sociodemographic and clinical characteristics.
Result: The distribution of patients by country was as follows: Argentine 18; Austria 21; Brazil 35; Canada 21 Denmark 27; Germany 33; Hungary 37; Israel 10; Poland 23; Romania 18; and Spain 44. Surveys were complete enough to compute PCS and MCS scales scores in 257 patients (89.9%). PCS mean score was 47.28 (country range: 42.51–50.27), MCS mean was 45.33 (country range: 36.76–53.44). The subscales means for the whole sample were: PF 82.52; SF 73.53; RP 72.71; RE 77.41; MH 65.96; VT 55.76; BP 59.99; GH 53.84; HT 2.91.
Conclusion: Both PCS and MCS are lower than the general population normative data, and there were important differences by country.

1814
The levels of adenosine deaminase and oxidative stress biomarkers in scrapings samples of acne lesion

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Background: Acne vulgaris is one of the commonest dermatological diseases and its pathogenesis is multifactorial. To determine the role of oxidative stress and adenosin deaminase in acne vulgaris and to determine a possible link with the clinical severity.
Method: Fifty patients with different severity of acne vulgaris were compared according to the severity. The parameters of oxidative stress such as MDA, CAT, SOD, GSH and ADA in scrapings of acne lesions were measured spectrophotometrically. The values compared the relation between the severity and distribution of acne, and the correlation of each enzyme level were researched.
Result: ADA and MDA levels in patients with severe acne were significantly higher about two to fourfold compared to the other groups ($P < 0.05$). However, CAT and SOD activities, and GSH levels decreased in patients with severe acne vulgaris than the others ($P < 0.05$).
Conclusion: Our results indicate that increased MDA levels reflect the increased levels of oxidative stress and increased ADA activity in severe acne vulgaris patients, and this situation may be important in relation with its pathogenesis. Also, we thought that insufficiency of antioxidant barrier may cause oxidative damage in patients with severe acne vulgaris, so antioxidant therapy may be beneficial when given in addition to the treatment of acne.

1815
Egg hypersensitivity and development of asthma in children with atopic eczema: a 25 years follow up

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Background: In infants, egg allergy seems to be a marker for the development of allergic respiratory disease. The aim of our study is to evaluate whether in children with atopic dermatitis, positive skin prick test (SPT) to egg is a risk factor for the following development of asthma.
Method: Fifty-one children under 3 years old with atopic dermatitis were included in the study. At enrollment, SPTs to foods were performed. After 25 years from the first visit, patients were asked to fill a questionnaire about allergic symptoms (eczema, rhinitis and asthma), treatment and SPTs to food allergens and airborne allergens were performed. Forty-one patients, 20 females (48%) and 21 males (51%), median age 25.44 ± 0.73 (range 24–27 years) agreed to participate in the study. The patients were divided into two groups: study group: 21 subjects (51%) that had positive SPT result to egg at the first visit and the control group: 20 (48%) patients with negative SPT to egg.
Result: Seven patients from the study and the control group had still eczema, four subjects from the first group had symptoms after the ingestion of particular foods and just one from the second group. Asthma occurred in 10 patients in the group with positive SPT results to egg and in seven of the second group ($P > 0.05$). Allergic rhinitis was current in nine subjects of both groups. Sensitization to inhalants in 17 (41%) patients. Subjects with positive SPT results to egg at the first visit had positive SPT results to grasses in nine cases, to mites in six, to pollens in eight, to alternaria in four, to cat in four, to dog in two, to horse in one. In the second group, eight patients had positive SPT results to grasses, five to mites, three to pollens, four to alternaria, three to cat, two to dog, one to horse. No difference was found in positive SPT results to inhalants between the two groups. A positive SPT result to food was observed in 11 (28%) patients. In subjects from the study group, SPT results to peanut, tomato, kiwi and bean were positive in two cases, while those to shellfish, fish, carrots, milk, melon, and egg in one case. In the control group, the SPT results were positive to fish and shellfish in two subjects, and to tomato in one case.
Conclusion: Our study showed that a positive SPT to egg in children with atopic dermatitis was not a risk factor for developing allergic respiratory diseases or sensitization to allergens in adulthood.

1816
A randomised maternal evaluation of epinephrine auto-injection devices

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Background: Prompt administration of epinephrine can help to improve the outcome from anaphylaxis. The easier and quicker a device can be used, the more likely it is to be efficacious. Two auto-injection devices exist, EpiPen and Anapen, differing in their user's administration method. Both are available in different doses for administration at different ages.
Aims: To evaluate which device mothers find easier to use.
Method: Ten criteria for the correct usage of epinephrine auto-injectors were taken from the contemporaneous company datasheets (May 2010), combined with the additional information in our local parent information sheet on anaphylaxis treatment. Ten marks were therefore available; six were for identical procedures (e.g. phone ambulance) and four were for device specific procedures (e.g. press device on thigh – Anapen *versus* swing and jab firmly into outer thigh – EpiPen). Mothers with no epinephrine auto-injector experience were approached in the general children's OPD/wards to participate in this device evaluation. A computer generated random numbers sequence allocated mothers to one specific device for demonstration and immediate evaluation by one trained observer using device specific trainer pens (JB).

Result: One hundred mothers participated; 50 EpiPen, 50 Anapen.
Conclusion: Mothers found the Anapen device significantly easier to use; this may have important clinical advantages.

Table 1. Mothers' score in procedures; mean (SD). (for abstract 1816)

	EpiPen (n = 50)	Anapen (n = 50)
Identical procedures (out of 6)	4.62 (1.19)	4.86 (1.05)
Device specific procedures (out of 4)	2.76 (1.08)	3.84 (0.51)
Combined mean (out of 10)	7.38 (1.64)	8.70 (1.28)

Table 2. Proportion of mothers performing all procedures correctly. (for abstract 1816)

	EpiPen (n = 50)	Anapen (n = 50)
Identical procedures – mothers scoring 6/6	14/50	17/50
Device specific procedures – mothers scoring 4/4	17/50	44/50
Chi-squared analysis showed a significantly higher proportion of mothers correctly performing the Anapen specific procedures (odds ratio = 14.24, $P \leq 0.0001$).		

1817
Serum cytokine levels, and anxiety and depression rates in patients with alopecia areata

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Background: Alopecia areata (AA) is a disease characterized by patchy loss of hair. Although the etiopathogenesis of AA is still unclear, such factors as dysfunction of immune system and stress are accused of. The aim of this study was to evaluate the possible associations between AA and depression, anxiety, serum cytokines interleukin (IL) -1β, IL-6, IL-8, IL-10.
Method: Diagnosed with AA, 43 patients were prospectively enrolled into the study. Age and sex-matched 30 healthy individuals were included as control group. Hamilton Rating Scale for Depression and Hamilton Rating Scale for Anxiety scale were used. For children between seven and 16, Children's Depression Inventory questionnaires were filled. Serum cytokines IL-1β, IL-6, IL-8, IL-10 levels were analyzed by ELISA method.
Result: No significant difference was observed between patients and controls with respect to serum cytokines IL-1β, IL-6, IL-8, IL-10 ($P > 0.05$). Depression rate was found to be 50% in AA patients despite 30% in controls; similarly, anxiety rate was 63% in AA patients, higher than controls as 23.3% ($P < 0.05$ in both).
Conclusion: Depression and anxiety are witnessed more in AA patients than healthy individuals. Hence, upon considering management therapy, an entire psychiatric evaluation should also be performed. However, no difference was encountered between patients and controls as to serum cytokines levels.

1818
The levels of oxidative stress biomarkers and adenosine deaminase in scraping samples of patient with alopecia areata

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Background: Alopecia areata is an autoimmun disease. The pathological mechanisms of disease are unclear but oxidative stress may play a role. The aim of our study is to determine the role of oxidative stress biomarkers and adenosine deaminase in scarping samples of patients with allopecia areata.
Method: Twenty-five patients with alopecia areata and 20 patient with non-allopecia areata as control group were included in this study. In control and patient groups, oxidative stress biomarkers such as the levels of malondialdehyde (MDA) and glutathione (GSH), superoxide dismutase (SOD), catalase (CAT) in scarping samples were measured as spectrophotometric.
Result: SOD, CAT, GSH and MDA levels in patients with alopecia areata were higher than those of non-alopecia areate patients. These changes were significant statiscally ($P < 0.05$). Besides, ADA activity was increased in scarping samples of patients with allopecia areata compared to control ($P < 0.05$).
Conclusion: Increased antioxidant enzyme levels in Alopecia areata patients may be a cellular response against oxidative stress. Also, we thought that increased of adenosine deaminase activity in patients with Alopecia areata may cause cell damage and ADA may be increase in case of local inflammatory as in systemic inflammatory disease.

1819
Contact dermatitis among health care employees in Monastir hospital: cross sectional study about 300 cases

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Background: The aim of this study was to analyze the incidence of contact dermatitis in hospital and to identify the main implicated etiologies and the possible risk factors.
Methods: We carried a cross sectional study including 300 health care employees. Subjects were included according to a random stratified sampling basing on the professional statue. Data collection was based on a questionnaire, a dermatological exam and skin tests (Standard European Battery and specific incriminated agents).
Results: The contact dermatitis prevalence was 22% (17.5–27.2). The employee at risk to develop such dermatitis were a 37 aged nurse working in a surgical department for at least 12.7 ± 9.3 years. Contact dermatitis occurred mainly in the surgical reanimation department (44.4%), the ORL department (44.4%) and the operations rooms (40%). The hands were implicated in 92.4% of cases. Irritative contact dermatitis were noted in 12.3%, of cases, followed by eczema (8.66%) and urticaria (1%). Latex and desinfectant agents were implicated in inducing eczema in 13/26 and 5/26 cases, respectively. Skin tests were positive for 26 subjects. The culprit allergens were the nickel (18 cases), the chrome (11 cases) and the cobalt (nine cases). Rubber skin test were positives in 12/29 cases. Risks factors were a medical history of atopy, the duration of work, the daily frequency of hands washes and gloves use.
Conclusion: These results will be helpful to plan prevention strategy to avoid contact dermatitis in hospital.

1820
Should we add 1,3-diphenyl allergens to the standard European skin tests?

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Aims: To determine the prevalence of allergic contact dermatitis to latex gloves and identify the allergens involved.
Methods: It is a cross-sectional study of contact dermatitis to latex gloves among 300 caregivers working in the University Hospital of Monastir and selected by a

stratified random sampling based on professional and medical or surgical specialties. It included a questionnaire, a dermatological examination and Patch tests to the European standard series to a rubber battery and to used gloves.

Results: The study population consisted of 127 nurses, 75 doctors, 53 technicians, 30 workers and 15 auxiliary health. The average age was about 38 years. The sex ratio was about 1.30. The average tenure in office was about 12.5 ± 9.36 years. The daily average number of pairs of gloves used was of 3.2 ± 3.85 pairs. The average duration of wearing gloves per day was about 0.65 ± 0.6 h. The prevalence of eczema in gloves was about 4.3% (4.27–4.323). The prevalence of sensitization to additives in gloves were of 2% (0.21–3.11) for 1,3-diphenyl (1,3 DPG), 1.6% for Benzothiazoles; 1.32% to thiuram, 0.33% for dibutylthiourée, 0.33% for zinc-diethyldithiocarbamate, 0.66% for N-cyclohexyl-thiophthalimide and 0.66% for hexamethylenetetramine. Patch tests were positive with gloves in six agents/13.

Discussion: Rubber additives frequently complained are those of vulcanization accelerators (Thiurams, Dithiocarbamates, benzothiazoles, thioureas) and antioxidants derived from para-phenylenediamine (1). Currently, major international firms tend to replace Thiurams by Dithiocarbamates and/or derivatives of MBT. In our study, the most common allergen was the 1,3 DPG with a prevalence of 2% (0.21–3.11). According to Geier (3), 1,3-DPG is not widely used in the gloves manufacture. It was positive in 1.9% of patients in the study of IVDK (3). According to Piskin (4), use of hypoallergenic gloves could result from the development of contact allergy to rubber additives other lesser known such as 1,3-diphenyl. In our study, the tests to the European standard series showed no positivity to rubber allergens in six cases of gants eczema/13 (46.1%). The rubber battery was positive to the 1,3 Diphenylguanidine in these cases.

Conclusion: The addition of 1,3 DPG to the European standard series is current given the emergence of this allergen in latex gloves.

1821
Prevalence of latex allergy in health workers in Izmir Tepecik education and research Hospital

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Background: Latex is a cytoplasmic exudate which is made up of the complex proteins of rubber tree (hevea braciliensis). Since its costs is low, its strength and flexibility makes latex as an inevitable material in the use of many matters. While sensitiveness of latex is ¡Ü 1% in general population, this rate in health workers is 5–15%. Natural latex sensitiveness is an important reason of morbidity especially seen in health workers. Particularly, atopic health workers consist of the most risky occupation group from the point of view of the possibility of developing latex allergy. Our aim in this research study is to determine prevalence of latex allergy in health workers.

Method: One thousand one hundred and fifteen health workers in Izmir Tepecik Education and Research Hospital are examined in this study. All the facts such as age, sex, job, their department, the duration of working time, history of food, drug, insect allergy, frequency of the use of latex gloves and the clinical complaints, defined after the use of latex products have been inspected by filling in the form of survey. In the serum, latex specific IgE has been measured.

Result: Of 1115 health workers,518 (46.45%)was men. Two hundred and ninety-two (26.18%) was nurse, 223 (20%) doctor, 192 (17.21%) laboratory workers, 172 (15.42%) secretary, 236 (21.16%) cleaning personnel. Latex specific IgE was positive in 47 (4.21%) health workers. Among the personnel determined to have the so-called positives, 18 (38.3%) were nurses, 10 (21.2%) doctors, 8 (17%) laboratory workers, 11 (23.4%) cleaning personnel.

Conclusion: Health workers constitute the most risky occupation group in terms of the possibility of developing latex allergy. Among these people are nurses, doctors and laboratory workers. Atopy is probably the most important predisposing for latex sensitization and increases the rate of sensitization to 4.4–25 times. In conclusion latex allergy is mostly the occupation disorder of the workers in health sectors and it is considered the main source of occupational contact urticer, rhinit and asthma. Medical therapy may decrease the allergy symptoms but the main therapy is to put a stop to the exposure.

1822
Factors associated with the burden of treatment of the epinephrine auto-injector in food allergic adolescents

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Background: Food allergic adolescents at high risk for food allergic fatalities should carry an epinephrine auto-injector (EAI) at all times. This treatment may be perceived as burdensome and affect compliance. However, it is not known which factors may influence the burden of treatment (BoT). Therefore, the aim of this study was to investigate which factors are associated with the BoT of the EAI in food allergic adolescents.

Method: Food allergic adolescents prescribed an EAI, attending our tertiary allergy clinic, completed the following questionnaires: BoT, food allergy quality of life – teenager form (FAQLQ-TF), food allergy independent measure (FAIM), illness perception questionnaire (IPQ) and state trait anxiety inventory (STAI), and statements about the EAI. Relationships between BoT and the other outcome measures were investigated using Spearman's correlations and Fisher's exact tests.

Result: A total of 56 subjects [age 15.3 (SD 1.3), m/f: 30/26] were eligible for analysis. The BoT was positively associated with statements that the EAI has an agreeable shape ($P = 0.007$) and size ($P = 0.048$), and gives a feeling of safety ($P = 0.009$). The BoT was negatively associated with the statement that it is inconvenient to have to carry an EAI ($P = 0.023$). The BoT did not correlate with the FAQLQ-TF, FAIM, STAI, IPQ, or statements relating to efficacy of the EAI or reassurance it provides.

Conclusion: Although patients may have many ideas about having an EIA, the only aspects associated with their overall rating of the EAI as measured with the BoT were the patient friendliness of the EAI, the feeling of safety the EAI confers, and the displeasure of having to carry the EAI at all times. Surprisingly, the BoT was not associated with disease-specific quality of life, perceived disease severity, illness perception or anxiety which may indicate that the BoT instrument measures a unique construct not captured by other established instruments.

1823
Desloratadine is safe and well tolerated in adults ≥55 years old

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Background: The tolerability of the second-generation oral antihistamine desloratadine (DL) has been well established in children and adults. Older adults may be more susceptible to anticholinergic effects and other adverse events (AEs); however, little has been published about the tolerability of antihistamines in this population.

Method: Data on treatment-emergent AEs were pooled from six randomized, double-blind studies, in which patients with symptomatic allergic rhinitis received DL 2.5–20 mg/day or placebo (PBO) for 2–12 week. Participants had to be free of other clinically significant disease that would interfere with study evaluations. In the present analysis, data were pooled for all participants aged ≥55 years. AEs assessed in this analysis included: (i) those reported in the package insert as occurring more frequently in DL-treated than PBO-treated subjects (COM-AE), (ii) those that may be related to anticholinergic activity (ACh-AE) and (iii) those associated with drug hypersensitivity (HS-AE). AE rates are summarized descriptively; no statistical analysis was conducted.

Result: The pooled population was 150 subjects (mean age 61.3 year) for DL and 100 (mean age 61.3 year) for PBO. Total incidence of AEs was 43% for DL and 42% for PBO. Several of the COM-AEs occurred as or less frequently with DL than PBO (Table 1); fatigue was more common in DL-treated subjects (DL 7% *versus* PBO 1%). Gastrointestinal and mucosal ACh-AEs were infrequent in DL-treated and PBO-treated subjects (Table 2). HS-AEs were generally less frequent in DL-treated *versus* PBO-treated subjects (Table 3). No serious AEs were reported for DL or PBO.

Conclusion: This analysis adds to the limited published data on the safety and tolerability of second-generation antihistamines in older adults with AR and demonstrates that DL was well tolerated in this patient population. The pattern and frequency of AEs¡Xincluding those that have been associated with DL or with the antihistamine class¡X were similar between patients treated with DL and those who received PBO.

Table 1. Incidence of most frequent COM-AEs. (for abstract 1823)

	DL (%)	PBO (%)
Fatigue	7	1
Dry mouth	4	6
Somnolence	2	2
Nasopharyngitis	1	3
Myalgia	1	1

Table 2. Incidence of gastrointestinal and mucosal ACh-AEs. (for abstract 1823)

	DL (%)	PBO (%)
Diarrhea	2	0
Vomiting	2	0
Constipation	1	1
Nausea	1	2
Dry nose	1	0
Dry throat	1	0

Table 3. Incidence of HS-AEs. (for abstract 1823)

	DL (%)	PBO (%)
Dyspnea	1	3
Pruritus	1	3
Wheezing	1	0
Asthma	0	1
Cough	0	1
Urticaria	0	3

1824
Positive patch tests to palladium are not mere cross-reactivities to nickel but relevant diagnostic findings

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Background: Palladium (Pd) is present in every automobile catalytic converter, computer, mobile phone, or LCD television. Palladium alloys are used in dentistry and orthopaedics. Following EU restrictions on nickel (Ni) use in jewellery, Pd has replaced Ni in 'white gold' alloys. This has led to increase in numbers of patients with contact allergy to Pd. Until recently, positive patch tests to Pd were mostly regarded as a mere cross-reactivity with Ni. The aim of the present study was to analyse clinical characteristics of patients with primary allergy to palladium.

Methods: In June 2010, the Polish Baseline Series was supplemented with propolis and palladium. Since then, I had the opportunity of testing 85 patients to this series (19 males, 65 females, aged 8–70, median 37 years) with suspicion of allergic contact dermatitis (ACD).

Results: In the analyzed group, 28 (32.9%) patients were Ni-positive and 17 (20.0%) Pd-positive; 15 (17.6%) patients were positive to Ni but negative or doubtful to Pd. Four (4.7%) patients reacted to Pd but not Ni. Two patients (2.4%) were found with reactions to Pd clearly stronger than to Ni, which suggests that their primary hypersensitivity was Pd allergy, while response to Ni – a cross reaction. All the six person were women aged 18–70 years. In three of them, it seems apparent that testing to Pd provided information pivotal to their diagnostic process (Table 1): To most doctors, history given by Ms 'A' and would be a 'dead sure' indicator of nickel allergy – except the rather surprising fact that the patch test to nickel remained negative, along with chromium and cobalt – two other metals included into European Baseline Series. Instead, positive patch test to palladium (and gold) has solved the case (Pd-Au alloy is jewellery 'white gold'). In Ms 'B', all the evil would be ascribed to cobalt, if not tested with Pd. If Ms 'C', a cashier, was tested only to Ni, the positive reaction would seem a sound explanation of her case. However, patch test to Pd resulted in an extreme reaction, suggesting that Ni was a mere cross-reactivity rather than the main cause. The relevance of Pd patch tests in the three remaining patients remains unclear.

Conclusion: Over past years, palladium has become broadly present in our surroundings. Combined with its sensitizing properties, this hapten has acquired big importance for allergists and should be included into routine patch testing.

Table 1. For abstract 1824

Patient	Age	Pd	Ni	Other metals	Indications for patch tests	Metal-related symptoms	Exposure to metals
Ms 'A'	32 y.o.	(+)	(–)	Cr(-), Co(-), Au(+), Cu(+), Mn(+)	Intolerance of jewellery, planned dental implants	Eczema to jewellery, including gold and non-precious metals	Typical everyday exposure
Ms 'B'	18 y.o.	(++)	(–)	Co(++)	Intolerance of metals and detergents	Itching provoked by earrings	Typical everyday exposure
Ms 'C'	27 y.o.	(+++)	(++)	Cr(–), Co(-)	Intolerance of metals and cosmetics	Reactions to wrist watch, earrings, jeans buttons	Cashier
Ms 'D'	38 y.o.	(+)	(–)	Cr(-), Co(-), Au(+), Ag(-)	Intolerance of cosmetics, household detergents, and textile finishes	None reported	Typical everyday exposure
Ms 'E'	70 y.o.	(+)	(–)	Co(-), Au(+)	Intolerance of household detergents	None reported	Typical everyday exposure
Ms 'F'	46 y.o.	(++)	(+)	Cr(-), Co(IR), Hg(-)	Intolerance of cosmetics	None reported	Cashier

IR, irritant reaction.

1825
Severe eczema, failure to thrive and developmental delay in a highly atopic cohort of infants

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Background: Severe eczema in infancy may be associated with allergic enteropathy and subsequent failure to thrive. The clinical characteristics of these infants have not been extensively investigated, particularly with respect to head growth and development. We sought to characterise a cohort of 20 infants presenting to a tertiary paediatric allergy referral centre who had severe eczema, IgE sensitization to multiple foods in association with failure to thrive.
Methods: Infants presenting to the our department with severe eczema, multiple food allergies and failure to thrive were retrospectively assessed with respect to growth and developmental parameters, skin prick test reactivity and allergen-specific IgE.
Results: Twenty infants were identified with severe eczema, IgE sensitization to multiple foods and failure to thrive. At presentation, the majority of the infants were being breast fed and showed evidence of chronic intestinal symptoms, immune dysregulation and hypereosinophila. Most required treatment with potent topical steroids and the introduction of an amino acid-based formula. Following appropriate treatment, all infants gained weight rapidly. In nine infants, failure to thrive was associated with a failure of head growth, and these infants tended to have the highest food-specific IgE levels [KU/l, geometric mean and standard deviation; 978 (261–3661), $n = 5$ *versus* 220 (56–862), $n = 5$; $P = 0.12$]. They were significantly more likely to be skin prick test positive to wheat ($P = 0.011$) and peanut ($P = 0.0001$) compared to infants in which head growth was maintained. There was no difference between groups in mean age at presentation, family history of atopy, presence of gastrointestinal symptoms, serum globulin, white cell count or differential. Four of these infants displayed developmental delay manifesting itself mainly in failure to achieve motor milestones.
Conclusions: Infants with multiple food allergies and severe eczema are at risk of failure to thrive and poor head growth. Highly atopic infants are most at risk and head growth may be sufficiently severe as to affect motor development. Early recognition and appropriate treatment are required to optimise growth and development in these infants.

1826
Complement levels in patients with chronic idiopathic urticaria

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Background: A role of complement in pathogenesis of chronic idiopathic urticaria (CIU) is a still matter of debate. Some groups have found hypocomplementaemia associated with CIU, other have found no significant abnormalities in complement values. It was also observed presence of autoantibody in patients with CIU. Aim of this study was to determine serum complement levels in patients with CIU and its relation with presence of some autoantibody and clinical picture.
Methods: We include in the study 44 (eight male, 36 female) patients with CIU. Duration of CIU was 1–12 years. Complement examination (C3, C4, CH 50, C1q, C1 inhibitor) as well as autoantibodies [antinuclear antibody (ANA), anti-neutrophil cytoplasmatic antibody (ANCA), anti-mitochondrial antibody (AMA), anti-smooth muscle antibody (ASMA), anti-thyroperoxidase antibody (antiTPO), anti-thyroglobulin antibody (ATGA)] was determined in all patients. We also monitor presence of this parameters in correlation with duration and severity of clinical picture as well as response to therapy.
Results: Low complement levels were found in 14/44 patients. Decreased concentrations of C3 was found in four patients, C4 in six, C1q in one, low functional activity of C1 inhibitor in four. All decreases in complement levels are slight. CH 50 was normal in all patients. Only in one patient C4 and C1 inhibitor functionaly was slice decreased. In our group of patients 18/44 patients had autoantibodies: ANA in 3, AMA in 2, ASMA in 2, all in low titers. Anti TPO was detected in seven and ATGA in five patients, with variability of titers. No patient had positivity of ANCA. One patient had ANA and AMA positivity. Only two patients had decreased C4 levels and ATGA antibodies, and one low C3 level and ANA. No patient developed systemic diesease during follow up period (minimum 1 year).
Conclusion: Although presence of low complement levels and autoantibodies are more frequent in patients with CIU it is not clear connection with presence of autontibodies, contribution in clinical picture of CIU or difference in response to therapy.

Late Breaking Poster Session 6

Allergic airway diseases: treatment and co-morbidities

1827
Role of occupational exposure on the outcome of sinus surgery: an observational study

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Background: Functional endoscopic sinus surgery (FESS) is the therapy of choice in patients with chronic rhinosinusitis (CRS) that are insufficiently controlled by medical treatment. Extensive nasal polyps, aspirin hypersensitivity and bronchial asthma are known as negative predictors of surgical outcome. However several endogenous and exogenous factors may influence persistent or recurrent sino-nasal inflammation after FESS. The role of occupational agents in failure after FESS has not been investigated so far. The aim of this large-scale observational study was to evaluate retrospectively exposure-levels to occupational factors in CRS patients undergoing FESS and controls and to relate the exposure to the number of FESS procedures needed to control the symptoms.
Method: Questionnaires were sent to 890 patients who underwent FESS and to 182 control patients. Besides general medical health questions, the questionnaire asked about professional and recreational activities and exposure levels to high molecular weight (HMW) and low molecular weight (LMW) occupational agents. Exposure was assessed as a binary variable. A chi-square trend test was used to investigate the relationship between number of FESS and exposure state. Odds ratios were calculated by a Proportional Odds Model.
Result: Occupational exposure to substances was reported to be present in 11.6% of the controls ($n = 69$) and in 24.6% of all FESS patients ($n = 467$). There was a significant relationship between the number of FESS and reported and occupational exposure (chi = 14.59, $P < 0.01$). Exposed patients had a higher risk for needing at least one (OR = 2.45, $P < 0.05$) or at least two (OR = 1.63, $P < 0.05$) FESS procedures compared to unexposed individuals. Mainly LMW agents were associated with more FESS needed to control rhinosinusitis.
Conclusion: Exposure to occupational agents is associated with a higher number of FESS needed to treat, and hence underlines the importance of exposure to mainly LMW agents in the postoperative healing after FESS.

1828
Nasal hyperreactivity in allergic and non-allergic patients

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Background: To assess the prevalence and distribution of nasal hyperreactivity in allergic and non allergic rhinitis patients. To investigate the presence of constant, recurring patterns of sensitivity to specific provoking factors. To assess if nasal hyperreactivity is season-dependent.
Materials and Methods: Eight hundred and eighty-five non allergic rhinitis patients and 1103 allergic rhinitis patients recorded prospectively regarding their symptoms including nasal hyperreactivity to changes of temperature, tobacco smoke and scents, humidity, exercise and emotional stress. The seasonal variation of their symptoms was also recorded. Comparisons between groups were made using Chi-square test and Fisher's exact test.
Results: In the allergic and the non allergic patient group prevalence and distribution of provoking factors were the same. In both groups the most common nasal provoking factor was change of temperature, followed by tobacco smoke and scents, exercise, emotional stress and last humidity. Both in the allergic as in the non allergic group there was no clinically significant season – dependency of nasal hyperreactivity.
Conclusion: Prevalence and characteristics of nasal hyperreactivity were the same in both the allergic and the non allergic patient groups. No specific pattern or combination of provoking factors were found in either group.

1829
MP 29-02 – A new treatment option for allergic rhinitis: systemic bioavailability and disposition of fluticasone propionate administered in combination with azelastine

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Background: The second generation antihistamine azelastine hydrochloride (AZE) and the corticoid fluticasone propionate (FP) are widely prescribed as intra-nasal mono-products for allergic rhinitis (AR). In a recent placebo-controlled, double-blind study MP29-02 [a novel combined AZE + FP nasal spray (NS) formulation] showed significantly superior improvement of seasonal AR (SAR) symptoms compared to either agent alone. The aim of the present study was to assess whether any inactive excipient of MP29-02 or AZE alters the nasal bioavailability (BA) and/or disposition of the FP component in the combination product.
Method: In this randomized, single-centre, open-label, three-period, six-sequence cross-over trial, 30 healthy adult subjects (18 m/12 f) received on three separate occasions two sprays/nostril of MP29-02, the same spray without AZE thus containing FP only (REF), and a currently marketed FP-NS (Roxane Laboratories). Per occasion 200 μg FP, and in the case of MP29-02, an additional 548 μg of AZE were nasally administered. Blood samples for PK analysis were collected up to 24 h post dose. FP plasma concentrations were quantified by a highly sensitive HPLC-MS/MS assay with a LLOQ of 0.25 pg/ml. Data were analysed by crossover ANOVA. $AUC_{0\text{-tlast}}$ and C_{max} point estimates and 90% CIs were calculated for ratios of geometric means.
Result: FP $AUC_{0\text{-tlast}}$ point estimates (90% CIs) for the MP29-02/REF and MP29-02/FP-NS Roxane ratios were 93.55 (83.60; 104.68) and 161.13 (137.13; 189.34). Corresponding outcomes for C_{max} were 91.01 (82.53; 100.37) and 157.43 (132.48; 187.09), respectively, indicating absence of a

significant effect of AZE on the FP component in the MP29-02 formulation. Absolute FP BA estimates were very low with 1.86% and 1.14% for MP29-02 and the marketed FP nasal spray product, respectively.
Conclusion: MP29-02 increased the systemic nasal BA and disposition of FP by about 50% compared to the FP-NS Roxane mono-product. This may go along with improved local BA and contribute to a better clinical efficacy in SAR. This modest exposure difference in the relative and absolute BA estimates of FP observed with MP29-02 is unlikely to suggest corticosteroid-associated systemic effects, as it is well accepted that FP-NS doses exceeding the maximum recommended daily dose by up to eightfold do not exert significant effects on HPA-axis function. The AZE component in MP29-02 does not alter the BA and disposition of the FP component.

1830
MP 29-02 – a new treatment option for allergic rhinitis: systemic bioavailability and disposition of azelastine administered in combination with fluticasone propionate

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Background: The second generation antihistamine azelastine hydrochloride (AZE) and the corticoid fluticasone propionate (FP) are widely prescribed as intra-nasal mono-products for allergic rhinitis (AR). In a recent placebo-controlled, double-blind study MP29-02 [a novel combined AZE + FP nasal spray (NS) formulation] showed significantly superior improvement of seasonal AR (SAR) symptoms compared to either agent alone. The aim of the present study was to assess whether any inactive excipient of MP29-02 or FP altered the nasal bioavailability and/or the disposition of the AZE component in the combination product.
Method: In this randomised, single-centre, open-label, three-period, six-sequence cross-over trial, 30 healthy adult subjects (18 m/12 f) received on three separate occasions two sprays/nostril of MP29-02, the same spray without FP thus containing AZE only (REF), and a currently marketed AZE nasal spray (Astelin®). 548 μg AZE was administered intranasally on each occasion with the addition of 200 μg FP in the case of MP29-02. Blood samples for PK analysis were collected up to 120 h post dose. AZE plasma concentrations were quantified by HPLC-MS/MS with a LLoQ of 2 pg/ml. Data were analysed by crossover ANOVA. $AUC_{0\text{-tlast}}$ and C_{max} point estimates and 90% CIs were calculated for ratios of geometric means.
Result: AZE $AUC_{0\text{-tlast}}$ point estimates (90% CIs) for the MP 29-02/REF and MP 29-02/Astelin® ratios were 98.82 (90.96; 107.37) and 105.50 (95.60; 116.43). Corresponding outcomes for C_{max} were 102.67 (92.12; 114.44) and 107.26 (92.56; 124.30), respectively, indicating absence of significant differences between MP29-02 and the AZE-mono products in terms of bioavailability and disposition of AZE.
Conclusion: Neither differences in the composition of excipients in the novel MP29-02 formulation nor the other active component FP altered the nasal bioavailability and disposition of nasally administered AZE in MP29-02.

1831
What is the frequency between otitis and allergic rhinitis?

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Background: Allergic Rhinitis (AR) is the more frequent allergic disease and is related to other diseases. The processes that bring about irritation of respiratory epithelium, predispose to accumulate of liquid in middle ear and diminishes hearing. The opportune diagnosis and the measurement of risk factors of AR, facilitate an integral treatment.
Method: Cross-sectional study to analyze patients of 4–7 years with AR were made. To evaluate the function of middle ear one tympanometry was realised.
Results: Sixty-five patients with AR diagnosis participated. The presence of more number of allergens was associated to more severity of AR ($P = 0.001$) and more greater seric level of IgE ($P = 0.003$) were found too. Severity of the AR has been related to dysfunction of the tube of Eustaquio (DTE) (14%) that with otitis media with effusion (OME) (5%).
Conclusion: The severity of the AR can predict the seric level of IgE, more number of related Allergens and DTE, but not it OMA presence.

1832
Attenuating effect of epinastine hydrochloride on the function of leptin in patients with allergic rhinitis

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Background: There is circumstantial evidence that adipokines such as leptin and adiponectin may play important roles in the development of allergic rhinitis. However, the influence of histamine H1 receptor antagonist on the function of leptin is not well defined. The present study was undertaken to examine the influence of histamine H1 receptor antagonist on the function of leptin through the choice of epinastine hydrochloride, the most famous agent in Japan *in vitro* and *in vivo*.
Method: Pollinosis patients against Japanese cedar pollen were treated orally with 20 mg epinastine hydrochloride once a day for 2 weeks during pollen season. Leptin levels in nasal secretions was examined by ELISA. To examine the *in vitro* function of leptin, BEAS-2B cells, a human airway cell line, were stimulated with 10.0 ng/ml leptin in the presence of epinastine hydrochloride for 24 h. IL-4 and IL-5 levels in culture supernatants were examined by ELISA.
Result: Treatment of patients with epinastine hydrochloride caused a significant decrease in leptine levels in nasal secretions, which was increased by Japanese cedar pollen stimulation. Epinastine hydrochloride also suppressed the production of both IL-4 and IL-5 from BEAS-2B cells induced by leptin stimulation *in vitro*. The minimum concentration, which caused significant suppression was 22.5 ng/ml that is almost equal to the therapeutic blood levels.
Conclusion: The present results suggest that attenuating effect of epinastine hydrochloride on the function of leptin *in vitro* and *in vivo* may account, in part, for the therapeutic mode of action of the agent on allergic rhinitis.

1833
Vascular endothelial growth factor and Endostatin levels in induced sputum, and their relationship to bronchial hyperreactivity in patients with perennial allergic rhinitis

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Background: Balance between anjiogenik and anti-anjiogenik factors regulates vascular remodeling. This study evaluated

bronchial vascular remodeling via measurement of anjiogenik factor, vascular endothelial growth factor (VEGF), and anti-anjiogenik factor, Endostatin, and evaluated their relationship with bronchial hyperreactivity (BHR) in patients with perennial allergic rhinitis (PAR).

Method: The study group consisted of 30 patients (F/M: 21/9, mean age: 31.9 + 11.4 years) with compatible history and prick test positivity to house dust mite and 14 nonatopic healthy controls (F/M: 5/9, mean age: 30.6 + 6.3 years). All subjects underwent induced sputum and methacholine (M) bronchial provocation test. Differential cell counts were performed and at least 400 non-epithelial cells were counted. VEGF (Human VEGF-A ELISA, Vienna, Austria), and Endostatin (Human Endostatin ELISA, R&D system Inc. Minneapolis, MN, USA) were measured by ELISA in induced sputum supernatants.

Result: There were no significant differences between patients and healthy controls in terms of age but female gender was significantly higher in PAR group ($P = 0.049$) than controls. Median numbers of eosinophil were significantly higher in patients with PAR compared to healthy controls (0.5 min-max: 0–7 *versus* 0, min-max: 0–1, $P < 0.001$). The median levels of VEGF were higher in PAR patients than healthy controls (37.9 pg/ml, min-max: 5–373 pg/ml *versus* 24.9, min-max: 8–67 pg/ml, $P > 0.05$ respectively), however it was not statistically significant. Similarly, the median level of Endostatin was not significantly in patients with PAR than that of health controls (532.5 pg/ml, min-max: 150–2125 pg/ml *versus* 644, min-max: 223–1123 pg/ml, $P > 0.05$ respectively). The VEGF/Endostatin ratio was higher in patients with PAR than healthy controls although it was not statistically significant (0.057 *versus* 0.045, $P > 0.05$ respectively). There were no significant differences between patients with BHR positive ($n = 8$), or negative to M ($n = 22$) and controls in terms of levels of VEGF, Endostatin and VEGF/Endostatin ratio. There were no correlation between value of PD20 to M and levels of VEGF, Endostatin and VEGF/Endostatin ratio.

Conclusion: This first study about levels of VEGF, Endostatin, VEGF/Endostatin ratio in induced sputum in patients with PAR demonstrated presence of anjiogenik and anti-anjiogenik activity in bronchial systems in patients with PAR. However, this activity does not seem to be related with BHR in these patients.

1834
A new approach to objective evaluation of nasal septum perforation surgery

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Background: Although nasal septum perforation (NSP) is one of the possible complications of rhinoplasty, there is no objective evaluation method for nasal airflow after the NSP surgery. The aim of this study was to suggest an evaluation method for NSP surgery.

Material and Method: The study was conducted with six patients with NSP whose perforations were closed by inferior turbinate flap (ITF). In order to evaluate septum and mucosal changes (bleeding, crusting, etc), all patients underwent pre- and post-operative nasal endoscopic examination. The Nasal Obstruction Symptom Evaluation (NOSE) instrument was administered to evaluate the pre- and post-operative subjective sensations of nasal obstruction. Measurements of pre- and post-operative nasal airway resistance were performed with active anterior rhinomanometry (Provair 2; Zan, Germany). Collected data was analyzed by SPSS version 17.0 (SPSS, Inc., Chicago, IL, USA).

Results: Preoperative symptoms were sense of nasal obstruction (100%), crusting (50%), epistaxis (33%), whistling (16.6%), and headache (16.6%). While the vertical length of the perforation ranged between 9 and 17 mm (mean = 12.8 mm), the horizontal length ranged between 8 and 25 mm (mean = 13.4 mm). During post-operative examinations full closure of the septal perforations were observed in all of the patients. While the mean NOSE score was 14 before the operation, it decreased to one after the operation. This improvement in NOSE scores was statistically significant ($P < 0.05$). The mean preoperative total nasal resistance (ResT150) value was 0i13 $Pa/cm^3/s$, which is under the normal range (16–31 $Pa/cm^3/s$). On the other hand, the mean postoperative ResT150 value was measured as 0.27 $Pa/cm^3/s$, which is within the normal range. The correlation between the improvement in NOSE score and the improvement in ResT150 value was statistically significant ($P < 0.05$).

Conclusion: Since NSP leads to both anatomical and physiological problems, surgical approaches should target both of these problems. Application of subjective and objective tests in postoperative period would help the surgeon to assess the effectiveness of the applied technique.

1835
Tolerability of a new, 5-injection, fast up-dosed hypoallergenic parietaria subcutaneous immunotherapy formulation: the avanz tolerability observational survey

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Background: Subcutaneous immunotherapy (SCIT) with intact allergen extracts is considered an effective treatment of IgE-mediated respiratory allergic disease. However, long up-dosing schedules (13 weeks or more) are often necessary to obtain a good tolerability profile aiming to reduce the incidence of adverse reactions which can be observed in patients treated with SCIT.

Study Aim: A new formulation using aluminium hydroxide as an adjuvant with an optimised adjuvant/allergen ratio has been recently developed (AVANZ, ALK, Denmark). The optimised allergen/alum ratio allows for shorter up-dosing schedules (five-injections, 4-week up-dosing schedule) and lower maintenance doses of 15 000 SQ+. This formulation has also shown to potentiate the specific immune-response to lower allergen quantities (immunologically enhanced SQ-Units: SQ+). Tolerability and safety profile of this fast up-dosed hypoallergenic SCIT formulation has been evaluated in grass and house dust mite allergic patients. So far no data are available regarding other allergen extracts, such as Parietaria judaica.

Patients and Methods: In a multicentre, open, observational, non-interventional survey, the tolerability of AVANZ with natural extract of Parietaria judaica was evaluated in 81 Parietaria judaica allergic patients (44 men, mean age 39 years; range 20–55). Tolerability was evaluated at each visit, by recording both local and systemic side effects. The up-dosing phase was performed with five weekly injections (300 SQ+; 600 SQ+; 3000 SQ+; 6000 SQ+; and 15 000 SQ+). Tolerability was evaluated according to Malling et al. (1993), recording both local (immediate and delayed types and subcutaneous nodules) and systemic reactions (grade from 0 to 4).

Results: No systemic reactions were observed during 325 injections in the up-dosing phase nor in the subsequent 62 maintenance injections period.

Conclusion: These preliminary data suggest that SCIT using the new fast up-dosed hypoallergenic Parietaria judaica allergen extract SCIT formulation (AVANZ) with an up-dosing phase of five injections over 4 weeks is well tolerated.

1836
The frequency of autoimmune thyroid disease in our allergic rhinitis patients

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Background: Effect of Allergic rhinitis (AR) on the clinical course of autoimmune diseases (OID) and autoantibody production is not well known. Autoimmune thyroid diseases are the most common of all OID. Graves disease accepted as Th2 dominant, Hashimoto thyroiditis accepted as Th1 dominant immune response. Thus, we aimed to bring a new perspective to the relation among the Th cell subgroups by determining the frequency of autoimmune thyroid disease in the patients with AR.
Method: Two hundred and thirty-nine (135 F; 104 M) patients with AR diagnosed by anamnesis, physical examination and prick tests were evaluated for FT3, FT4, TSH, anti-TPO (thyroid peroxidase antibody), anti-TG (thyroglobulin antibody) were evaluated. One hundred (61 F; 49 M) healthy control subjects were evaluated for same parameters.
Result: Patients with AR, when evaluated for thyroid tests, 200 patients were normal (83.7%), 33 patients had euthyroidic Hashimoto (13.8%), six patients had hypothyroidic Hashimoto (2.5%). Graves disease was not detected. Eighty-four control subjects were normal (55.5%) and 26 subjects had euthyroidic Hashimoto (23.6%). In comparison of thyroid tests, only the FT4 value was detected significantly low in the control group ($P = 0.001$).
Conclusion: There are too few studies in the literature investigating the frequency of autoimmune thyroid disease in AR patients. The determination of the functional effects of thyroid autoimmunity in AR development hasn't been clarified yet. That we have determined Hashimoto thyroiditis very frequently and no Th2 mediated Graves disease in our Th2 dominant AR patients suggests that further studies are needed regarding the evaluation of the connection among the atopic, autoimmune diseases and T helper subgroups.

1837
Application of intranasal corticosteroids in upper airway diseases: how much do we know?

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Background: Intranasal corticosteroids (INCs) plays great role in everyday practice in primary care as well as in otorhinolaryngology. The aims of this study were to estimate the level of awareness among primary health care doctors (PHCs) and otorhinolaryngologist (ORLs) on the safety and efficacy of INCs when treating upper respiratory diseases and to compare their results.
Method: The study was conducted in the form of a survey in which the tested groups answered anonymously. The participants were 54 PHC doctors (42 family physicians and 12 pediatricians) from the County of Split-Dalmatia and 34 ORLs from Croatia on a national level.
Result: There is no statistically significant difference among the investigated groups of doctors in prescribing INCs when treating allergic rhinits. Both groups are not well informed about effects of INCs on ocular symptoms in allergic rhinitis and both groups failed in prescribing INCs in acute rhinosinusitis. PHC and ORLs prescribe INCs for cronic rhinosinusitis without polyps without significant difference. In case of nasal polyposis ORLs prescribe INCs 1.6 times more often than PHC and also five times more often after FESS. There is no fear about side effects in both groups. Even though all subjects considere themselves well informed about efficacy and safety of INCs, ORLs are 3.2 times more skeptic than PHC doctors about research results on INC administration safety. The choice of INCs is 1.8 times more influenced by good relations with pharmaceutical company representatives in PHC doctors than in ORLs. In more than 88% of cases, both investigated groups, besides INCs, prescribe saline for nasal mucosa lavage.
Conclusion: PHC doctors and ORLs are well informed on INC safety and efficacy when treating allergic rhinits, chronic rhinosinusitis and nasal polyps. Both groups of doctors could be better informed on treating acute rhinosinusitis with INCs and on the effects of INCs on ocular symptoms. ORLs are better informed on INCs treatment after surgical procedure in the nose and paranasal sinuses. PHC doctors have more trust in present research on INC safety than ORLs, while also being more under the influence of pharmaceutical industry representatives. Both groups of doctors prescribe lavage of nasal mucosa with saline, while using INCs.

1838
Rhinitis and asthma related to cotton dust exposure in apprentices in the clothing industry

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Aim: Respiratory allergies are the most common occupational diseases in the world. The aim of this study was to determine the prevalence of rhinitis and asthma among apprentices exposed to cotton dust in the clothing industry and to describe their epidemiologic and clinical profiles.
Subjects and Methods: We carried out a descriptive study of 600 apprentices in a textile and clothing vocational training centre in the Monastir area. The investigation comprised a questionnaire exploring risk factors and symptoms appearing during their training. Subjects who developed allergic respiratory symptoms at the work-place underwent a clinical examination, rhinomanometry and investigation of their allergic status and respiratory function.
Results: One hundred twenty apprentices (20%) developed allergic respiratory reactions due to exposure to textile dust (exclusively cotton) during their training, with a positive withdrawal-re-exposure test. Conjunctivitis (14.3%) and rhinitis (8.5%) were the most frequent allergic symptoms. Twenty-eight apprentices (4.6%) presented symptoms of asthma. Rhinitis was associated with asthma in 45% of cases. Two cases of asthma were diagnosed clinically at the work-place following their exposure to textile dust. The prick test performed in 120 symptomatic apprentices was positive in 41.6% of cases. There was sensitization to pollens in 29 cases and to dermatophagoides in 13 cases. Cotton and wool allergy was noted in two cases. Allergic symptoms developing during the training were significantly more frequent in the atopic group, and they varied according to the intensity of textile dust exposure.
Conclusion: In the textile and clothing industry the frequency of respiratory disorders caused by allergens remains high, especially in atopic apprentices who constitute a population at high risk.

1839
Sublingual immunotherapy with house dust mite – pulmonary function tests in selection of the patients

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Background: The aim of the study is to investigate the parameters of lung function tests in patients who have an indication for SLIT and to confirm if there is a significant risk while performing SLIT to House dust mite.
Method: This is clinical randomized single blind trial that included 30 patients of which 18 were women. They were 18–48 years old/mean age 29/. All of them had allergic rhinitis and 12 had allergic conjunctivitis. They were randomized from May 2006 to December 2010. The diagnosis of allergic rhinitis were made according to history, skin prick testing detection of specific IgE to house dust mite, examinations by an ear and throat specialist. Pulmonary function tests were performed on Jaeger Viasus spirometer.
Result: All patients had allergy on house dust mite, 15 patients were sensitized to other aeroallergens; seven to grass allergens, four to weed allergens, while other were presented in lower number. According to concetration of specific IgE we had four groups of patients. Eleven patients had class 3 specific IgE determined by EAST Phadiatop. Ten patients had class 4 specific IgE, five patients with class 5 and four patients with class 6. Pulmonary function tests showed a mean value of 114% for FVC, 112% for FEV1, 107.2% for VC. The flows were as following 104% for PEF, 110% for MEF75, 104% for MEF50 and 92% for MEF25.
Conclusion: Our conclusion is that we had an excellent selection of patients which is important for commencing immunotherapy. Among pulmonary function tests, the lowest value obtained was the MEF25 which is specific for allergic respiratory disease.

1840
Atopy and workplace related symptoms among pet shop workers

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Background: Various occupational groups have examined occupational allergic diseases and work-related respiratory symptoms in Turkey. To our knowledge sensitivity against animal proteins (cat, dog, feather mix) and workplace related respiratory-ocular symptoms have not been studied in pet shop workers in our country where pet shops have been increasingly common. The aim of this study was to describe the prevalence of atopy and work-related symptoms among pet shop workers.
Method: Pet shops registered in Directorate of Agriculture of Ankara were visited and informed about this study. Workers accepting to take part in the study with a working history of at least 1 year were included. Fifty one workers (M/F: 46/5, mean age: 27.5 ± 8.5) underwent skin prick tests (SPT) with common and animal specific allergens (Cat, dog, feathers mix, D. farinea, D. pteronyssinus, mould mix, grass, artemisia vulgaris, tree mix, latex). The prevelance of respiratory and ocular symptoms were assessed with a modified questionnaire.
Result: Atopy has been found in 16 (31.4%) of workers, most frequently to D. pteronyssinus seven (13.7% of all workers), grass pollen seven (13.7%), D. farinea 6 (11.8%). Four of 51 (7.8%) workers had SPT positivity to animal allergens [feathers mix three (5.9%), cat two (3.9%), dog one (%2)]. Thirty subjects had respiratory and ocular symptoms however 13 workers (25.5%) complained of work-related symptoms: most often sneezing 8 (61.5%), stuffiness seven (53.8%), itching eyes seven (53.8%), watering eyes six (46.2%), rhinorrhoea five (38.5%), cough five (38.5%), eye redness five (38.5%). The workers reported bird (76.9%), dog (7.7%), cat (7.7%), and dust exposure (7.7%) as causative factors of workplace-related symptoms. SPTs were positive in seven (53.8%) of workers reporting workplace-related symptoms: D. Pteronyssinus five (38.5%), D. farinea five (38.5%), grass pollen three (23%), cat two (15.4%), feathers mix one (7.7%).
Conclusion: The evaluation of SPTs showed that; every third petshop worker was atopic; every fourth complained of work-related symptoms and every eight worker had SPT positivity to animal allergens. The most common allergen leading sensitivity was house dust mites, surprisingly animal allergens were of less importance. However bird exposure was reported to be the most common factor aggrevating symptoms among workers.

1841
Personality traits in allergic patients

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Background: Personality takes an important role in etiology of psychosomatic disorders. The aim of this study was to invastigate psychological factors influencing allergic rhynitis and chronic urticaria.
Method: The sample was composed of 55 allergic rhynitis, 33 kronic urticaria; totally 88 patients recruited from allergy outpatient clinic in Tepecik Educational and Research Hospital and 79 control group of people who don't have any allergic problems. The age range of sample was 15–66. We applied the sociodemographical data form developed by us. In order to assesss the personality traits Hacettepe Personality Inventory which reveals social and personal adjustment was used. For statistical analysis of data SPSS for Windows 15.0 package program was used.
Result: The group of patiets was consisted of 60 women, 29 men who were getting treatment for 1–22 years. Seventy eight of them were also treated for their psychiatric problems. The mean age of patient group was 36.73. The most of them were housewives. The mean level of education were over 8 years. This study revealed that the adaptiveness to social norms and antisocial tendency in social adjustment dimension were significantly lower in patient group than control group ($P < 0.005$) ($P < 0.01$). There was no significant difference related to the other subscales between two groups. When the patient group was further analiezed according to their demographic properties age and educational level was found to be affecting social adaptation. As age and education level decreases, more adaptive problems in social norms and antisocial tendencies were seen.
Conclusion: In literature allergic disorders are mostly associated with psychosocial stres and personality traits. The findings of our study has not supported this perspective. Although the mean values for emotional stability and neurotic tendencies were lower in patient group (meaning that they have more problems in emotional stability and thay have more neurotic tendencies), they were not statistically signitifant.

1842
Comparision of etiological agents in acute rhinosinusitis in normal adults and nasal poliposis

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Background: Nasal poliposisi is a disease which causes recurrent rhinosinusitis we aimed to compare etiological agent in acute rhinosinusitis and nasal poliposis.
Method: Eighteen nasal poliposis patients and 32 normal adult with acute rhinosinusitis included into study. Nasal cultures were taken before treatment started and results compared.
Result: There were 12 streptococcus pneumonia and six hemophilus influenza in nasal poliposis group. On the other hand tehre were 20 *Streptococcus pnemonia*, nine *Hemophilus influenza*, two *Maroxella catharalis* and one *Staphylococcus aureus* in the normal adult group.
Conclusion: There was not significant difference in etiological agents between nasal poliposis patients and normal adults.

1843
Abstract moved to 1726

1844
Allergic rhinosinusitis in patients with Behçet disease

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Background: In an autoimmune reaction, the immune system mistakenly attacks and harms the body's own tissues. Behçet's disease is an autoimmune disease involving veins as well as arteries. Objectives of the present study were to analyse the allergic reactions of the sinonasal cavities in patients with Behçet disease.
Method: Fifty patients with Behçet disease were enrolled in the study. Patients were classified in two groups according to the laboratory results of Antistreptolysin O (ASO) and C-reactive protein (CRP). Group I normal serum level of ASO and CRP;Group IIhigh serum level of ASO and CRP. Nasal endoscopic evaluations and subcutenous tests with 16 aeropollen allergens of the patient's groups were achieved. Those with positive rhinosinusitis signs and symptomps underwent computerised tomographic imaging of the paranasal sinuses. Data were compared in SPSS 13 for windows.
Result: There were no statistically significant differences in allergic rhinosinusitis symptoms, prick tests and computerised tomographic scores between patients' groups.
Conclusion: Behçet disease was an independent factor in the etiopathogenesis of the allergic rhinosinusitis.

Late Breaking Poster Session 7

Drug, food and venom allergy: case based evaluation

1845
What do we know about systemic hymenoptera allergy in Turkey? What happens before the patients reach an allergy clinic?

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Background: Hymenoptera stings can cause serious even fatal reactions in sensitized patients. There is a limited data about the features of hymenoptera sting reactions in Turkey. Our aim was to determine the characteristics of Hymenoptera venom allergy in Turkey.
Method: Demographic and clinical data were obtained of the patients who were reffered to our allergy clinic from 2000 to 2009.
Result: One hundred and sixty-seven patients had been referred to our clinic for hymenoptera venom allergy. One hundred and fifty-four (92.2%) had systemic; 13 patients (7.8%) had local reaction. 53.9% of patients with systemic allergic reaction were female. Mean systemic reaction age of the patients was 36.54 ± 11.89. Most sting events occurred during July (27.4%), August (24.8%), and September (14.2%). 53.9% of patients reported that they were stung by honeybees, and 42.2% by wasps. The most common sites of sting were hands (32.7%); extremities (20.4%), and face (19.7%). Systemic reactions started in 5 min in 45% and in 30 min in 98% of the patients after stung. More than 80% of patients reached a medical facility to get therapy in < 30 min, but only 45% had adrenalin injection. During discharge only 19% of patients had been given information about venom allergy and referred to an allergy clinic for additional tests and venom immunotherapy.
Conclusion: Reported honeybee sting reactions were more common among our patients. Most sting events occured during summertime. Most of the systemic reactions started in < 30 min. Although the majority of the patients reached a medical facility in < 30 min, less than half had adrenalin injection. Moreover the majority of the patients had not been given information about venom allergy and venom immunotherapy.

1846
IgE mediated reactions to milk protein in pediatric liver recipients: two cases

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Background: *Introduction:* Development of food allergy after liver transplantation has been reported in some children receiving liver grafts from donors with no known food allergy.
Method: *Aim of the study:* To report two cases of liver transplant acquired food allergy in pediatric liver recipients.
Result: *Case 1:* The first case involves a 3 year old girl with no history of food allergy prior to transplantation. At age of 2 years the girl presented with mucoid stools and eczema. She underwent an allergological investigation which showed peripheral eosinophilia, elevated total serum levels of immunoglobulin E and elevated specific IgE antibodies to alpha-lactalbumin and beta-lactoglobulin. *Case 2:* The second case involves a 16 year old adolescent with no history of food allergy prior to transplantation, who presented with chronic abdominal pain of unknown origin. Laboratory investigation revealed elevated total IgE and specific IgE antibodies to cows milk. Both patients were placed on milk protein free diet for 4 weeks with complete resolution of their symptoms. An open challenge test with cows milk followed after 4 weeks and was positive in both children. The patients followed milk protein elimination diet and are free of symptoms till now.
Conclusion: Health providers should have increased suspicion for liver transplant acquired food allergy in liver recipients in order to make timely diagnosis.

1847
Allergic reaction to carbamazepina

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Anticonvulsant hypersensitivity syndrome (AHS) is a delayed adverse drug reaction associated with the use of aromatic anticonvulsant drugs. It is a multisystemic disorder involving cutaneous changes and typical blood abnormalities. Clinical manifestations include generalized skin eruption, temperature and involvement of internal organs.

Aim: To describe a case of allergic reaction to carbamazepina.
Methods: Case report.
Results: A patient of 54 years old (D.N) came in our clinic complaining of generalized skin eruption, small lesions in oral mucosa, pruritis all over her body, subicter in the sclera and high fever. The patient referred to be under treatment with carbamazepine for 4 months 250 mg 2 × 1 pills per day, (for psychotic depression). Laboratory test revealed abnormal liver function (high bilirubinemia and SGOT) and high basophilia. Patient underwent also patch test and skin biopsy. She improved after discontinuing carbamazepine and with intravenous steroids.
Conclusion: In conclusion, AHS may presents in different forms sometimes not with eoziniphilia as we are used to see.

1848
Fix drug eruption erythema caused by trimethoprim

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Background: Fix drug eruption or Fix Erythema is a skin reaction that occurs after the administration of an oral medicament. It is characterized by erythematous maculas, plaques or bullous elements, that can be alone or numerous in number. The disease effects the skin or mucous parts in a separate or altogether way. It is called Fix ERYTHEMA, because of the fixed skin elements at the same part of the body in

the case of re-exposure to the caused medicament.

Method: We report a case of a male patient 62 years old diagnosed as Fix Erythema from Trimethoprim. The patient refers that he was under treatment with trimethoprim when he noticed the elements. There were present erythematous elements in oval shape, with evident borders in the skin, localized in the trunk and in symmetrical way in the palms. The disease was accompanied by itching, the feeling of local temperature and uncomforting.

Result: The diagnosis was made on anamnesis and clinical basis. It was stopped immediately the medicament and started to treat the patient with oral and topical corticosteroid.

Conclusion: This report shows a fix drug eruption as a possible side effect of Trimethoprim. If so, it is recommended to stop the medicament immediately. This disease can be repeated if the patient takes again the medicament that has caused. Fix Erythema will be at the same areas during the recidivas or in the other new areas.

1849
Development of camel milk anaphylaxis after 1 year cessation of camel milk ingestion

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Background: Food allergy affects 4–5% of the population and its clinical manifestations range from mild to severe allergic reactions. Camel milk allergy is rare, but can cause life-threatening anaphylaxis.

Method: Forty years old man developed camel milk anaphylaxis 15 years after being non-allergic to camel milk. The patient stopped drinking camel milk for 1 year, but immediately upon re-ingesting a cup of camel milk he manifested itchy throat, urticaria and sever respiratory distress. He rushed to a local hospital where he received epinephrine injection and his symptoms resolved. He developed five other episodes of sever anaphylaxis within seconds after exposure to camel milk (one episode was due to powder form) that all quickly responded to epinephrine injections. Thereafter, assessment in the allergy clinic was undertaken.

Result: The allergy skin prick testing was performed. It was positive for histamine control (6×6 mm in diameter wheal), negative for negative control (0×0 mm in diameter wheal) and were strongly positive for both heat-untreated powder and pasteurized forms of camel milk; (18×12 mm in diameter wheal) and (9×12 mm in diameter wheal) respectively. Diagnosis of camel milk anaphylaxis was made, anaphylaxis action plan measures were undertaken and the patient was equipped with intramuscular injectable epinephrine (0.5 mg) for accidental exposure.

Conclusion: Our patient demonstrated the first unique case of life threatening camel milk anaphylaxis that developed several years after being non-allergic to camel milk. Recently, Middle East dairy companies produced pasteurized camel milk, chocolates, powder forms and ice creams with strawberry and other flavors that are currently available in the local markets and planning for marketing them in Europe and the rest of the world. Camel milk allergy may become an important medical problem in the western countries in the future.

1850
Etodolac-induced multiple bullous fixed drug eruption

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Background: Fixed drug eruption (FDE) usually appears as a solitary or a small number of pruritic, well circumscribed, erythematous macules; typically resolve after discontinuation of the offending drug, leaving hyperpigmentation. They reoccur in exactly the same sites when rechallenged with the offending drug. NSAIDs are commonly reported causes of FDEs, but the bullous and generalized variants are relatively rare. Etodolac is a widely used analgesic-antipyretic with consistent safety profile.

Result: A 30-year-old man, with allergic rhinitis, presented with a 4-month history of recurrent oral and genital bullous ulceration along with an erythematous eruption over hand and foot. He recalled three previous eruptions in the same locations, each lasting 2 weeks and then resolving with pigmentation, all occurred after etodolac. He could not remember any other associated triggers. His family practitioner diagnosed him to have herpes infection, for that he prescribed acyclovir. He also had a past history of two angioedema and urticaria episodes which occurred 30 min and 13 h later taking flurbiprofen and paracetamol, respectively. He was using frequently analgesics for headache. At his laboratory tests, he was found to have high TSH level, and diagnosed with Hashimoto's thyroiditis. After his TSH levels turned back to normal, since the value of patch test as a diagnostic tool was unclear we performed an oral challenge test with a series of NSAIDs. No reaction occurred with flurbiprofen, paracetamol, meloksikam and nimesulid. However within 6–8 h of intake of a total dose of 750 mg of etodolac, he developed burning sensation over oral-genital mucosa followed by erythema and ulceration. The next day an erythematous eruption appeared over his right hand and left foot along with vesiculobullous lesions all around his lips and penis. He also had crusting over lips along with extensive erosions over the buccal mucosa and glans. Histopathology of the skin biopsy taken from the glans was compatible with FDE. The lesions healed within 2 weeks, leaving residual pigmentation. The patient was advised to discontinue etodolac.

Conclusion: To the best of our knowledge only three cases of FDE secondary to etodolac have been reported, but this is the only one with bullous lesions. In this report, we present a patient with an unusual form of FDE, the multiple bullous pigmenting variant, following the use of etodolac with no polysensitivity found in oral challenge.

1851
The management of systemic reactions during maintenance wasp venom immunotherapy

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Background: Hymenoptera venom immunotherapy (VIT), a potentially life saving treatment in selected individuals, can be hampered by the occurrence systemic reactions during either the induction or maintenance phase of therapy. Systemic reactions were described in 2.1% of monthly maintenance VIT injections (Youlten et al. 1995). From our own experience of VIT, systemic reactions during the maintenance phase of therapy are much more common. Their occurrence can lead to discontinuation or poor compliance, and therefore treatment failure. There is no clear guidance on how to manage these patients, and deal with this therapeutic challenge.

Case: A 46 year old female school teacher presented with a history of generalised urticaria, chest tightness and wheeze minutes after a wasp sting. Her total IgE was 55.90 kU/l (0–122 kU/l) and wasp venom specific IgE was 0.37 kU/l (0–0.35 kU/l). Baseline mast cell tryptase was normal. She was commenced on subcutaneous wasp

VIT programme with standardised wasp venom extract. The induction phase (12 weekly doses as per EAACI protocol) was well tolerated. She then received 100 μg injections as maintenance therapy approximately every 4 weeks. From maintenance dose number 53, she experienced recurrent episodes of facial itch, tingling and lip swelling within 15 min of injection which responded to anti-histamines. Her serum specific IgE to wasp venom now was 0.41 kU/l. She was further evaluated by intradermal skin tests with standardised wasp venom extract, which were positive. She had not experienced any field stings.
Clinical Outcome: Her maintenance VIT was updosed to 150 μg every 4 weeks. Subsequently, no symptoms after the injections were reported even without antihistamine prophylaxis. Her serum specific IgE level to wasp venom had fallen to 0.13 kU/l. After 15 months of maintenance wasp VIT at 150 μg, therapy was ceased.
Conclusion: Updosing to 150 μg VIT prevented the occurrence of systemic reactions to therapy. This patient did not experience any field stings to confirm clinical efficacy, but demonstrated that higher VIT doses may be needed in selected patients to achieve effective desensitisation as is currently recommended by EAACI guidelines for 'high-risk' subjects.

1852
Ceftriaxone induced anaphylactic shock in a 64 year old female patient

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Background: This report was received from a physician via Medicines and Medical Devices Agency of Serbia on March 16, 2011. Medicines and Medical Devices Agency of Serbia assigned the following number to this case: 515-00-02360-2011-2.
Method and result: After i.v. administration of Azaran (INN: ceftriaxone) 2 g anaphylactic shock occurred. Resuscitation was performed. Suspected drug is Azaran (INN: ceftriaxone) 1000 mg, powder for solution for injection. Therapy dates: from February 9, 2011 to February 9, 2011. Daily doses: 2 g, intravenous. Concomitant drugs: Enalapril (INN: enalpril), tablets: from: – to: – Presolol (INN: metoprolol), film-coated tablets: from: – to: – Other relevant history: Urinary incontinence. The patient was life threatening. These are expected serious adverse drug reaction, which is specified in The Summary of Product Characteristics (SPC) and the Patient Information Leaflet (PIL). Outcome: recovered.
Conclusion: Starting from the data presented in the SPC or PIL, the relevant medical literature, as well as criteria for assessing the severity of adverse drug reaction (ADR), one can conclude that this is an expected serious adverse drug reaction, which required the inclusion/prolongation of hospitalization.

1853
A selective fixed drug eruption to amoxicillin

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Background: Fixed drug eruption is an uncommon reaction to penicillins, and very few cases have been reported. We present a case of a selective fixed drug eruption to amoxicillin confirmed by local provocation test (patch test) and oral rechallenge test, with no reaction to other betalactams.
Case: Mr. G. Ch; a 60-year-old man; had developed an erythematous plaque on the right thigh. This eruption had disappeared within few days leaving a hyperpigmented plaque. Three years later, he noted an itching eruption all around the residual hyperpigmentated plaque, 2 h after receiving amoxicillin and paracetamol. After drug withdrawn, skin lesions lighten slowly to a residual hyperpigmented plaque, but he did not complain of this skin eruption. So that, 1 year later, he received a second dose of the same treatment and 2 h later, he noted a reactivation of the residual plaque. At that time, he was diagnosed with fixed drug eruption. Six weeks later, patch tests to amoxicillin and paracetamol was performed both on the involved and normal skin. Only patch test to amoxicillin on the involved skin was positive. Subsequent patch tests to other betalactams were performed, revealing a negative result. Few days later, the patient received voluntarily 500 mg of amoxicillin, and 30 min later, he noted a reactivation of the residual eruption.
Conclusion: Although few similar cases of fixed drug eruption to amoxicillin have been reported, the reactivity to other betalactams was not assessed. To our knowledge, this is the first case of selective fixed drug eruption to amoxicillin confirmed by local provocation test (patch test) and oral rechallenge test.

1854
Drug induced skin eruption: a case/non-case study based on a Tunisian pharmacovigilance database

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Background: To identify the number of cases of skin eruption reported in association with different classes of drugs and compare it with other reports in the same database.
Methods: The data were obtained from a Tunisian pharmacovigilance database containing all the notifications of adverse drug reactions (ADRs). The ADRs reported between April 2004 and December 2010 with a causality assessment of certainly, probably or possibly drug related (according to the Naranjo score) were analyzed. The association between drugs and skin eruptions was assessed using the case/non-case method. The cases were defined as the drug induced skin reactions. The non-cases were all of the other ADR reports. The frequency of the association between skin eruption and the suspected drug in comparison with the frequency of skin eruption associated to all of the other drugs was calculated using the ADR reporting odds ratio (ROR) and their 95% confidence intervals.
Results: Overall, 317 reports of adverse drug reactions were analyzed; of which, 213 (67.2%) were skin eruptions. Skin rash were mainly exanthema (42%), urticaria (10%), DRESS (6%), photosensitivity reactions (6%), acute generalized exanthematous pustulosis (4%) and vasculitis (4%). Antibiotics were the only drug class associated with a significant increase of ROR [2.26; CI 95% (1.40–3.64); $P < 0.001$]. Regarding this class, betalactams were the only group with a significant ROR [2.03; CI 95% (1.11–3.70); $P < 0.02$].
Conclusions: Drug induced skin eruption is a frequent matter of concern for several drugs widely used in clinical practice. Despite the mandatory limits of this kind of study (underreporting, confounding factors etc.), these data could contribute to establish further rospective studies in order to confirm such pharmacovigilance signals.

1855
Bee sting hurts!

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Background: A 34 year-old beekeeper experienced flushing, breathing difficulty and loss of consciousness, 5 min after he got stung by a honeybee. After a period of unresponsiveness which lasted for about 24 h, the patient developed a memory disorder, slowing of speech, personality and behavioral changes, and difficulty in resolving personal needs such as dressing. His medical history revealed hypotension and syncope after he had been stung by a yellow jacket 2 years ago. The examination of cranial nerves, and cerebellar, pyramidal, extrapyramidal and sensory systems were entirely normal. Neuropsychological assessment revealed deficit in attention and concentration, disorder of planning, organization and coordination, executive dysfunction, recall memory deficit, and dysfluent speech. The patient also had behavioral problems such as apathy, decreased spontaneity, disorganization, inattention, loss of insight, irritability, and poor judgment. On cranial MR examination, FLAIR and T2-weighted images revealed marked symmetrical hyperintense lesions involving bilateral lentiform and caudate nuclei. Diffusion-weighted sequences also showed bilateral symmetrical high-intensity areas in the regions of caudate and lentiform nuclei. ADC values were increased in those areas. Four months after the anaphylactic reaction to the bee sting, skin prick tests and analysis of specific IgE levels to Apis mellifera and Vespula species were detected negative. Intradermal tests were performed and at 1 μg/ml concentration, Apis mellifera and Vespula species yielded positive responses. The patient's baseline tryptase level was 49 ng/ml ($N < 14.1$ ng/ml). The clinical neurologic and neuropsychological examinations were completely normal. Bilateral lentiform hyperintensities of vasogenic edema had totally regressed at follow-up MR imaging.
Result: Bone marrow (BM) aspiration and biopsy were performed. Mast cell (MC) with abnormal morphology were found in bone marrow smears and dense compact BM MC aggregates were detected in tryptase and c-kit stained BM sections. In addition, CD25 and CD2-positive MC were identified by multiparametric flow cytometry analysis. KIT mutation was detected in MC.
Conclusion: This patient met all diagnostic criteria for systemic mastocytosis. Our patient is the first case in English literature, presenting with frontal lob syndrome. But surprisingly, only bilateral symmetrical basal ganglia lesions were found.

1856
Delayed-type hypersensitivity to heparins and aspirin intolerance in a woman with thrombophilia

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Background: Generalized eczema is a potential risk with intravenously heparin in patients with delayed-type hypersensitivity to heparins. Cross-reactivity between low-molecular weight and unfractioned heparins is the rule but tolerance to intravenous heparin was reported in such cases. Aspirin (acetylsalicilyc acid, ASA) desensitisation is difficult to achieve in subjects with ASA-induced urticaria or angioedema.
Method and Results: A 47-years-old woman with thrombophilia needed to undergo a dental extraction. She received intravenous heparin for recurrent deep venous thrombosis (DVT) 10 years before and had a history of urticaria during the treatment with aspirin and acenocoumarol (Sintrom®). She has been on continuous coumadin (Warfarin®) therapy for the past 9 years. She was changed on enoxaparin (Clexane®) and 4 days after the first dose, 2 cm eczematous plaques developed at the injections sites that lasted for several days. Enoxaparin was discontinued. Coumadin was resumed after the dental extraction and again interrupted, 3 months later, due to cholestasis presumed to be caused by the drug. Antiagregant therapy was considered. Oral provocation with 1000 mg ASA was done. Seven hours after the last dose urticaria developed. Delayed onset of urticaria reproduced when ASA desensitization was attempted (protocol: 0.5–1–2.5–5–10–20–40 mg every 30 min). Later on she was admitted to our hospital with the diagnosis of DVT. Scratch/intradermal (ID) test with undiluted nadroparin (Fraxiparine®) had been done 3 days before and upon admittance it showed an eczema-like reaction. Heparin therapy imposed. Prick tests (undiluted) and ID tests (10^{-1} and 10^{-2} dilutions) with heparin calcium (Calciparine®, 5000 IU/ml) and dalteparin (Fragmine®, 5000 IU/0.2 ml) were negative at 30 min. Intravenous heparin calcium given as a bolus of 50 IU followed by 500 IU was well tolerated and intravenous regimen continued. The fourth day, eczema plaques developed only as local reactions with 10^{-1} dilutions ID tests of heparin calcium and nadroparin. Lesions cleared up with topical corticosteroid whilst heparin calcium was administered for three more days. Anticoagulant therapy was completed with acenocumarol.
Conclusions: Failed ASA desensitisation in a patient with thrombophilia, ASA intolerance and delayed-type hypersensitivity reactions to heparins impaired thrombosis prophylaxis. Tolerance to intravenously heparin was found when DVT treatment was needed.

1857
Delayed reaction due to carbocysteine

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Background: Carbocysteine is a mucoactive and mucoregulatory drug with a direct effect on mucus secretion. Mucolytic drugs are widely used, in general are safe. The most common adverse reactions are gastrointestinal disorders and skin manifestations are rare. We present the case of a 45-year-old woman referred to our department because 4 months before she presented 2 days after the intake of carbocysteine a widespread itchy micropapular rash, that respeted palms and soles and facial region. He stopped using the drugs and started treatment with oral cetirizine with total resolution after 5 days. The patient denied personal or familial history of atopy.
Method: Patch tests were performed with the standard series and carbocysteine (5% petrolatum). They were read at 48 and 96 h and were placed on normal skin on the patient's back. A single-blind placebo-controlled drug challenge with carbocysteine 750 mg was performed. As the patient presented delayed reaction we performed a home treatment with carbocysteine each 8 h. We repeated patch tests with carbocysteine and paracetamol applied on normal skin and in the involved areas. A single-blind placebo-controlled challenge test with paracetamol 1 g was performed. To assess tolerance we repeated challenge test to carbocysteine. To investigate a possible cross-reactivity to other mucolytic drugs, we performed oral challenge with acetylcysteine.
Results: Patch tests were negative. Single blind- placebo-controlled drug challenge with carbocysteyne was negative. Home treatment with the involved drug was positive, the patient presented 2 days after a generalized micropapular eruption, 8 h after the intake of the fourth dose of carb-

ocysteine. The patient recognizes the intake of paracetamol for cephalea simultaneously. Repeated patch test were negative to carbocysteine and paracetamol both in upper back and in the involved areas. We repeated oral challenge with carbocysteine with negative result. Home treatment was positive, the patient presented 2 days after a generalized micropapular eruption. She denied the intake of any other drug. Challenge test with paracetamol and acetylcysteine were negative.

Conclusions: We report a case of delayed hypersensitivity to carbocysteine with no cross reaction to acetylcysteine. Home treatment with the involved drug at the same dose and schedule that produced the reported reaction is an efficient method to establish a definitive diagnosis.

1858
Food-dependent, exercise-induced anaphylaxis: a case report

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Background: Food-dependent, exercise-induced anaphylaxis (FDEIA) is a variant form of exercise-induced anaphylaxis induced by ingestion of a casual food allergens. The clinical signs differ from a variety of diffuse urticarial plaques to shock. Suspected food sensitivity can be diagnosed by skin prick test or measuring spesific IgE which occurs as a response to food allergens. In this case report, we present a 39-year-old man with wheat-dependent exercise-induced anaphylaxis.

Case: The patient referred to our outpatient clinic with complaints of generalized pruritus, erythema, angioedema and presyncope episodes for 10 years. With detailed history, the symptoms seem to appear during physical exercise immediately after ingestion of certain foods. The physical examination was normal. A complete blood count, routine biochemical tests, erythrocyte sedimentation rate, thyroid function tests, hepatit markers, repeated stool examinations were within normal limits. Skin prick test was positive only for wheat floor. After confirming wheat floor hypersensitivity with spesific IgE, he was diagnosed with wheat-dependent exercise-induced anaphylaxis. We prescribed an epinephrine auto-injector to be carried with him all the time and used when necessary. The patient, who strictly obeyed the offered diet, did not experience any similar allergic reaction.

Conclusion: The mechanism of eliciting anaphylactic symptoms by exercise in FDEIA is speculated that exercise increases the absorption of allergens from the gastrointestinal tract. The role of prophylactic antihistamines, antileukotriene antagonists, and oral steroids in controlling and preventing FDEIA has not been studied well and its treatment does not differ from the treatments of other allergic diseases. Identification of the association of food and exercise is crucial since by avoiding triggers, recurrences can be prevented.

1859
Evaluation of our cases with adverse drug reactions

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Background: The study's aim was to evaluate initial data from pediatric cases admitted to our hospital with adverse drug reaction symptoms.

Method: All the cases with adverse drug reaction symptoms admitted the our pediatric allergy department in the last 12 months were included in our study. Case data was included in the ENDA questionnaires by face-to-face interviews with the parents. The severity of the reactions were classified as severe, moderate, and mild.

Result: Eighty-two cases (54.9% male, 45.1% female) were admitted to our pediatric allergy department with adverse drug reaction symptoms. The mean age ranged from 0.25 to 14 (4.66 ± 3.36) years. Together, the 82 cases suffered 102 reactions. Fourteen of the cases had more than one reaction at different times. All the cases manifested skin symptoms, except for one. The most common skin findings were maculopapular (40.5%) and urticarial (35.6%) eruptions. Gastrointestinal, cardiovascular, and respiratory symptoms were detected in 4%, 3% and 2% of the cases respectively. Four of the cases had anaphylaxis, while in two of the cases, the hematologic system had been affected. Fever was the only symptom in a single case. Antibiotics were responsible in 88.9% of the reactions, with an amoxicilin-clavulanate combination found to be the most common (23.7%). Eighty-five of the reactions (83.9%) were moderate, while nine (8.8%) were mild, and eight (7.8%) were severe. Most of the reactions (77.5%) developed 1–72 h after administration of the drug; 22.5% of them developed in just 1 h. Nine of the cases (10.9%) had a past history of adverse drug reactions. Twelve of the cases (14.6%) also suffered from allergic diseases like asthma, allergic rhinitis, and atopic dermatitis. Nine of the parents (10.9%) had had adverse drug reaction symptoms in the past.

Conclusion: Beta-lactam antibiotics are responsible for the reactions in most cases of adverse drug reactions. Although reactions are generally mild and moderate, life-threatening reactions can also be seen. Before administration of any drug, the detailed medical history of the patient should be consulted in order to prevent serious reactions.

1860
Anaphylaxis with meropenem

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Background: Beta-lactams are the leading cause of immediate drug allergy reactions. Previous studies show that Carbapenems are tolerated in around 99% of patients and very few cases of Meropenem hypersensibility have been reported.

Method: We describe a case of a 25 year old woman who was referred to our Unit suspected of a drug allergic reaction. She presented acute pyelonephritis 6 months earlier, and was initially treated with intravenous Ceftriaxone unsuccessfully. She was subsequently treated with intravenous Meropenem. General itching, hives, facial angioedema, dyspnea, and hypotension were observed 15 min after the infusion began. Symptoms were treated with intravenous Methylprednisolone and Dexclorfenamine showing relief 4–5 h later. Gentamicin and Ampicillin were then administered with good tolerance. Ibuprofen, Metamizol and Acetaminophen, which were also administered during the reaction, were later intaken by the patient, with no reaction. The patient had been treated with intravenous Meropenem during a 2 week period, a few months earlier, without incidents.

Result: The patient presented negative Penicillin G and V, Amoxicillin, Ampicillin, Cefaclor specific IgE levels Skin prick testing was negative for PPL, MDM, Penicillin G (1000 IU/ml), Amoxicillin (25 mg/ml), Amoxicillin/Clavulanic acid (25 mg/ml), Cefazolin (25 mg/ml), Ceftriaxone (25 mg/ml), Cefuroxime (25 mg/ml), Aztreonam (100 mg/ml) and Ertapenem (100 mg/ml) and presented a wheal diameter of 6 × 6 mm with Meropenem (100 mg/ml) The histamine wheal diameter was 10 × 10 mm. Intradermal prick testing with PPL, MDM, Penicillin G (1000 IU/ml), Amoxicillin (25 mg/ml), Amoxicillin/Clavulanic acid (25 mg/ml), Cefazolin (2.5 mg/ml), Ceftriaxone (2.5 mg/ml), Cefuroxime (2.5 mg/ml) Aztreonam (1 and 10 mg/ml), Ertapenem (1 and 10 mg/ml) was also negative Oral Drug challenges (ODC) were performed with Amoxicilin (1 g),

Cefuroxime (500 mg) and Cefixime (400 mg) showing no reaction.
Conclusion: We submit a case of selective Meropenem hyper sensibility with severe anaphylaxis. The positive results of the skin prick test confirmed the clinical suspicion and the ODC discarded the possible allergy to other Beta-lactams. However, ODC to Aztreonam and other Carbapenems must still be performed due to the possibility of tolerance to other antibiotics in this subfamily.

1861
Successful use of omalizumab in an inadequately controlled type 2 diabetic patient with severe insulin allergy

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Background: We describe for the first time successful therapy with omalizumab alone after failure of desensitization therapy in a patient with severe systemic IgE-mediated insulin allergy.
Method: A 62-year old, male patient with type 2 diabetes for 16 years developed a severe anaphylactic shock upon intravenous administration of insulin. The patient's medical history comprised allergic reactions to an unknown agent as a child. The diagnostic work-up revealed a type 1 IgE-mediated insulin allergy by positive Skin prick tests (SPT) and elevated specific IgE levels against insulins of human, porcine and bovine origin by ImmunoCAP-Assay. SPTs with all solvents and additives of the insulin solutions were negative. Genetic sequencing of the patient's insulin molecule revealed a normal insulin gene. Because of unsatisfactory glycemic control, specific desensitization1 and maintenance therapy with insulin detemir was performed, which led only to a transient improvement of allergic symptoms.
Result: As insulin therapy seemed to be indispensable to control glycemia, treatment with intramuscular injections of 300 mg of omalizumab, a monoclonal antibody against IgE, every 4 weeks was initiated. A second desensitization therapy with insulin was successfully performed 6 months later. Insulin was started again and doses were gradually increased without reappearance of allergic symptoms. Subsequently, glycemia improved. After another 6 months, omalizumab was tapered according to allergic symptoms; currently a dose of 300 mg every 8 weeks suffices for full control of allergic symptoms and adequate glycemia (HbA1c 7.1%).
Conclusion: Insulin allergy is a very rare adverse reaction to insulin. As sufficient blood sugar control is not always achieved under oral antidiabetic medication alone in patients with insulin allergy, desensitization therapy is proposed to treat patients with disabling allergic symptoms. Omalizumab, an anti-IgE-antibody, has been approved for severe persistent allergic asthma patients. The rationale to use omalizumab in our patient is supported by different studies showing favourable effects of omalizumab as treatment before desensitization therapy in IgE-mediated diseases. With respect to IgE-mediated insulin allergy, the use of omalizumab has Our report describes for the first time that patients with severe IgE-mediated insulin allergy can be treated with omalizumab alone – thus enabling the use of exogenous insulin.

1862
A vexing case of severe pruritus and elevated serum tryptase after systemic antifungal treatment resolving as primary billiary cirrhosis/autoimmune hepatitis

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A 29 year old women presented with general pruritus and urticaria factitia, that had started after an antifungal treatment with terbinafine. The patient was resistant to a treatment with antihistamine. Because of repeatedly elevated plasma tryptase and elevated liver enzymes we suspected a possible mastocytosis with a potential liver involvement. Neither a skin biopsy nor a biopsy of the bone marrow or the FACS-Analysis was suspicious for a mastocytosis. Also a bone densitometry was normal. Because of the elevated liver enzymes a sonography of the liver and a serological screening was made. The sonography just showed few lesions of the parenchyma, but the serology presented a significant elevation of ANA (Antinuclear Antibody 1: 20 480) and AMA (Anti mitochondrial antibody 1:10 240). A biopsy of the liver showed accordable results for a PBC/AHI or Overlap. Based on this results the diagnosis of a primary biliary cirrhosis PBC/autoimmun disease of the liver AHI/Overlap, which is also associated with very severy itching, sometimes also before detectable morphologic liver changes. Retrospectively plasma tryptase was after preabsorbation of heterophilic antibodies again measured and showed a normal value. As the itch had started after an systemic antifungal treatment with terbinafine, we postulate a possible causative role of this drug in the diseases course. In fact a lymphocytic proliferation assay with terbinafine was weakly positive (SI of 2.8) with this drug. By now under the treatment with budenoside and ursodeoxycholic acid the women isn't anymore suffering from puritus. In conclusion we describe a case of 29 years old female patient with very severe itch as a first sign of PBC/AHI possibly induced or aggravated by sensitization to terbinafine and falsly elevated serum tryptase level due to heterophilic antibodies.

1863
Fish roe allergy in a patient with contact angioedema to fish

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Background: Some highly sensitive individuals can react to food allergens not only through ingestion but also upon skin contact or inhalation. Skin contact with fish can elicit symptoms and it could play an important role in accidental encounters with fish particles in patients on a fish avoidance diet for fish IgE-mediated hypersensitivity. Although fish allergy is common, reports of allergy to fish roe are more scarce.
Case report: We present the case of a 23 year old woman with a family history of fish allergy and asthma who was referred to our clinic for evaluation after a severe episode of facial angioedema and laryngeal aedema that required emergency treatment with epinephrine when she attempted to eat a fish roe tartine. The patient describes severe angioaedema of the lips and face occurring at the introduction of fish in her diet (at age 18 months). Although she has had a strict fish avoidance diet since her first episode, she has subsequently experienced numerous episodes of contact angioaedema to cooked fish of various species or other foods contaminated with fish, as well as angioaedema of the face when inhaling vapours from fried fish. She also reports angioaedema of

the lips after sharing eating utensils with a family member who had eaten fish. Skin prick tests (SPT) to aeroallergens were negative, while SPT with fresh water fish (carp, zander, trout) and shrimp commercial extracts were positive. Her total IgE count was 16 UI/ml. Determination of specific IgE to trout by ImmunoCAP FEIA was 0.45 kU/l.

Conclusion: Severe food allergic reactions can occur from exposure to minute quantities of allergen by skin contact or inhalation. Fish roe allergy must always be considered in patients with severe reactions to fish.

Late Breaking Poster Session 8

Cognate immunity

1864
Regulatory T cells and the cellular source of IL-10 in low zone tolerance

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Background: Allergic contact dermatitis to haptens is a T cell mediated inflammatory skin disease. Most of the underlying mechanisms have been studied in the murine contact hypersensitivity model (CHS). Allergen specific cytotoxic CD8+ T cells are the effector cells in CHS. In contrast, CD4+ T cells are suggested to mainly function as regulatory T cells that dampen the inflammatory response. Tolerance to contact allergens in mice can be induced by repetitive epicutaneous application of subimmunogenic doses of hapten prior to sensitization. This phenomenon is called low zone tolerance (LZT) and has been suggested to be dependent on IL-10. The aim of the present study is to define the role of CD4+ Foxp3+ T regulatory cells (Treg) and the cellular source of IL-10 in LZT.
Method: To address the role of Treg we performed the LZT protocol in DEREG mice, which allow the selective depletion of Treg by diphtheria toxin treatment. To define the significance and cellular source of IL-10 in LZT we made use of novel IL-10 reporter mice (Vert-X). IL-10 activity was neutralized *in vivo* by anti-IL-10R mAb treatment.
Result: Depletion of Treg prior to LZT led to an enhanced ear swelling response to subsequent hapten sensitization and challenge. Treg transfer experiments after tolerance induction revealed the need of Treg activation by low allergen exposure resulting in an allergen non specific suppression. *In vivo* IL-10 signals were detectable in myeloid cells, B cells and T cells, mainly of the Treg compartment. Surprisingly no differences in IL-10 reporter activity between tolerized and non tolerized mice were detected during and directly after tolerance induction. In contrast we were able to demonstrate a significant increase of IL-10 reporter activity after sensitization in the Treg compartment in skin draining lymph nodes. Increased Treg IL-10 production was confirmed by ElISPOT analysis of hapten restimulated LN cells. To confirm the functional relevance of IL-10 *in vivo*, IL-10 activity was neutralized by anti-IL-10R mAb treatment prior to tolerance induction, which abrogated the tolerogenic effects of LZT. T cell reconstitution of $RAG1^{-/-}$ mice with CD4+ and CD8+ cells from wt or $IL\text{-}10^{-/-}$ mice confirmed the need of IL-10 competent CD4+CD25+ Tregs for tolerance induction.
Conclusion: Our data demonstrate that Tregs are required for induction of tolerance to low amounts of allergens (LZT) and act in an allergen non specific, IL-10 dependent mechanism.

1865
Extracellular vesicles in house dusts induce Th17 type lung inflammation

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Background: Recent evidence indicates that bacteria produce extracellular vesicles (EVs) that induce pro-inflammatory and immune modulating effects.
Method: Indoor dusts were collected from beds and then EVs isolated by filtering and ultracentrifugation. Airway application of dusts and dust-derived EVs was performed on days 0, 1, 7, 8, 14, and 15. Immune and inflammatory phenotypes were evaluated on days 1 and 16.
Result: Lung inflammation, especially neutrophil infiltration, based on BAL cellularity was found to be increased in dust exposed mice than in PBS exposed mice. Intracellular cytokine staining of lung T cells showed that IL-17 expressing T cells were enhanced in the former group compared to the latter group. *In vitro* application of dust-derived EVs to macrophage cell line caused increase of the production of IL-6 which is a key cytokine of Th17 polarization. *In vivo* application of dust-derived EVs also enhanced the production of IL-6 on day 1. Moreover, this application induced neutrophilic inflammation which was associated with up-regulation of IL-17 expression on day 16.
Conclusion: Indoor dust-derived EVs induce Th17 type neutrophilic lung inflammation.

1866
Searching for the immune polarizing principles of E.coli betagalactosidase

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Background: A number of factors can influence the type of an immune response against a vaccine. However, immuno-modulating effects are usually attributed to adjuvant compounds and not to the antigen itself. Previous work in mouse had revealed that DNA vaccines, when administered epicutaneously by gene gun technology, predominately elicit Th2-associated antibody isotypes with most antigens tested so far. One exception to this rule are gene gun vaccines encoding *E. coli* beta-galactosidase (β-gal) that give rise to both, Th1 as well as Th2 antibodies. Because there is no apparent difference in the vaccine compound (plasmid DNA in all cases) and also not in the mode of administration (gene gun) we hypothesize that the Th1-polarizing effect of β-gal may be due to a hitherto unrecognized intrinsic property of the antigen molecule itself. This study aimed at identifying structural or functional features of β-gal that could mediate the Th1 bias of the immune response.
Method: C57BL/6 mice were immunized with plasmids encoding, either, the native protein, individual structural domains, N-terminally truncated (N-trunc) β-gal, or β-gal with a point mutation that abrogates the enzymatic activity. Antigen-specific IgG1 and IgG2a antibody isotypes and T cell cytokines were determined by ELISA and ELISPOT, respectively.
Result: Compared to wild type β-gal, isolated domains induced only weak antibody responses, but these were of pure Th2 type. Deletion of 50 N-terminal amino acids disrupted the tetrameric organisation of the native antigen and induced only IgG1 antibodies and only low IFN-gamma production. Enzymatically inactive β-gal induced a Th1-biased immune response similar to

wild type β-gal, with a IgG2a:IgG1 ratio of 3, IFNgamma levels and cytotoxic activities.

Conclusion: The Th1-biasing immuno-modulatory activity of β-gal cannot be attributed to a given structural domain but, rather, relies on the tetrameric structure of native antigen. The underlying mechanism remain to be elucidated.

1867
Evaluation of serum total IgE and specific IgE results in Afyonkarahisar

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Background: Allergy, defined as the propensity to raise specific IgE to common allergens has long been recognized as a characteristic of many patients. Early studies suggested that total IgE, particularly in tropical countries where parasites are the major cause of a high IgE level. Although, the prevalence of specific IgE against local allergens has been increasing over the last one and a half to two decades suggests that allergy itself might be increasing in prevalence and makes it plausible. In this study, we have compared total serum IgE and specific IgE antibodies between children and adult.

Method: All blood specimens were received in the laboratory within 2 h of collection. In this study, 291 blood samples were gathered from patient with allergic complaints. Blood samples were centrifuged and serum stored at −20°C until analysis. Serum total IgE and specific IgE determinations were made with a Mago plus ELISA analyzer (Labmedics, UK). Statistic analysis was performed by using SPSS 17.0.

Result: The prevalence of total IgE in the last year among 150 children (31.9%) was significantly higher than the prevalence total IgE among 141 adult (17.3%) in Afyonkarahisar ($P = 0.004$). The specific IgE antibody rates were calculated in children and adult respectively 28.4% and 20.6%. Specific IgE results between children and adult were significantly different except House dust/greer ($P = 0.146$) and House dust/lofarma ($P = 0.821$) prevalence of specific IgE antibodies. Other results were summarized in the Table 1.

Conclusion: Total and specific IgE are influenced differently by the environment. Genetic studies of allergy, as differentiated from total serum IgE, are less common; and some are difficult to interpret because they conflate total IgE and specific IgE in their definition. This pilot study may help understanding of allergy profile of our region. But large scale study should do for favorable explanation of allergen distribution and effects.

Table 1. Comparison of total IgE and specific IgE results. (for abstract 1867)

	Children		Adult		Total			
	+	-	+	-	+	-	P*	r**
Total IgE	45	96	26	124	71	220	0.004	–
Epithel	2	62	1	96	3	154	0.012	0.072
Food I	2	111	3	69	5	180	0.001	0.059
Food II	46	76	15	56	61	132	0.001	0.057
Cereal	6	87	2	53	8	140	0.001	0.083
Inhalent	2	64	20	95	22	159	0.002	0.129
Pollen	1	73	11	105	12	178	0.001	0.085
House dust/greer	1	42	–	59	1	101	0.146	-0.332
House dust/lofarma	–	30	–	56	–	86	0.871	-0.246

*Ki-square test results between children and adult for total IgE and specific IgE (Significance $P < 0.05$). **Pearson Corelation results between total IgE and spesific IgE.

1868
IgE immune response againts A. lumbricoides and D. farinae in type 1 diabetes admixed Colombian patients living in a Caribbean area

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Background: Type1Diabetes (T1D) is an autoimmune disease (AID) in which both genetic and environmental factors are involved in its development. Today it is clear the rise of incidence of T1D around word. Intriguingly, geographic regions with a high burden of helminth infection have a lower incidence of many immunological disorders such asthma and T1D. Helminth infection is a worldwide health problem that exerts modulatory effects on T cells subset. The aim of our study was to examine the IgE immune response against Ascaris lumbricoides (Al) and Dermatophagoides farinae (Df) in T1D pediatric patients.

Method: This case–control cross sectional study approved by the Research Ethics Committee of the Universidad del Norte involved a total of 53 ambulatory pediatric patients and 103 controls without diagnosis of AID. Total IgE was calculated using a commercial Kit. Levels of specific IgE against Al (cut off OD 0.11), and Df (cut off OD 0.136) were determinate by a In house indirect ELISA test. A extracts of both whole body of Al and Df produced by ours was used as Antigens.

Result: 26/53 (49%) patients were males with a mean age of 12 year. Of Those 28/53 (53%) show elevated levels of total IgE. (mean 364.7, SD 285), 32/53 (60%) T1D subjects were positive for IgE anti Al (mean 0.14, SD 0.07) and 9/53 of these patients (17%) were IgE anti-Df positive (mean0.104, SD 0.11) In the control group 29/103 (28%) showed elevated total IgE (mean 182, SD 207), 30/103 (29%) had high level of IgE anti-Df (mean 0.15, SD 0.16) and 15/103 (14%)had a positive IgE anti-Al (mean 0.08, SD 0.03). It was found a significant association between having a clinical diagnosis of T1D and elevated total IgE (OR = 1.94, IC1.26–2.9; $P = 0.002$) Also it was association betweenT1D and positive IgE antiAl (OR = 3.5, IC = 2.3–5.4, $P = 0.0001$). However, morbility was not significantly associated to specific IgE antiAL. (OR 0.85 IC = 0.28–2.5). No association was found between high levels of IgE anti-Df in T1D patients (OR 0.61 IC 0.33 to1.13; $P = 0.07$).

Conclusion: This is the first study in reporting a IgE immune response to Al and Df in admixed T1D patients. The results suggest an association between a positive specific IgE immune response antiAL and T1D clinical diagnostic. A possible protective effect of this worm infections could explain the lower morbility of the clinical manifestations in this admixed children patients. These preliminary results raise the need to perform later studies in this field.

1869
Comparison of allergenic sensitization to storage mite and house dust mite in Korean patients with atopic dermatitis

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Background: Atopic dermatitis (AD) is a skin disease with a severe pruritus and characteristic skin lesions. It is a chronic, relapsing disease with genetic and environmental factors. Because the prevalence of AD is on the rise after industrialization, and environmental factors including air pollution, foods and house dust mites (HDMs) are supposed to be involved in the triggering of AD. However, the results of skin prick test to storage mites (SMs) such as Tyrophagus putrescentiae (Tp), Acarus siro (As) and Lepidoglyphus destructor (Ld) have not been fully understood.

Method: We performed this study to evaluate relationship between allergenic reactivity in skin prick test to five mites from three storage mites and two house dust mites species. One hundred and thirty AD patients were examined and evaluated by dermatologist and a questionnaire with their clinical histories. Skin prick tests to HDM, Dermatophagoides pteronyssinus (Dp) and Dermatophagoides farinae (Df), and SM, Tp, As and Ld were carried out on AD patients.
Result: Df has the largest number (36%) of positive AD patients, followed by Tp (35%), Dp (32%), As (31%) and Ld (22%). Positive reaction to more than one HDM or SM allergen was 53% and 50%, respectively.
Conclusion: A similar level of sensitization to both HDM and SM allergens was found in AD patients and therefore the specific immunotherapy of the storage mite allergens is recommended.

1870
The correlation of serum immunoglobulin classes and IgG subclasses pattern with respiratory allergic disorders in bakers with the sensitization to fungal allergens in Georgia

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Background: The aim of our study was to investigate some immunological characteristics of different Respiratory Allergic Disorders (Allergic Rhinitis – AR, Bronchial Asthma – BA, Extrinsic Allergic Alveolitis Syndrome – EAA syndrome) in bakery workers sensitized to different fungal allergens in Georgia. Workers in the food industry are particularly vulnerable to the development of these diseases since the air is highly polluted with organic dust, spores of bacteria and fungi. Due to its relatively common occurrence, especially in agricultural workers, EAA has recently become the focus of many investigations. The immunopathogenesis of EAA has not yet been studied in the Georgian population.
Method: We questioned 360 bakery workers. A three stage questionnaire was designed according to the National Heart, Lung and Blood Institute, USA. A specific allergological examination was performed by the skin prick tests with following fungal allergens: *Aspergillus fumigatus*, *Alternaria tenius*, *Mucor racemosus*, *Penicilium notatum*, *Rhizopus nigricans* (Bayer Corporation, Elkhart, USA). *Immunological examination:* serum immunoglobulin levels have been determined and the concentration of different IgG subclasses has been measured using ELISA kits (Biotechnology, Russia; Sanofi Diagnostics Paster, France). The Optical density (OD) was detected by a Multiscan MCC spectrophotometer (EFLAB) at a wave length of 492 nm.
Result: The determination of Ig concentration has demonstrated that bakers with EAA syndrome had dramatically increased IgG level, whereas the level of IgE remained normal. IgM and IgA concentrations were moderately increased compared to the control group. In bakery workers with BA an increase of IgE level was detected, whilst the concentration of IgG appeared to be increased insignificantly compared to the control group. In bakers with the AR an increase of IgM and IgE and a decrease of IgA and IgG concentrations have been revealed. The analysis of IgG subclasses levels in workers with EAA syndrome demonstrated, that despite the increase in both: IgG3 and IgG4 levels, IgG4 concentration was the most highly elevated among IgG subclasses, while the increase in IgG1 and IgG2 levels was insignificant compared to the control group.
Conclusion: Therefore, in workers exposed to fungal allergens, EAA syndrome seems to develop with a significant increase in serum IgG levels and IgG4 together with IgG3 play an important role in the pathogenesis of the disease.

1871
IL-10 overexpressing B regulatory cells suppress innate immune responses

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Background: In addition to their well described roles in antigen presentation, cytokine production and antibody secretion, there is an emerging body of evidence that certain B cell subsets can control immune response in autoimmunity, infection and organ transplantation in both, experimental animal models and humans. Furthermore, B cell depleting therapy in humans was associated with exacerbation of ulcerative colitis as well as induction of psoriasis. Different B regulatory cell subsets have been described in both mice and humans differing in their surface markers but all of them secreting interleukin-10. In order to address the suppressive capacity of IL-10-producing B cells, overexpression of human IL-10 in normal human B cells was developed.
Method: B cells were purified by negative selection from freshly isolated human PBMC using magnetic separation. B cells of high purity were then transfected with pORF-hIL-10 (or pORF-mcs control vector) using nucleofection. Significant transcription of IL-10 gene was detected in cell lysates by qPCR as well as substantial amount of IL-10 found secreted to cell culture supernatants of IL-10 transfected cells. In CpG prestimulated B cells higher transfection efficiency and cell survival rate were observed, consequently resulting in higher IL-10 secretion. In order to test the effect of IL-10-producing B cells on innate immunity, human B cells overexpressing IL-10 were co-cultured with autologous PBMC prior to activation of different TLRs (TLR2, TLR3, TLR4 and TLR9).
Result: After 24 h, along with marked increase in IL-10 secretion, all secreted cytokines induced on TLR2, TLR3, TLR4 and TLR9 pathways were significantly suppressed, particularly TNF-α, IL-1β, IL-6, IL-8, IFN-γ, G-CSF and GM-CSF, when compared with control vector co-cultures. Interestingly, MIP-1β concentration was found significantly elevated after TLR3, TLR4, TLR9 stimulation, while secretion of MCP-1 was not altered upon either of stimulatory conditions applied. Furthermore, monocyte-derived DCs were co-cultured with autologous IL-10 overexpressing B cells and stimulated with LPS. Lower expression of CD80 and CD86, as well as less HLA-DR^{high+} cells were found when compared with control vector transfected co-cultured B cells.
Conclusion: These data demonstrate the suppressive role of high IL-10 expressing B cells on early immune response development.

1872
Metabolic cages are suitable to monitor acute hyperventilation of asthmatic mice upon allergen challenge

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Background: The aim of this study was to compare metabolic and immunological parameters in an experimental mouse model during allergen challenge. Taking grass pollen allergen Phl p 5 as an example, we sensitized and aerosol-challenged mice to induce acute asthma.
Methods: By systemic sensitizations followed by aerosol challenges with Phl p 5, acute allergic asthma was induced in BALB/c mice. CO_2 production and O_2 consumption before, during and after acute

asthma were monitored using metabolic cages. Further, arterial blood samples were collected at the different time points and subjected to differential blood and gas analysis.

Results: Only upon aerosolization of sensitized mice with the specific allergen, acute significant hyperventilation was observed, which was accompanied by mucus hypersecretion and accumulation of lymph follicles in the lung. Metabolic acidosis was observed in specifically and non-specifically challenged mice, pointing towards asthma-associated bronchial hyperreactivity. Further, we observed an accumulation of lymphoid follicles in the lungs upon specific allergen challenge, but not with control antigen.

Conclusion: Our data suggest that metabolic parameters are suitable for analysing allergen-induced asthma versus bronchial hyperreactivity in mouse models.

1873

Maternal exposure to air pollution before and during pregnancy can induce changes in newborn's cord blood lymphocytes involved in asthma and allergies

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Background: Toxicants can cross the placenta and expose the developing fetus to chemical contamination leading to possible morbidity.

Method: We investigated the impacts of maternal exposure to air pollutants before and during pregnancy on newborn immune system. Exposure to particulate matter < 10 μm in diameter (PM_{10}) and nitrogen dioxide (NO_2) was assessed at background sites one trimester before and during pregnancy in 370 women. A subsample of 56 nonsmoking women carried a diffusive air sampler for a week during the second trimester, allowing assessment of personal exposure to four volatile organic compounds. Cord blood was analyzed by multi-parameter flow cytometry to determine lymphocyte subsets. Multivariate regression was used to assess the relationship between air pollutant levels and lymphocyte immunophenotypes.

Result: We report, among other immunophenotypic changes in cord blood, a decrease in the CD4 + CD25 + T-cells percentage of 0.72% ($P = 0.02$), 0.67% ($P = 0.04$), 0.82% ($P = 0.02$), and 0.50% ($P = 0.07$) for a 10 $\mu g/m^3$ increase in PM_{10} 3 months before and during the first, second and third trimester of pregnancy respectively. We found similar results between CD4 + CD25 + T-cells and maternal exposure to benzene during the second trimester of pregnancy.

Conclusion: These data suggest that maternal exposure to air pollution before and during pregnancy may alter the immune competence of their offspring. By decreasing CD4 + CD25 + T-cells, a proxy of Treg cells, air pollutant exposure could increase the risk of allergy in newborns, which is consistent with the involvement of air pollution among other factors in the allergy epidemics observed in past decades.

LATE BREAKING POSTER SESSIONS – TUESDAY

Late Breaking Poster Session 9

Food allergy: prevalence and management

1874
Prevalence of fruit (kiwi) allergy in hospital staff with latex hypersensitivity

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Background: Allergic reaction to natural rubber latex has increased during past 10 years especially among health worker and patients with high exposure to latex allergen. Latex allergy is associated with clinical or serological cross reactivity to plant derived food allergen especially tropical fruit for example avocado, banana, chestnut, kiwi, papaya, potato and peaches.
Method: In this study on health worker among 580 participants 104 (17.9%) who were positive to latex skin prick test.
Result and Conclusion: Of 464 patients with negative skin prick test to latex are have 12 patients with positive skin prick test to kiwi and in 197 patients with positive skin prick test to latex seven patients had positive skin prick test to kiwi ($P < 0.05$). In this study difference of sensitivity to banana and potato in both groups were not significant according to this study kiwi hypersensitivity is important problem among health worker with sensitivity to latex.

1875
The prevalence of food allergy to nuts in Russia

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Background: Peanut is one of the most common food allergens in Europe and USA, reactions to peanut can be severe or even fatal. The true prevalence of allergy to nuts in Russia is still unknown, due to absence of epidemiological studies.
Purpose: To estimate the prevalence of food allergy to peanut and hazelnut in children in Russia.
Method: The cross-sectional study in random samples of primary schoolchildren aged 7–10 years ($n = 12\,813$) from the Tomsk Oblast, Russia, was performed in frames of Europrevall project (FP6-FOOD-CT-2005-514000). The case–control sample was recruited for the second stage ($n = 1289$). Thus who reported adverse reactions to food in the screening stage were considered as cases, children without reported reactions were controls. The standardized screening questionnaires were used at the screening stage. The case–control stage included the completion of a clinical questionnaire, skin-prick test (ALK-Abell®; Spain), and serum specific IgE measurement (ImmunoCAP; Phadia, Sweden). Probable food allergy was defined as the combination of reaction within 2 h after food ingestion together with specific IgE 0.35 kU/l or more and/or positive skin-prick test to the same food (mean diameter of wheal 3 mm or more).
Result: Of 12 813 respondents, 0.08% had self-reported reactions to peanut, 0.02% – to hazelnut and 0.21% – to different nuts. In accordance to case–control stage the prevalence of probable food allergy to peanut is 0.08% and 0.09% – to hazelnut. Main reactions associated with allergy to nuts were skin rash (85.7%) and oral symptoms (71.4%). Most of the patients suffered from allergic rhinitis and were birch-sensitized (85.7%).
Conclusion: The prevalence of food allergy to peanut is 0.08% and 0.09% to hazelnut in children aged 7–10 years in Russia. The main mechanism of allergy to nuts in Russian population is related to cross-reactivity to birch. The prevalence of food allergy to nuts in Russia.

1876
Effect of extensively hydrolyzed casein formula supplemented with *lactobacillus* GG on tolerance acquisition in infants with cow's milk allergy: a randomized trial

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Background: *Lactobacillus* GG (LGG) modulates immune function and has been proposed for the prevention and treatment of paediatric allergic diseases. To investigate whether the addition of LGG to an extensively casein hydrolyzed formula (EHCF) could accelerate tolerance acquisition in infants affected by cow's milk allergy (CMA).
Method: Infants (1–12 months) affected by IgE- or non-IgE-mediated CMA, confirmed by oral food challenge, were randomly allocated to one of the following dietary interventions: (i) EHCF (Nutramigen®; Mead Johnson, Italy); (ii) EHCF containing LGG (at least 1×106 CFU/g of formula powder) (Nutramigen LGG®; Mead Johnson). The trial was registered in the Australian New Zealand Clinical Trials Registry (ID number: ACTRN12610000566033). Oral food challenges were performed to explore tolerance acquisition at 6 and 12 months. Primary outcome was clinical tolerance to cow's milk at 12 months.
Result: Fifty-five infants were enrolled (37 male, 67.3%; age 3.5, 95%CI 2.7–4.4 months; body weight 5.7, 95%CI 5.2–6.3 kg; IgE-mediated CMA 21, 38.2%). At diagnosis, symptoms of CMA were gastrointestinal (65.5%), cutaneous (43.6%), and respiratory (18.2%). After 6 months of dietary intervention, tolerance was acquired in 6/28 infants in group 1 (21.4%), and in 16/27 in group 2 (59.3%, $P = 0.004$). After 12 months of dietary intervention, tolerance was acquired in 9/28 infants in group 1 (32.1%), and in 22/27 in group 2 (81.5%, $P < 0.0001$). Regression analysis revealed

that the rate of infants acquiring tolerance at the end of the study was positively influenced by the presence of gastrointestinal symptoms (B+ 3.703, $P = 0.05$), and negatively by male gender (B -2.616, $P = 0.019$) and by IgE-mediated mechanism of CMA (B -2.642, $P = 0.003$).
Conclusion: Supplementation of LGG to an EHCF accelerate tolerance acquisition in infants with CMA.

1877
Intestinal permeability in *Anisakis Simplex*-sensitized patients

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Background: Anisakiasis is a human parasitic infection of the gastrointestinal tract caused by the consumption of raw or undercooked seafood containing larvae of the nematode *Anisakis simplex*. Anisakiasis manifests in two clinical conditions: the first, known as a gastrointestinal disease, featured by acute abdominal pain, episodes of vomiting, nausea and diarrhea, and the second, designed as allergic manifestations, including a wide range of allergic symptoms like asthma, rhinitis, conjunctivitis, anaphylaxis and contact dermatitis. The intestinal mucosa, the main barrier against external molecules, represents an open gate for allergens and toxins, with consequent epithelial hyperpermeability. Previous data have demonstrated a strict interaction between increased intestinal permeability (I.P.) and clinical symptoms in patients with adverse reactions to the food. With this project, we assessed the sensitization to *A. simplex* in patients with clinical manifestations of allergy.
Method: At first, all patients were submitted to common alimentary skin prick test, by meaning of *A. simplex* allergen (Ani s1). In addition, in *A. simplex* -sensitized patients, I.P. was determined upon their recruitment to the study at the time (0) and after 6 months of consuming a raw fish-free diet (time 6).
Results: Increased I.P. was evaluated in comparision to worse clinical symptoms, which receded after 6 months fish-free diet.
Conclusions: Our data have demonstrated that the use of raw and undercooked fish compromises the integrity of the intestinal mucosa, and, then, this pathological situation may contribute to predisposition to other, more important pathologies.

1878
Intestinal permeability in elderly hypercholesterolemic subjects

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Background: It is known that excessive amount of cholesterol influences the lipid composition of enterocytes membrane, affecting the membrane permeability. The wall of small intestine takes part in regulation of lipid levels in blood. The permeation of biological molecules across intestinal barrier from lumen into bloodstream occurs via transcellular and the paracellular transports. The integrity of intestinal barrier prevents the crossing of harmful factors. Our aim was to evaluated intestinal permeability in elderly hypercholesterolemic patients.
Methods: Intestinal permeability (I.P.) was assessed in 10 elderly hypercholesterolemic subjects and in 20 healthy control subjects, by a lactulose-mannitol test, consisting of oral administration of the two sugars and measurement of their urinary excretion.
Results: All groups of subjects with hypercholesterolemia showed a higher intestinal permeability than healthy control subjects.
Conclusion: These findings confirm the previous observation of abnormal intestinal permeability in subjects with hypercholesterolemia. Therefore, statins, which reduced excessive cholesterol, may repair intestinal permeability.

1879
Oral immunotherapy to egg: experience in 19 children

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Background: Egg is the most frequent cause of food allergy in children. In recent years, several studies have been published regarding oral tolerance induction to milk. There are very few recent publications on studies that have developed and prepared protocols for oral tolerance induction to egg and obtained good results. The objective of this work was to evaluate whether the administration of minimal quantities of raw, pasteurised egg in progressive doses – oral tolerance induction (OTI)/oral immunotherapy to egg – can be ingested with no adverse reactions in children allergic to egg proteins. Assessment of safety profile and tolerability.
Method: A quasi-experimental, prospective, descriptive study on the incidence and characteristics of egg allergy in children, ($n = 19$) demonstrated by clinical data, allergen-specific IgE, prick and provocation tests, who have followed a protocol with the periodic administration of egg in progressive quantities, from 0.5 mg to 30 g in 16 weeks, seen in the Paediatric Allergy Division of Hospital Universitario Dr. Peset de Valencia (Spain) between 2008 and 2010.
Result: Of the $n = 19$ patients, 17 completed the protocol, achieving oral tolerance to egg. Mean age at the start of the induction protocol was 7 years of age (Range: 3–14 years of age); there was a greater number of males [12 boys (63%) and 7 girls (37%)]. In seven patients, a reversal in the OTI was necessary, followed by a slower dose increase than that foreseen in the protocol. There were two patients who could not continue the study due to the onset of serious symptoms. There are statistically significant differences in achieving tolerance to egg by applying this protocol (89.5%) with respect to spontaneous remission, (55% before the age of six) ($P = 0.002$).
Conclusion: OTI is a valid method for achieving tolerance to egg in children allergic to this food. There is a standard dose protocol, but it must be adapted to each patient according to their response. In our experience, 17 out of 19 children achieved tolerance via progressive oral tolerance induction. The children who did not achieve tolerance were the oldest in the study.

1880
Using elimination diet based on results of food environment drug test for young women with allergy

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Background: To find out efficiency of Food Environment Drug (FED) test for young women with allergy during 6 month.
Method: Thirty-one young women with allergy had been included in our research. Middle age made 22 ± 2.3 year. All patients have been divided into two groups. The first group included 20 young women received elimination diet based on results of FED test. The second group included 11 patients received classical elimination diet by allergy (excluded citrus, red color fruits and vegetables, spices, nuts, eggs, honey, red fish, and seafoods).

Clinical parameters were estimated each month during 6 month.

Result: In young women the main often clinical manifestations of allergy reaction are: dermatitis, nettle rash, itching of skin, rhinitis. The presence of individual food intolerance detect by FED test method. This method can allowing dividing all 100 testable products depending on the degree of expressed a negative reaction on four groups (by a heavy, middle, easy degree and neutral). For the patients in the first group the most often intolerance products are: wheat (40%), milk (33%), coffee (30%), kidney bean (28%), cabbage (27%), onion (27%), carrot (25%), beef (23%), bakers yeasts (21%), reaction on casein (21%), oat (19%). In a first group the clinical manifestations of allergic status became better in a month as compared to a second group.

Conclusion: FED test is more effective method of correction and treatment of food allergy in young women, providing individual approach in composition recommendations of nutrition for every patient then classical elimination diet. This method gives proof effect of normalization and stabilization of allergic status after carrying out of research.

1881
The prevalence of food allergy in Greek children suffering from atopic dermatitis

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Background: Atopic dermatitis (eczema) is a highly pruritic chronic inflammatory skin disease. Food allergy has been strongly correlated with the development of persistence of atopic dermatitis.

Aim of the Study: To investigate the association of food allergy in Greek children with atopic dermatitis.

Patients and Methods: Fifty-eight (58) children with eczema (39 boys and 29 girls) aged between 12 months and 6 years were studied. All the children underwent allergological investigation with assignment of specific IgE antibodies (Elisa Method) to the following food allergens: α- lactalbumin, β-lactoglobulin, casein, milk proteins, egg white, egg yolk, beef, soy, wheat, and cod.

Results: Elevated specific IgE antibodies were detected in 46 (82%) out of 58 children. The frequency distributions for elevated specific IgE antibodies to various food allergens in children with eczema are shown in the following table (Table 1).

Conclusions: Food sensitization has a high prevalence among children with eczema. Milk protein is the first most common food allergen implicated in children with eczema, while the second and third most common food allergens are egg and wheat respectively.

Table 1. Frequency distributions of food sensitization in children with eczema. (for abstract 1881)

Implicated food allergens	Number of children (n = 58)	Frequency (%) of children in each category
Milk proteins	27	46
α-lactalbumin	19	32
Egg white	15	25
Egg yolk	10	17
Wheat	6	10
β-lactoglobulin	6	10
Soy	1	1.7
Casein	1	1.7
Beef	0	0
Cod fish	0	0

1882
Oral immunotherapy for hen's egg allergy with a weekly up-dosing regimen a randomized double blind controlled study

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Background: Allergy to hen's egg in children is an important problem in medical practice. Egg allergy resolution or tolerance defined as passing an egg challenge is quite frequent. However hardly 50% of children may achieve spontaneous tolerance after the age of 10 years.

Methods: Twenty children, aged 5–14 years, with IgE mediated allergy to egg confirmed by double- blind placebo controlled food challenge we equally randomized to desensitization with egg or placebo. The weekly up-dosing schedule lasted 18 weeks. We used dried capsules containing egg white and talcum powder as excipient; the placebo's capsules containing only talcum powder (Lofarma, Milan, Italy). The occurrence and severity of reactions after each dose was evaluated and the desensitization was stopped if severe reactions occurred. Specific IgE and IgG4 levels to white egg were measured at baseline and at the end of the study. The double blind food challenge was repeated once the desensitization was completed.

Results: Full tolerance to egg (200 mg) was achieved in nine active patients; one active patient discontinued the desensitization after experiencing severe reaction; whereas no reactions occurred in controls, whose sensitivity to egg remained unchanged. A significant increase in specific IgG4 levels was found only in the active group $P = 0.002$ as well as a slightly decrease of IgE $P = 0.04$.

Conclusion: This weekly up-dosing desensitization protocol for hen's egg allergy performed under medical supervision was effective, rather safe and induced consistent immunologic changes.

1883
Tolerance to a new free amino acid-based formula in children with IgE or non IgE-mediated cow's milk allergy

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Background: Free amino acid-based formulas (Aaf) are increasingly used in children with cow's milk allergy (CMA). Subjects affected by CMA could react to these substitutive formulas. Thus, to be labelled hypoallergenic, also these formulas must demonstrate in clinical studies that they do not provoke reactions in 90% of infants or children with confirmed CMA with 95% confidence when given in prospective randomized, double-blind, placebo-controlled (DBPCFC) trials. The vast majority of currently available safety data on Aaf are focused on IgE-mediated CMA. A prospective clinical assessment of tolerance to a free amino acid-based formula (Sineall; Humana, Milan, Italy) was carried out in children affected by IgE- and non IgE-mediated CMA

Method: Children affected by IgE- and non-IgE-mediated CMA, confirmed at DBPCFC, aged 1 month to 14 years, were enrolled. The work-up included: skin prick tests (SPT) with whole milk, a-lactalbumin (ALA), b-lactoglobulin (BLG), total caseins, and study formula; specific serum IgE determinations; and atopy patch tests (APT) with whole milk and study formula. DBPCFC was carried out with increasing doses of the Aaf. A stool sample was collected before and 48 h after DBPCFC to determinate calprotectin (FC) and eosinophilic cationic protein (ECP) levels after the exposure to the study formula.

Result: Sixty children (44 boys, 73.3%, median age 37, 95%CI 34.5–39.6 months, IgE-mediated CMA 26, 43.3%) affected by CMA were enrolled. At the diagnosis clinical symptoms of CMA were gastrointestinal

(46.6%), cutaneous (36.6%), respiratory (23.3%), and anaphylaxis (10.0%). At the enrolment 28 children (46.6%) had positive SPT to whole milk, 20 to ALA (33.3%), 16 to BLG (26.6) and eight to casein (13.3), no one to Aaf. Specific IgE determinations for cow's milk were positive in 26 patients (43.3%). Twenty-seven children (45%) presented an APT positive to whole milk, 1 (1%) presented an APT positive to Neocate, no one to study formula. After DBPCFC with this new Aaf, none patients presented early and delayed clinical reactions. Faecal concentration of calprotectin (20.4 ± 41 μg/g *versus* 19.5 ± 38 μg/g stool, interquartile range 14–55) and ECP (0.54 *versus* 0.51 μg/g stool, 95%CI 0.1–0.6) remain stable after administration of formula.

Conclusion: The new Aaf is well tolerated in children with IgE or non IgE-mediated CMA, and it could be used as a protein source for children with this condition.

1884
Assessment of blood pressure during oral food challenge

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Background: A isolated decrease of blood pressure (BP), >30% fall in the diastolic and systolic BP and a low BP for age are considered diagnostic criteria for anaphylaxis.1 During oral food challenge (OFC) the measurement of BP may be useful to control reactions, potentially lethal, as anaphylactic shock. The aim of our study was to assess BP of children with positive OFC and the children with negative OFC. The relationship between BP values and symptoms was also evaluated.

Method: The study group consisted of 80 children, 27 females and 53 males (age 18 months–16 years), that have suspected food allergy, on the basis of history and skin prick test results. After avoiding the suspected food for 4-weeks, the OFC was performed. BP was monitored trough Dinamap pro200v2 during the challenge.

Result: The OFCs were positive in 26 cases, with cutaneous, gastrointestinal, or respiratory symptoms. The mean fall percentage of diastolic and systolic BP in the subjects with a positive response to OFC was 26.01 ± 13.65% and 21.99 ± 14.66% respectively; in subjects with negative OFC was 26.35 ± 15.90% and 20.96 ± 14.66% respectively. There was no difference in mean systolic and diastolic BP fall between the two groups. The children with positive OFC had a diastolic and systolic BP fall >30%, in nine and six cases respectively; the children with negative OFC in 19 and 8 ($P > 0.05$). Systolic values below the 5th centile2 (in relation with sex, age and height) were found in seven children with positive OFC and in 14 with negative OFC ($P > 0.05$); diastolic values below the 5th centile were found in one patient from the study group and in three from the control group ($P > 0.05$). Considering those who have reached a low BP for age 1, 11 had a positive OFC and 28 a negative OFC ($P > 0.05$).

Conclusion: Low BP values were not associated with clinical hypersensitivity reactions. Furthermore, the suggested BP values for diagnosing anaphylaxis have often been recorded in absence of clinical symptoms.

1885
Lower incidence and less recurrence of allergic manifestations is observed in children who received docosahexaenoic acid/arachidonic acid in infancy via breast milk or supplemented formula

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Background: We have previously shown that infants fed docosahexaenoic acid (DHA)/arachidonic acid (ARA)-supplemented formula throughout their first year experience reduced incidence of wheezing/asthma/atopic dermatitis (AD) through 3 years of life. Data from a breastfed reference group are now available for inclusion in the analysis.

Method: Infants from two cohorts who had completed randomized, double-blind studies of formula supplemented with preformed DHA and ARA (0.32% and 0.64% of total fatty acids, respectively, to match worldwide breast milk levels) or unsupplemented formula fed from <5 days through 12 months of age and a breastfed reference group were followed. Study nurses, masked to diet, reviewed the infants' medical charts for allergic manifestations (wheezing, asthma, AD, allergic rhinitis, allergic conjunctivitis, food allergy, and urticaria). Incidence and number of episodes were analyzed using a multiple logistic regression model and an ordinal model, respectively. Gender, family history of allergy, and smoking in the home were included as covariates.

Result: Parents of 36 infants who had received DHA/ARA-supplemented formula, 47 infants who had received unsupplemented formula, and 25 breastfed infants consented to participate. Compared to unsupplemented infants, the breastfed and supplemented infants had significantly lower odds of having at least one episode of wheezing/asthma/AD [OR (95% CI); DHA/ARA 0.28 (0.11, 0.75), breastfed 0.29 (0.10, 0.84)] or any allergy (defined as any one of the following manifestations: wheezing, asthma, AD, allergic rhinitis, allergic conjunctivitis, food allergy, or urticaria) [DHA/ARA 0.30 (0.11, 0.81), breastfed 0.24 (0.08, 0.72)]. In addition, the odds of having an increased number of episodes of wheezing/asthma/AD [DHA/ARA 0.38 (0.16, 0.92), breastfed 0.35 (0.13, 0.95)] or any allergy [DHA/ARA 0.40 (0.18, 0.92), breastfed 0.31 (0.12, 0.80)] from 0 to 3 years of age was significantly reduced.

Conclusion: Children who received DHA/ARA in infancy via breast milk or supplemented formula demonstrated a similar pattern of lower incidence and less recurrence of allergic manifestations in the first 3 years of life compared to infants fed unsupplemented formula.

1886
Egg allergies – clinical study in a children population

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Background: The prevalence of food allergy in the general population is 0.5% in children and 5% in those with an allergic predisposition. The white of egg is more sensitizing then the yolk. The white of egg contains 20 proteins, and the yolk contains three sensitizing protein fractions. There are cross reactions between the white of egg and yolk proteins and to other birds' eggs, as well as reactions to feathers or poultry meat.

Materials and Methods: Our study included a number of 32 children selected from all the children suffering of food allergy that addressed to our consultation over a five-year period, with ages between 2 and 14. Physical examination and clinical follow-up were made by completing standard observation forms; the anamnesis insisted on excluding others food sensitizations and false food allergies. The complementary exams (prick tests, IgE determination) and the clinical follow-up were performed every 6 month, over a 2 year period.

Results and Discussions: The predominant clinical manifestations were cutaneous: prurigo, urticaria, eczema (80%), although they were cases of respiratory events: rhinoconjunctivitis, asthma (18%) and gastrointestinal manifestations (2%). Eighteen percent of children had egg-feather cross

reactions and 2% had egg-poultry meat cross reactions. The events were more pronounced between ages of 2 and 5 years. The main antigenic determinants of egg white are: ovomucoid, ovoalbumin, conalbumin, lyzozyme and yolk allergens are: globulins, livetins, low density lipoproteins. The main route of sensitization is the oral path. The hereditary and personal allergic predisposition is to remember. The sensitization after influenza vaccination of the children with allergy to egg white was 7%.
Conclusion: It is important to know the existence of egg sensitization in childhood and to make a difference from a false food allergy or another food sensitization. The most frequent manifestation is the cutaneous one, but a more severe problem, like a respiratory event, is possible. Cross-sensitivity is possible in particular in rhinitis and asthma. The possibility of allergic manifestations in patients with egg sensitization following influenza vaccination must be taken into consideration.

1887
Retrospective study of the management of acute allergic reaction in the paediatric emergency department

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Background: Children with allergic disease often receive a suboptimal service in the UK. Recent Royal College and government documents have highlighted the variety of difficulties faced by Allergy services within the NHS. This includes care received in the emergency department. We present the findings of a retrospective review of all cases presenting with anaphylaxis or at risk of future anaphylaxis (food allergy and asthma) to the Whittington Hospital paediatric emergency department, between October 2009 and March 2010.
Method: We retrospectively examined the medical notes of 33 patients who where discharged from the emergency department with a diagnosis of allergic reaction or anaphylaxis. We identified those with anaphylaxis or at future risk of anaphylaxis. Outcomes measured included: (i) Was prehospital adrenaline autoinjector given when appropriate?, (ii) Were patients discharged with adrenaline autoinjector where indicated? (following EAACI 2007 guidelines) (iii) Was appropriate follow-up arranged?
Results: Twenty-seven patients were identified presenting with an acute food allergic reaction over the 6 month period. Seven had symptoms of anaphylaxis, but of those only four were diagnosed correctly and managed appropriately (as per 2008 UK Resuscitation Guidelines). three of the five patients with a prescribed adrenaline autoinjector administered it appropriately prior to attending the Emergency Department as they had symptoms of anahylaxsis. It was not indicated in the other two cases. Five met the criteria to be given an adrenaline autoinjector at discharge. Of these two were not prescribed one.
Conclusion: Patients presenting with food anaphylaxis or at risk of future food anaphylaxis are often managed inappropriately within the emergency department. These families need urgent referral to a health professional with training in paediatric allergy to (i) establish/confirm the diagnosis, (ii) be given dietetic advice and (iii) ensure appropriate information is given on how to avoid the allergen/s and how to recognise and manage a subsequent acute allergic reaction. Given time constraints this cannot be done acutely, in an emergency department setting. We are creating a new hospital guideline for the management of children presenting to the Emergency Department with immediate food allergic reactions to improve acute and long-term management and aim to repeat this study after implementation, supporting training and education have been provided.

1888
Oral induction of tolerance with extensively heated egg

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Background: Previous studies suggest that extensive heating and food matrix diminish the allergenicity of egg white proteins, making it possible to be tolerated by some children with egg allergy. We sought to determine the results of our procedure based on a diet incorporating baked egg mixtures in children with egg allergy.
Methods: During 2010, 16 children whose clinical characteristics are described in Table 1, underwent a first oral food challenge (OFC) with baked egg (starting with gradual doses of cookies and later homemade cake with four eggs and breaded chicken with egg and breadcrumbs respectively). In toddlers, we decided to perform a single blind OFC to diminish psychological stress. Subsequently, HE- tolerant patients incorporated HE into their diet (cookies or commercial food products containing egg incorporated daily and coated chicken 2–3 days/week), and were periodically monitored, by phone and hospital follow ups, to identify possible problems during the introduction. All children were challenged with less-heated-egg in the form of hard-boiled egg 3–6 months later.
Results: All patients tolerated cookies (2–4 units) in the first OFC, and 13 tolerated cake and/or breaded chicken as well. Three patients presented mild anaphilaxis with cake and were advised to carry out a dialy cookie intake presenting a negative OFC with breaded chicken 15 days later and negative OFC with cake after 1 month. During the home dosing, Seven cases presented mild symptoms (abdominal pain) with excellent results to oral antihistaminic. Within 6 months of adding HE to their diet, Six patients presented negative OFC to hard-boiled egg, 10 tolerated hard-boiled yolk and all 16 patients considerably normalized their routines and diminished the risk of severe reactions due to accidental ingestion. Up to this abstract submission day, levels of egg white and ovomucoid sIgE have been re-evaluated in seven patients, showing an important decrease on both allergens (around 50%).
Comments: Ingestion of extensively heated egg products is well tolerated and safe, suggesting that strict dietary avoidance of heated egg might not be necessary for the majority of patients with egg allergy. Regular and controlled intake of HE products could not only induce tolerance in egg allergy patients, but might also alter the natural course of egg allergy.

Table 1. Baseline clinical characteristics. (for abstract 1888)

Gender	12 male/4 female
Mean age (year;range)	6.3 (2–16)
History of inmediate reaction	10 (5 anaphylaxis, 2 vomiting, 1 uticaria/angioedema)
Sentizitated to egg with strict avoidance diet	6
Atopic dermatitis (current/resolved)	10/6
SPT to egg white and ovomucoid (wheal diameter ≥ 8 mm)	16
Mean egg white sIgE levels (KU/l; range)	28.5 (1.37–100)
Mean Ovomucoid sIgE levels (KU/l; range)	20.15 (1.05–100)

1889
Effect of probiotics on the antioxidant capacity of breast milk – an atopy-preventing strategy

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Background: The prevalence of childhood atopy and allergic diseases has been

increased during the last decades. This warrants the development of effective strategies to prevent such diseases. Breastfeeding is widely considered as a main factor that prevents atopies in infants including those with a genetic susceptibility. Besides other factors, the antioxidant capacity of breast milk may have a protective effect against allergic diseases. Additionally, administration of probiotics to infants and/or mothers may be a potential preventive approach. This study aimed to investigate the effect of probiotics on the antioxidant potential of breast milk as an atopy-preventing strategy.

Method: Daily administration of a probiotic mixture (Bifidobacterium longum BB536, Bifidobacterium longum BB536, Bifidobacterium lactis BB-12, *Lactobacillus rhamnosus* GG, *Streptococcus thermophilus* TH4) to 22 pregnant women started 4 weeks before giving birth and continued after birth; 10 women served as unsupplemented controls. Milk samples were collected after 8 weeks of probiotic intake, i.e. after a one-month period of breastfeeding, and analyzed for total antioxidant capacity (TAC) and the lipid peroxidation product malondialdehyde (MDA) using photometric and HPLC methods, respectively. Levels of total protein and albumin were obtained using an autoanalyzer.

Result: Compared to controls, breast milk of the probiotic group had significantly ($P < 0.05$) higher levels of TAC and total protein; concentrations of albumin were comparable in both groups. Moreover, TAC and total protein concentration were significantly positively related in the probiotic ($P < 0.001$) and the control groups ($P < 0.05$). MDA was significantly ($P < 0.05$) lower in the probiotic than in the control group and significantly ($P < 0.05$) negatively associated with TAC in both groups.

Conclusion: This study indicates that probiotics may enhance the antioxidant capacity of breast milk and so possibly exert atopy-preventive effects.

1890
Is cow milk allergy a risk factor to infectious vaccine allergy?

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Background: Serious adverse events following oral poliovirus vaccine (OPV) administration are rare, and in particular allergic reactions including anaphylaxis are unknown. In other vaccines the presence of egg proteins or gelatin has been related to allergic reactions in children with food allergies. We report four cases of anaphylaxis following OPV administration in children with cow's milk protein allergy (CMPA) due to the presence of alpha- lactoalbumin (ALA) in the vaccine.

Method: Four children with previous diagnosis of CMPA experienced anaphylactic reactions after they received the OPV during a National Immunization Program against poliovirus carried out in Argentina during 2009. The OPV used in the campaign (Polioral®) contained up to 25 mg/ml of ALA as stabilizer. Patients and healthy adult controls were studied after the episodes by means of skin prick tests with different cow milk proteins, OPV, egg, saline and histamine. Patient specific serum IgE was assessed by ELISA for OPV, CMP and ALA in three sera.

Result: While controls were uniformly negative all patients showed a strongly positive skin prick test with OPV (mean papule diameter 5.25 mm), ALA (14.12 mm). ELISA showed the presence of specific IgE against different CMP and ALA, even in the OPV. ELISA assays also detected serum specific IgE antibodies against ALA in CMP and in OPV.

Conclusion: Alpha-lactoalbumin in the composition of this brand of OPV caused anaphylactic reactions in children with known CMPA. This suggests that ALA-containing brands of OPV should be avoided in these patients.

1891
Milk protein-specific cytokine secretion profiles in patients with food protein-related gastrointestinal disorders

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Background: Most of food protein-related allergy is IgE-mediated, however some certain numbers of patients especially infants and young children develop gastrointestinal symptoms several hours after ingestion of offending foods. These patients are diagnosed with food protein-related gastrointestinal hypersensitivity disorders (FPGID) which is thought to be cell-mediated, non-IgE-associated allergy. We recently used five variables to analyze infants and young children who had been definitively diagnosed with FPGID: birth weight, age at first presentation, severity of vomiting, severity of bloody stool at first presentation, and milk-specific IgE antibody titer using hierarchical cluster analysis. We found that the patients could be classified into four distinct clusters with the existence of vomiting and bloody stool. However, the precise pathogenesis of FPGID remains uncertain. In order to clarify the antigen-specific T-cell responses in patients with FPGID, we determined the *in vitro* lympho-proliferative responses (LPR) as well as cytokine secretion profiles using PBMC from FPGID patients.

Method: PBMCs from 60 patients with FPGID, 12 patients with IgE-mediated cow's milk allergy (CMA) and 16 normal infants, and cord blood mononuclear cells from 10 normal infants were cultured in the presence and absence of lipopolysaccharide-depleted milk proteins. LPR were assessed by 3H-thymidine-uptake on day 5, and the cytokine secretion profiles in the supernatants were measured by multiplex systems on day 6.

Result: Patients with each cluster of FPGID and CMA showed distinct LPR and cytokine secretion patterns. Unlike CMA, TNF-α and IL-6 were predominantly secreted by PBMCs from patients in all clusters of FPGID. In contrast, Th2 cytokines were secreted by PBMCs from both patients with FPGID and CMA, however, the levels of Th2 cytokines were much higher in FPGID than in CMA.

Conclusion: Our results suggest that the patients with FPGID can be classified into four distinct clusters not only based on their clinical symptoms but also based on their antigen-specific T cell responses, which presumably underlie the pathogenesis of FPGID.

Late Breaking Poster Session 10

Miscellaneous

1892
Aliolidea allergic contact stomatitis

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Non-infectious ulcerative oral mucous membrane diseases are difficult to separate at first sight: they can appear as aphthous, bullous, lichenoid, drug-induced or toxic-irritative-allergic reactions. The overall considerations of history, localization of lesions, clinical and histological features, as well as direct and indirect immunofluorescence examination, and skin testing are required for the correct diagnosis. Contact stomatitis is inflammation or pain of the oral mucosa due to both irritant and allergic substances. Irritants include heat, frictional trauma, and chemicals. Oral flavorings, foods, preservatives, and dental materials are common allergens. We describe a rare case of allergic contact gingivitis after onion assumption. Up to now few publications in the literature report allergic reactions to onion ingestion although they are versatile, often used as an ingredient in many dishes and accepted by almost all traditions and cultures. Simplification of oral care and avoidance of causal agent and/or cross-related allergens is the primary mode of therapy. To avoid unnecessary diagnostic procedures and treatments, it is important for clinicians to recognize this disorder to be able to diagnose it quickly and accurately.

1893
Childhood pulmonary tuberculosis and contribution of bronchoscopy to diagnosis: analysis of 204 cases

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Background: Tuberculosis is still one of the most important diseases in Turkey and there is limited data for childhood tuberculosis. Our aim is to point out the contribution of bronchoscopy to the diagnosis and to document the demographic features of the patients.
Method: Two hundred patients, with 13 years median age (2 months–16 years), were enrolled to the study. There were 111 (55%) female patients. Most frequent symptoms are cough, fever, weight loss, and hemoptisis. CHEST X-ray was positive in 97% patients. Patients were classified as primary (55%), reactivation (20%), post-primary (10%), miliary (4%) and pleurosis (11%).
Result: History of contact was determined in 73% patients; with 73% having house hold and 26% close relative contact. TST was positive in 63% of patients. Bronchoscopy was performed in 30% (n:62) patients with the finding of endobronchial lesion in 29, ARB and cultur positivity for bronchoalveolar lavage (BAL) in seven and concurrent presence of both lesion and cultur positivity in two patients. Hence, contribution of bronchoscopy to the diagnosis was 63% (38/62 patients). Proven microbiological positivity including BAL, fasting stomach fluid and sputum cultures were 55% (76/138). Adverse reactions to the drug were vomiting, abdominal pain, increased liver function tests and rash detected in 6% patients with the interruption of the drug in 4%.
Conclusion: Contribution of bronchoscopy is important in childhood tuberculosis and every effort for microbiological proof should be performed.

1894
Extragenital lichen sclerosus et atrophicus due to solarium: an unusual Koebner phenomenon

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Background: Lichen sclerosis et atrophic us (LSA) is a chronic inflammatory mucocutaneous disorder that predominantly affects prepubertal girls and postmenopausal women. The Koebner phenomenon is recognized in lichen sclerosus. The etiology remains elusive. We report on the first case of extragenital LSA following solarium exposure.
Method: We report on the case of a 32-year-old woman who presented with a 4-month history of a white patch on her back. Solarium had been applied to the case for the five months previous. The patient did not have a history of trauma. On physical examination, we found a macular white lesion on the back of the patient. The lesions were 5×6 cm in size and featured a creamy-white atrophic plaque with sclerosis.
Result: Laboratory findings regarding blood count, biochemical testing, CRP, and erythrocyte sedimentation rate were normal. A punch biopsy was performed from the lesion for histopathological examination: there was a thinning of the epidermis, melanin pigment in the basal layer, homogenization of collagen tissues in the upper dermis, and a small number of perivascular lymphocytes. LSA was diagnosed with physical and histopathology findings.
Conclusion: In conclusion, the reason for reporting this case was to describe a patient suffering from extragenital LSA, who had developed lesions at the site of solarium exposure as a result of a Koebner phenomenon; this is an association we have not found elsewhere in the literature.

1895
Long standing complete clinical remission of systemic lupus erythematosus in a patient with hereditary angioedema: case report

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C1 inhibitor deficiency presents in patients with the congenital (hereditary angioedema–HAE) and acquired (acquired angioedema–AAE) forms of angioedema. HAE is a rare disorder with autosomal dominant inheritance. AAE has been described in association with B cell lymphoproliferative disorders and less commonly with autoimmune diseases, especially systemic lupus erythematosus (SLE). HAE and AAE are clinically indistinguishable, only differing in terms of the lack of family history and a characteristic late onset in the AAE.

Case Report: We present a 50-year-old woman with a history of recurrent peripheral swelling, usually of the hands and feet since the age of 2, not accompanied by family history. At the age of 8 she has been appendectomised due to episode of severe abdominal pain, and experienced an upper airway edema for the first time when she was 12. A few months later she presented with a photosensitive skin rash and arthralgia. Subsequently developed autoimmune hemolytic anemia (AIHA). C4 was repeatedly undetectable, but C3 was normal. She was diagnosed as SLE and treated with prednisolone and azatioprine. A year later, the AIHA was in remission, and there was no rash, but she had experienced frequent episodes of peripheral angioedema and crumpy abdominal pain. Immunosuppressive therapy was discontinued. The diagnosis of HAE type I was established based on characteristic abnormalities in complement profile. During a 10-year follow-up, she has had not developed symptoms or signs consistent with SLE. The patient had a decreased frequency of swelling attacks during pregnancy, but continued to have recurrent swellings with the frequency of 12–20 per year. She refused a long-term prophylaxis with androgens and was treated with tranexamic acid and fresh frozen plasma during the attacks. Her condition deteriorated over the last year, with attacks on every 10–15 days. Laboratory examination revealed low C4 concentrations (0.05 g/l), diminished antigenic C1 INH, normal levels of C1q (86.4 mg/l), and high concentration of anti-Ro/SSA antibodies (> 200 U/ml). Anti-dsDNA and anti-C1q antibodies were negative.

Conclusion: A key question is weather the primary diagnosis is HAE (with secondary SLE) or AAE. Several factors are in favor of HAE: symptoms attributable to SLE were absent for almost 40 years, there were no signs of classical pathway complement consumption and C1q levels are normal.

1896
HLA typing proven transfusion-associated graft-versus-host disease in severe combined immunodeficiency patient

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Background: Transfusion-associated graft-versus-host disease (TA-GVHD) is a rare, but often lethal complication of cellular blood component transfusion in immunodeficient patients.

Method: We describe a 4-months-old infant who received nonirradiated packed red blood cells transfusions in the referring hospital before the diagnosis of severe combined immunodeficiency (SCID). He had panhypogammglobulinaemia and his lymphocyte markers and function were consistent with T– B– NK + SCID. He manifested fever, skin rash, diarrhea, icterus and bone marrow failure 3-weeks after transfusion.

Result: His complete blood count showed; leucocytes $0.10 \times 109/l$, neutrophils $0.02 \times 109/l$, monocytes $0.00 \times 109/l$, lymphocytes $0.07 \times 109/l$, haemoglobin 6.8 g/dl and thrombocytes $6 \times 109/l$, and the absolute reticluocyte counts was $4.94 \times 109/l$ (normal range is $20–100 \times 109/l$). The total bilirubin was 138 uM and direct bilirubin was 115 uM. The recto-sigmoid biopsies confirmed the gold standard features of grade-II aGVHD (with apoptosis). HLA typing (using PCR–DNA-based typing approach) approved that the patient has an extra-parental-allele of MHC class I; B*53. He received high dose of methylpredinsolone, five doses of IVIG and Ursodeoxycholic acid, but he had progressive hyperbilirubinaemia and persistent bone marrow failure, then he developed candidaemia and pseudomonas aeruginosa sepsis. Subsequently he developed multiorgan failure and then he died on day 26 despite aggressive management.

Discussion: While there have been no reported cases of TA-GVHD in SCID patients between 2003 and 2010, this is the third case described since 2010. TA-GVHD develops when transfused blood-derived immunocompetent, alloreactive T lymphocytes able to escape and engraft in the recipient's lymphoid tissues that fail to reject them. Those lymphocytes mediate immune response causing damage and dysfunction of the skin, gastrointestinal tract, liver and bone marrow.

Conclusion: TA-GVHD is still encountered in SCID patients today after transfusion of nonirradiated blood products. The diagnosis of this lethal condition needs high index of suspicion and the transfusion history must be questioned in all immunodeficiency patients. The disease is fulminate and rapidly fatal in majority of patients even with aggressive treatment, while irradiation of blood products that to be given to recipients with possible immune incompetence is the preventive method of choice as a life-saving precaution.

1897
A case of viral myocarditis presenting with acute asthma attack

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Introduction: Acute infections can lead to heart inflammation including acute myocarditis. Acute myocarditis is one of the causes of heart failure, and its etiology includes also viral pathogens. Cardiac asthma are commonly observed in patients with left heart failure. If the pulmonary manifestations are prominent it can mask the involvement of heart. We report a case of myocarditis secondary to influenza A mimicking acute asthma attack.

Case Presentation: A 27-year-old young man with a history of asthma for 2 weeks presented to the pulmonary department of our hospital with dyspnea, cough, wheezing and left sided chest pain. In his history, his complaints had begun after an episode of viral infection three weeks ago from admission. He had 38—C fever at that time. Influenza antigen test for influenza A and Ig E antibody were positive. His skin allergy test was positive to dust mite. Chest radiography showed bronchovascular prominence. Chest computed tomography also revealed pericardial minimal effusion. He was diagnosed with asthma and acute viral bronchitis and pericarditis. He was treated by oseltamivir, antibiotheraphy, bronchodilator and anti-inflammatory drugs, however his respiratory complaints have persisted and he referred to our hospital. His medical history revealed that his father had Wegener Diseases and his mother had asthma. He never smoked. At admission, the patient's status was stable hemodynamically except tachycardia with blood pressure 110/70 mmHg, pulse 105 bpm, temperature 37°C. White blood cell count, erythrocyte sedimentation rate, C-reactive protein values were $21.7 \times 109/l$, 25 mm/h and 7.9 mg/l respectively at admission. Blood cultures were all negative. Laboratory evaluations and lung examination revealed that elevated cardiac enzymes, and remarkable wheezes in both lungs on auscultation. c-ANCA was negative. Electrocardiographic findings were nonspecific. Echocardiogram showed global hypokinesia in the left ventricle and a decrease of ejection fraction (EF = 40%). After being started on diuretic and ACE inhibitor therapy, the patient's clinical condition improved significantly. One month later, control Echocardiogram showed significant improvement in left ventricular systolic function (EF = 57%).

Conclusion: Viral myocarditis can present like an acute asthma attack due to cardiac asthma and should be considered in the differential diagnosis of acute asthma attack in allergic patients with acute influenza infection.

1898
Can dermatophagoides siboney survive in temperate zone? Can dermatophagoides siboney exist with dermatophagoides farinae? Species diversity study on allergic domestic mites in Beijing, China

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Purpose: Domestic mites survey for their diversity and ascertain of the allergic species in Beijing.
Method: Survey of mite prevalence was carried out in several districts of Beijing. Three hundred and forty-five house dust samples were collected by vacuuming from December 2008 to January 2010 from 34 houses of mite-allergic patients and four normals. Preparations were made and mites identification with microscopy.
Result: Three hundred and forty-five house dust samples were collected, among which 64.64% were infested with mites. Altogether 22 species of 15 genera representing 12 families belonging three orders of Acari, and two species of one genera representing one family belonging to Psocoptera of Insecta, were identified. Dermatophagoides siboney Dusbabek which can also cause allergic diseases, was found for the first time in China. *Dermatophagoides farinae* (64.50%) was the predominant species in the mite population found in house dust in Beijing and *Dermatophagoides pteronyssinus* (22.17%) was the next. The density seasonal distribution of domestic mites during December 2008 and January 2010 showed a highest in September through October and lowest in March and November.
Conclusion: *Dermatophagoides siboney* was found for the first time in China. The results showed that *Dermatophagoides farinae* (64.50%) was the predominant species in the mite population found in house dust in Beijing and *Dermatophagoides pteronyssinus* (22.17%) was the next. The density seasonal distribution of domestic mites during December 2008 and January 2010 showed a highest in September through October and lowest in March and November.

1899
Giant condyloma acuminatum

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Background: Giant condyloma acuminatum (GCA) is a unique variant of condyloma acuminata, GCA is a sexually transmitted disease, triggered by human papillomavirus, usually genotype 6 and 11. It is usually located in external genitalia and perianal regions. Local invasion and recurrence after treatment, and rare malignant transformation are possible features of the disease.
Method: A seventy-year-old male patient was admitted to our clinic with a lesion on his genital region that rapidly increased in size. He had been suffering from itching, bleeding, foul smell for a couple of years. Dermatologic examination revealed a cauliflower like tumor mass involving the area from umbilicus to penile base. The lesion was irregular, pigmented, erytematous exophytic patern and with 25×15 in size. The patient was diagnosed as GCA in the light of clinical appearance and histopathology of the lesions.
Result: GCA can grow to large size, characterized by local aggressive behavior despite benign histology.
Conclusion: We report a rare and interesting patient who suffered from huge condyloma with benign histologic appearance.

1900
Seroprevalence of allergy among healthy individuals in the Izmir region

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Background: We investigated epidemiological characteristics, distribution of allergens, and symptom severity of allergic diseases among healthy individuals, living in Izmir region.
Method: In the city of Izmir, 2942 healthy individuals over 14 years of age were selected from data of Health Directorate of Izmir by random sampling method. The questionnaire and consent forms were created for the study group. In serum samples obtained from these individuals, Radioallergosorbent test (RAST) (house dust mites, animal dander, pollen mixture and food allergens) were performed by enzyme immunoassay (EIA) method.
Result: Mean age was 44.1 (1–94). Most of the participants were women, graduate of elementary school, housewife, in low income group and married. Prevalence of allergy were found 35.5% in Izmir. Allergies were significantly more common in women, 40–40 years, university graduates, workers, people living in apartment and family history of allergy. The most common type of allergy, respectively; dust (12.2%), pollen (6.4%), food (5.9%), cosmetics (4.9%) and cleaning supplies (4.8%).
Conclusion: According to our results, atopic diseases can be considered frequent in Izmir, history of atopy in the family and female gender are the most predictive factors for allergic diseases. In our region, house dust mites, were the most frequent allergens.

1901
Early diagnosis and treatment of allergic bronchopulmonary aspergillosis for prevention of lung damage

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Background: Allergic bronchopulmonary aspergillosis (ABPA) is not uncommon but physicians usually overlook diagnosis and thus patients are not properly treated leading to lung damage. Study was undertaken to analyze clinical, radiological and serological features in patients of ABPA.
Method: Seventy-eight patients presenting to Department of TB and Chest Diseases, Government Medical College, Patiala were diagnosed as ABPA on the basis of clinical, radiological and serological features like peripheral blood eosinophilia, Type I and type III cutaneous reactivity to Aspergillus antigen/s, elevated serum titers of total IgE and specific IgE and IgG antibodies for *A. fumigatus* and other species applying Rosenberg Patterson Criteria.
Result: Forty-four were men and 34 women. Sixty-one (78.2%) belonged to age group 20–40 years. Sixty-three (80.7%) had history of expectorating thick tenacious plugs in sputum. All patients had history of bronchial asthma. Thirty-eight (48.7%) were treated for Tuberculosis. When serial X-rays were studied, fleeting pulmonary shadows were found in 48 (61.5%) patients. HRCT chest revealed central bronchiectasis in 59 (75.6%) patients. ABPA-S (ABPA Seropositive) was found in 19 (24.4%), ABPA-CB (ABPA with Central Bronchiectasis) in 36 (46.1%) and

ABPA-CB-ORF (ABPA with Central Bronchiectasis with other radiological features like fibrosis, scarring, emphysematous changes etc.) in 23(29.5%) patients. 7/19(36.8%) ABPA-S patients had normal X-rays while 12/19 (63.2%) had radiological shadows of early active disease. 8/23 (34.8%) patients with ABPA-CB-ORF had features of fluffy exudative lesions (representing active disease) along with features of central bronchiectasis and fibrosis. Patients who were treated as tuberculosis and in whom oral steroids were not started had ABPA-CB or ABPA-CB-ORF.

Conclusion: Patients of ABPA who are not promptly treated with oral steroids had higher chances of ABPA-CB or ABPA-CB-ORF indicating that delay in institution of steroids results in progressive lung damage. Presence of exudative shadows and shadows suggestive of fibrosis and central bronchiectasis suggest that patients who had suffered lung damage of one part of lung can also have early changes in other part of lung/lungs and should be treated promptly to prevent irreversible lung damage at new sites. Any patient of bronchial asthma who is unresponsive to treatment, should also be suspected of ABPA and treated promptly on diagnosis confirmation to prevent progression of ABPA and permanent lung damage.

1902
Chronic urticaria and angioedema associated to *helicobacter pylori* infection

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Background: Chronic urticaria, defined as recurrent episodes of hives with or without angioedema during more than 6 weeks, is a common disorder which cause is rarely determined. A small percentage could be occasionally a sign of infectious disease, endocrinopathy, cancer or autoimmune disorder.

Method: A 54 year-old-woman who in the last 3 months presents daily generalized pruritic hives and episodes of facial angioedema, twice a week, an important glottis edema with epigastric pain. The outbreaks are not controlled by antihistamine neither corticosteroid treatment, and the patient doesn't find any possible causative external agent. Seven years ago showed similar coutaneus episode coinciding also with an *Helicobacter pylori* infection, being asymptomatic after its eradication.

Result: All complementary examinations are normal except a total of 800 IgE, breath test positive for *Helicobacter pylori* and an erosive gastritis on endoscopy. Urticaria and angioedema have disappeared after eradication therapy against the germ.

Conclusion: We report a case of chronic urticaria and angioedema associated with *Helicobacter pylori* infection. Although there are controversies about the causal relationship between chronic urticaria/angioedema and *Helicobacter pylori* infection, the disappearance of the skin clinic in our patient after eradication treatment, in both episodes, supports this etiologic relationship. We propose the fulfilment of the breath test routinely in chronic urticaria study in patients who have a poor response to usual treatment and poor outcome of the team.

1903
Active sensitisation following skin tests to textile colorants: a case report

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Background: Skin tests adverse reactions are rare and usually mild. We present a rare case of active sensitization induced by skin tests to textile colorants.

Case: A 26-year-old woman, with a history of recurrent eczema on the hands, had positive skin tests to both Thiuram mix (three cross) and Nickel (one cross). Four years later, the skin eruption has been spread to the forearms and the face mainly after exposition to jeans tissue. Skin tests were positives to Thiuram mix (two cross), to Nickel (one cross) and to Mercapto mix (one cross). Ten days later, the patient noted a delayed positivity to both textiles colorants (Disperse orange3 and Disperse bleu3) (two cross each). So that, skin tests were performed one month later and they were positives at 48 h to Parahenylenediamine (PPD) (three cross), to 4-aminoazobenzene (three cross), to Disperse orange3 (three cross), to Disperse bleu3 (three cross) and to Disperse red1% (one cross).

Conclusion: Active sensitization induced by skin tests is a rare adverse reaction. However, it could worsen the pronostic of atopic dermatitis. So, occupational health physicians should be aware of such reaction.

1904
Acquired reactive perforating collagenosis

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Background: Acquired reactive perforating collagenosis (ARPC) is a skin disorder characterised by the transepidermal elimination of altered collagen through the epidermis. Two distinct forms exist; an inherited form that present in childhood resulting from superficial trauma, scratching, insect bite, etc., and an acquired form that usually develops de novo in patients suffering from many chronic systemic and auto-immune diseases without any minor injury.

Method: A 55 year-old woman presented with a 4 month history of skin eruptions on her lower extremities. She had had type 2 diabetes, treated with local insulin injections, for 18 years. The skin eruptions developed on her extremities. At the time of presentation, there were numerous dome-shaped nodules, which had a central umblication containing firm keratotic plugs, and erythema was seen around the nodules. A skin biopsy was taken from the eruption on her leg. Histopathologic evaluation of a representative lesion showed transepidermal elimination of necrotic collagen bundles into a cup-shaped epidermal depression. Marked neutrophil was seen under the dome-shaped lesion and debris, mononücleer cell infiltration, macrophages, giant cell infiltration. Vo Gieson staining showed degenerated collagen fibres that had perforated through the epidermis. From these findings, a diagnosis of ARPC was made.

Result: ARPC belongs to the spectrum of primary perforating skin disorders with transepidermal elimination. However, the pathogenesis of ARPC is unknown. Associations have been made between acquired reactive perforating collagenosis and diabetes mellitus with chronic renal failure. Our patient also have diabetes mellitus. Several topical treatments, ultraviolet B phototherapy and allopurinol p.o. administration may be effective.

Conclusion: The objective of our study was to report a rare and interesting patient and determine the clinico-pathological features of ARPC.

1905
Sweet's syndrome associated with menstrual period

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Background: Acute febril neutrophilic dermatosis was first dercribed in 1964 by R.D. Sweet. Sweet's syndrome has been described as an infrequent disorder characterized by abrupt onset of erythematous plaques and nodules associated with fever, neutrophilic leukocytosis and dense dermal neutrofilic infitrates on biopsy. It has been

suggested the following cathegories: idiopatic, inflammatory (associated with infetion or inflammatory/autoimmune disease), neoplastic (especially hematological), pregnancy associated and drug-induced.
Method: A 42 year-old woman was admitted suffering from erythematous skin plaques with raised edge, predominantly on trunk and face, painful palms and soles, artromyalgias, dyspnea with wheezes, dysphonia and eyelid edema associated with fever during menstrual period.
Result: Laboratory evaluation showed a leukocyte count of 14.000 cells/mm^2 with 74% neutrophils and elevated erythrocyte sedimentation rate and hypoxemia. Skin biopsy was performed finding neutrophilic infitrates un upper dermis without fibrinoid necrosis, compatible with Sweet's syndrome. The patient was exhaustively studied for infection and malignant disease. Tumor markers, computer thorax tomografy, serological and immunological study were negative such as complement system levels. The lesions dissappeared after five days with steroids treatment. In the following months we observed the relationship between menstrual period and the relapsed of lesions with fever, malaise and elevated neutrophil, during 3 years. A treatment with systemic steroids was indicated during menstrual period. Since the beginning of menopause the patient is asymptomatic.
Conclusion: The patient fulfilled the diagnostic criteria of Sweet's syndrome associated with menstrual period, so we consider this case as the first repor, in our knowledge, of a neutrophilic reaction during menstrual period. In medical literature it has been described Sweet syndrome associated with hormonal contraceptive and pregnancy, so we hypothesized that hormonal changes may be implicated in the etiology of Sweet's syndrome.

1906
Interest of the 'OPEN' test in the diagnosis of allergic contact dermatitis to industrial lubricating oil

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Background: Causes of occupational skin diseases are constantly changing given to the continual diversification and the permanent introduction of new molecules especially in industrial area. Often, the major difficulty is the identification of the causative agent and the differentiation between allergic and irritant dermatitis.
Result: A foreman of a maintenance team in a plastic-manufacturing company, aged of 43 years, with a seniority of 12 years, consulting because of dermatitis lesions localized on the hands and rythmed with work exposure. the professional investigation has identified the various products handled by the patient, including solvents, perfumes, oils, lubricants, paints, varnishes ... European standard patch test series was positive to chromate and cobalt, but interpreted as clinically irrelevant . The 'OPEN' tests with handled products were made and were tested positive with the lubricating oil handled. The diagnosis of occupational allergic contact dermatitis to the lubricating oil was made. The evolution was marked by improvement of lesions after the eviction of this oil. The patient refused to receive a declaration of occupational disease for fear of losing his job.
Conclusion: The industrial oils are usually classified among the agents responsible for irritant contact dermatitis. In our case, the lesions presented by the patient evoke more an allergic dermatitis. The diagnosis of allergic origin and the identification of the allergens were confirmed by the results of the 'OPEN' tests.

1907
Variations of 5 year period (2005–2010) in pollen concentrations of the most allergenic taxa in Tirana, Albania

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Background: Airborne Pollen grains of Cupressaceae, Olea and Grass were recorded at Tirana city, Albania for a period of 5 years (2005–2010). The site do record the airborne pollen grains since 1995. The research have been supported by an grant of ARTI, Albania. The airborne pollen concentrations (pollen grains/m^3) of the following taxa was considered: Olea, Poaceae, Quercus, owing to their allergenic interest in the Mediterranean countries with similar climate and vegetation with Albania.
Method: The aerobiological measurement have been carried out with volumetric pollen trap situated at a height 16 m above ground level at each station. The slides were prepared according to standard methodology of the British Aerobiology Federation. Daily pollen data were transferred into 10-day mean for selected taxa.
Result: The Olea pollen season is short(45–50 days) but with high daily pollen concentrations. Pollination peak occurred in second 10-day period of May. This pollen type represent 46% of the total pollen production reflecting the local vegetation where Olea is widely cultivated. Grass pollen season start from late March till August with high daily pollen concentrations from the second 10 day period of April till the second 10 day of July. The pollination curve has shown a temporal and special variation in the selected site. This taxon in Tirana represent approximately 21% of the total pollen production. Cupressaceae pollen season is long and this pollen type is present throughout the year. This taxon represent 20% of the total pollen production in Tirana and is a considered as a allergenic source for the allergic people especially during the winter season when it gets the highest amount.
Conclusion: The pollen season in Tirana is characterised with high pollen concentrations of Olea,Poaceae, Cupressaceae etc. These pollens are also of high interest from the allergollogical point of view.

1908
Eosinophilic esophagitis in Saudi children: symptoms, histology and endoscopy results

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Background: Eosinophilic esophagitis (EE) is a clinicopathologic entity characterized by esophageal symptoms in association with a dense eosinophilic infiltrate currently defined as >15 eosinophils per high power field in the appropriate clinical context. This is the first pediatric study in Saudi Arabia to give the experience with EE and examine its symptom, histology and endoscopy results and its relation to atopy.
Method: Retrospective chart review of all pediatric patients diagnosed with EE at National Guard Hospital, Jeddah over three years period. We included only those children who fillful the standard criteria for the diagnosis of EE. We identified EE on histologic criteria (>15 eosinophils per high-power field) together with their clinical context. We reviewed medical records for details of clinical presentation, diagonsis of asthma and allergic rhinitis based on allergist documentation, laboratory data, radiologic studied, endoscopic and histologic findings, and the results of treatment.
Result: We identified 15 patients in our database in the last 3 years. All patients

were males (100%). The median age at presentation was 10 years (range, 3–17 years). The commonly reported symptoms were failure to thrive (86%), epigastric pain (53%), poor appetite (40%), dysphagia (26%), food impaction (13%), and vomiting (20%). Forty-six of patients were asthmatic and 40% were having allergic rhinitis. Peripheral eosinophilia was found in 66% and high serum IgE level in 60% of cases. Upper endoscopic analysis revealed esophageal trachealization in 46%, esophageal erythema in 46%, white specks on the esophageal mucosa in 33%, esophageal narrowing in 13%, and normal endoscopy in 13%. The mean eosinophils per high-power field was 30.4 (range, 20–71). Histologic characteristics included degranulated eosinophils (86%), basal cell hyperplasia (93%) and eosinophils clusters (micro-abscess) in 73%. The treatment of EE revealed that they used swallowed corticosteroid in 50%, proton pump inhibitors in 66%, elemental diet/food elimination in 13% and systemic corticosteroid in 13%.

Conclusion: Failure to thrive and abdominal pain in atopic (asthmatic and/or allergic rhinitis) male school-aged children were the most common features of EE in our study. Poor appeatitie, dysphagia and peripheral eosinophilia should significantly raise the index of suspicion for the diagnosis of EE. Systemic corticosteroid may be required to control the disease.

1909
Primary immunodeficiency in children in hospital setting

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PID diseases represent a rare inherited heterogeneous group of disorders characterised by defects of the immune system. The estimated range of prevalence is 1/5000–1/200 000 depending on the specific diagnosis. More than 150 genetic defects have been identified. In North Africa and the Maghrebian region, PID seems to be more frequent because of high rates of consanguinity. These diseases are underdiagnosed and undertreated and are associated with high mortality.

Aims of the Study: Describe epidemiological features, clinical findings, laboratory investigations allowing caracterisation of the PID, follow up of the patients.

Methods: Retrospective analysis of medical records of all hospitalised patients during a 5 year period (from January 2006 to December 2010). Informations are collected into a standardised questionnaire. Immunological investigations were all performed in the same laboratory (Pasteur institute of Algeria): complete WBC count, T cell count (CD3), evaluation of B (CD19/20) and NK (CD16) cells, CD18, immunoglobulin serum levels, HLA II expression, NBT, complement.

Outcome variables evaluated: symptoms at presentation, age at presentation, mean diagnosis delay, radiological findings (Chest X rays, HRCT Scans), bacteriological data, immunological data.

Results: Nineteen children (8F/11G) have been diagnosed with PID and followed. Mean age at first symptoms was 4 months (0.1–31), mean age at diagnosis was 20 months (1.5–72), mean diagnosis delay was 15 months (0.5–57) despite very suggestive symptoms, high consanguinity rate (58%) and positive family history (58%). The most frequent clinical symptoms are: chronic cough and chest infections (79%), chronic severe diarrhea (58%), severe undernutrition (52%), chronic candidosis (42%), cutaneous infections (52%). DIP are diagnosed as: severe combined immunodeficiency (nine cases) with six children with MHC classe II deficiency, agammaglobulinemia (two cases), phagocytic cells defects (seven cases): one congenital neutropenia, one chronic granulomatous disease, one Chediak Higashi syndrome, four CD18 defect. Eighteen children recieved multiple courses of IV antibiotherapy, nine children had IV IG therapy every 3 weeks. Ten children died before their second anniversary. Earlier diagnosis (educate physicians about warning symptoms of PID) is needed.

1910
Hypogammaglobulinaemia secondary to *H. Pylori* associated eosinophilic gastroenteritis

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Background: Hypogammaglobulinemia has been described as a secondary consequence of many disorders. Loss of immunoglobulin from the gastroitestinal tract due to chronic causes is well known entity, however, there is no reported cases of hypogammaglobulinaemia secondary to *H. pylori* associated eosinophilic gastroenteritis.

Method: Five-years-old girl previously healthy, presented with history of generalized edema, recurrent otitis media with perforations and abdomenal pain for more than 8-months. Clinical examination showed no dysmorphic features and no sings of failure to thrive. She had generalized edema and bilateral otitis media with yellowish pus discharge, but otherwise normal. Gastrointestinal and immunologic assessment were undertaken.

Result: Complete blood count showed; leucocytes $20.2 \times 109/l$, neutrophils $9.57 \times 109/l$, monocytes $0.69 \times 109/l$, lymphocytes $7.1 \times 109/l$, eosinophils $2.67 \times 109/l$ (high), haemoglobin 13.3 g/dl and thrombocytes $460 \times 109/l$. C-reactive protien was 29 mg/l. The renal functionl and liver enzymes were within normal limites, but the serum albumin was 20 g/l (low). Cluture of the pus from the ear was positive for *staphylococcus aureus* and acinobacter baumannii. The Immunoglobulins: IgG was 2.05 g/l (low), IgM was 0.36 g/l, IgA was 0.22 g/l and IgE was 532 IU/ml (high). The lymphocytes markers and function were normal. The stool analysis on repeated occasions were negative for parasites. The stool for *H. pylori* antigen was positive. The endoscopic biopsies showed presence of *H. pylori* and chronic gastritis consistent with eosinophilic gastropathy and colonic biopsies were consistent with eosinophilic gastroenteritis.

Discussion: *H. pylori* infection assocaited with eosinophilic gastroenteritis that caused hypogammaglobulinaemia and recurrent otitis media with perofrations. Otitis media was treated with oral amoxacillin and local gentamicin. She received triple therapy for *H. pylori* and oral steroid for 1 month. Albumin, IgG and eosinophils normalised. Her edema and otitis media resolved and she remains asymptomatic for 2 years.

Conclusion: *H. pylori* can cause sypmtomatic secondary hypogammaglobulinaemia associated with eosiniophilic gastroenteritis, but the pathogenesis is still unclear. Because *H. pylori* is common infection in children and adult, high index of suspesion for possible associated diseases should be considered. Eosinophilic gastroenteritis secondary to *H. pylori* is responsive to a course of oral esteroid.

1911
Upper airway obstruction caused by multicentric reticulohistocytosis

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A 55 year-old woman presented serval year history of arthritis and cutaneous skin nodules and a three month history of progressive dysphagia, odynophagia, and dyspnea. A retropharygneal mass was identified on clinical exam and CT scan and biopsies revealed multinucleated histocytes which had a 'Ground-glass' eosinophilic cytoplasm which were PAS positive, consistent with multinucleated reticulohistocytosis

(MRH). The patient was treated with IV pulse steroids and her symptoms resolved rapidly. The case is only the second case of MRH causing respiratory distress.

1912
Anaphylactic reaction secondary to scorpion antivenom therapy in children stung accidentally by a scorpion

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Background: Scorpion sting is a medical emergency and a common public health problem in many regions of the world, particularly in children, and requires an accurate and immediate intervention. Anaphylaxis is an acute allergic reaction, multisystemic, and it is mostly triggered in response to an ingested or injected agent and it is also an important medical emergency.

Case Description: It describes a 3-year-and-2-month-old female child from the rural area, admitted at the University Hospital of Unimontes/Brazil with symptoms of scorpion poisoning (stung on her left foot while putting on the shoe), classified as moderate to severe intensity. Besides the intense pain at the injection site, she had systemic consequences such as tearing, salivation, sweating, nausea, vomiting, dizziness and anxiety. A therapeutic treatment was started with five ampules of anti-scorpion antidote, and in the first 15 min, she began to present various signs of immediate hypersensitivity such as generalized urticaria, angioedema of the lips, eyelids and tongue. The patient developed dyspnea, wheezing and did not improve even with the fast interruption of the antidote. It was necessary the use of adrenaline, intubation and mechanical ventilation. Three doses of subcutaneous adrenaline and intravenous injection of hydrocortisone and promethazine were used. The patient remained in the intensive care unit for 1 day and three more days in the ward, especially due to the severity of the anaphylactic shock presented.

Conclusion: This case demonstrates that the appropriate pharmacological intervention with adrenaline, as well as the cessation of the triggering agent, the anti-scorpion antidote, associated with other intensive support measures, contributed to the favorable outcome of the approach to this child.

Late Breaking Poster Session 11

Allergens, immunotherapy and nutrition

1913
Component-resolved multiparameter assays for the diagnosis of birch pollen and grass pollen allergy

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Background: The *in vitro* diagnosis of allergies against pollen is generally performed using raw pollen extracts as antigenic targets. In recent years, specific IgE detection has been improved using isolated allergenic proteins from pollen instead of raw extracts. These test systems are easier to standardise and provide exact sensitisation profiles of the patients as established in this study on the example of birch and grass pollen allergy.
Method: Levels of specific IgE against recombinant birch pollen allergens Bet v1, Bet v2, Bet v4, and Bet v6 and grass pollen allergens Phl p1, Phl p5, Phl p7, and Phl p12 were measured in sera from clinical and anamnestic confirmed birch (n = 38) and grass (n = 39) pollen allergic patients using EUROIMMUN EUROLINE (EU), Phadia ImmunoCAP Allergy (CAP), and Phadia ImmunoCAP ISAC (ISAC). All investigated patients exhibited specific IgE against native birch or grass pollen total extract with reactivities between EAST classes 1 and 6 (enzyme allergosorbent test classes).
Result: For all patients, the sensitisation could be verified using the combination of Bet v1, Bet v2 and Bet v4 for birch pollen and Phl p1, Phl p5, Phl p7 and Phl p12 for grass pollen allergy as target allergens. The prevalence of specific IgE against the tested allergens was for all three test systems nearly comparable (Table 1.) and also the EAST class results showed a good correlation. In case of birch pollen allergens, EAST class correlation was acceptable only between EU and CAP (95–97%), but not between ISAC and the other two test systems (66–97%).
Conclusion: Component-resolved multiparameter tests are reliable and efficient in the diagnosis of pollen allergy. These assays are the basis for a successful specific immunotherapy using defined proteins instead of raw allergen extracts.

Table 1. For abstract 1913

	EU (%)	CAP (%)	ISAC (%)
Birch			
Bet v1	37 (97)	37 (97)	37 (97)
Bet v2	13 (34)	15 (40)	15 (40)
Bet v4	11 (29)	9 (24)	8 (21)
Bet v6	8 (21)	8 (21)	not done
Grass			
Phl p1	36 (92)	37 (95)	36 (92)
Phl p5	36 (92)	37 (95)	37 (95)
Phl p7	7 (18)	8 (21)	5 (13)
Phl p12	20 (51)	19 (49)	13 (33)

1914
Analyzing histamine release by flow cytometry: a novel breakthrough in the study of degranulation patterns of the individual basophil

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Background: Upon stimulation human basophils exhibit different degranulation patterns with release of various mediators and expression of distinct surface activation markers such as CD63 and CD203c. Traditionally, released mediators are quantified in the supernatant of all activated cells, whereas expression of activation markers by individual cells is analyzed by flow cytometry. Thereore, the objective of this study is to develop a flow cytometric technique enabling to study the release of histamine by the individual basophil. To assess whether this technique allows simultaneous quantification of activation markers. To further elucidate the principles of basophil degranulation on a single cell level.
Method: Intracellular histamine and its release is analyzed flow cytometrically by an enzyme-affinity method using the histaminase diamine oxidase conjugated to laser-excitable fluorochromes. Phenotyping of cells implied flow cytometric quantification of CD63 and CD203c. Various stimuli such as allergen (rBet v 1), anti-IgE, N-formyl-met-leu-phe (fMLP), phorbol 12-myristate 13-acetate (PMA)-ionomycin (IO) and interleukin (IL-)3 were applied to obtain piecemeal and anaphylactic degranulation.
Result: Stimulation with anti-IgE, rBet v 1, fMLP and PMA-IO induced a rapid release of histamine. Analyses on a single cell level revealed the release was restricted to cells showing significant up-regulation of both CD203c and CD63. In contrast, incubation of the cells with IL-3 increased histamine content and responsiveness to allergen stimulation.
Conclusion: This study provides the proof-of-concept that intracellular histamine and its release can be studied by multicolor flow cytometry on a single cell level. Coupling the data to simultaneous phenotyping of activated basophils confirms that histamine release principally results from anaphylactic degranulation and in a lesser extent from dribbling during piecemeal degranulation. The IL-3 priming effect involves accumulation of intracellular histamine and promotion of basophil responsiveness.

1915
Production of monoclonal antibody againts grape lipid transfer protein

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Background: Vit v 1 is a member of the plant non-specific Lipid-Transfer Protein (LTP) family that identified as a plant-derived food allergen. This allergen family is particularly important in the Mediterranean area, but shows a very limited incidence in central and northern Europe.
Method: Natural Vit v 1(nVit v 1) was purified by ion exchange and affinity chromatography and confirmed by mass spectrometry. BALB/c mice were immunized with the immunoaffinity purified nVit v 1. After fusion and screening steps, proper monoclonal antibody will be selected.
Result: The first fusion was not successful. For the second time, mice were immunized with the nVit v 1, but an intensive response was elicited against the grape chitinase. Therefore, SDS-PAGE isolated LTP was injected into the mice. Other experiments are under investigating.
Conclusion: Produced monoclonal antibody will be used to establish a sandwich ELISA for the standardization of lipid transfer protein extracts intended for

diagnostic usages. This monoclonal antibody would be also useful for immunoaffinity purification and immunoassays.

1916
Antigenicity *versus* cross-reactivity: Amb a 1, the major ragweed pollen allergen, and its mugwort homologue Art v 6

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Background: Ragweed and mugwort are botanically closely related weeds which represent the major cause of pollen allergy in late summer. Clinical cross-reactivity is frequently observed in subjects who are co-exposed to both pollen species. Amb a 1, the major ragweed pollen allergen is endowed with high allergenic potential. A homologous allergen called Art v 6 exists in mugwort pollen. The objective of the present study was to investigate IgE- and T cell cross-reactivity between Amb a 1 and Art v 6.
Method: IgE-binding and cross-reactivity to the purified natural allergens was assessed by ELISA and ELISA inhibition. T cell lines and clones were established from 60 weed pollen- allergic subjects sensitized to Amb a 1 and/or to Art v 6. T cell cross-reactivity was tested in proliferation assays. T cell epitope mapping was performed with synthetic 12-mer peptides representing the amino acid sequence of both allergens.
Result: IgE-binding varied from preferential binding of either Amb a 1 or Art v 6 to dual recognition and indicated that Amb a 1 possesses more IgE-epitopes than Art v 6. Art v 6 was a weak stimulus for T cells expanded with Amb a 1, whereas Amb a 1 strongly activated T cells expanded with Art v 6. In contrast to Amb a 1, fewer T cell epitopes were found in Art v 6 which were essentially cross-reactive with Amb a 1.
Conclusion: Amb a 1 is clearly more allergenic than Art v 6 as it can elicit a much more diverse allergen-specific IgE- and T cell response. However, unlike other known cross-reactive allergens, that are thought to depend on prior sensitization by stronger allergenic homologs, Art v 6 has intrinsic allergenic potential. Thus sensitization to Art v 6 may facilitate additional development of ragweed pollen allergy in patients from areas with predominant mugwort pollen exposure.

1917
Sequence polymorphism of Der f 2 and Der p 2 from Korean house dust mite isolates

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Background: Amino acid sequence variation of allergens could influence on the allergenicity, and be important for the standardization of allergen. This study was undertaken to investigate the sequence polymorphism of house dust mite group 2 allergens from Korean isolates.
Method: cDNA sequences encoding Der f 2 and Der p 2 were amplified by RT-PCR and subcloned into pCR4 TOPO vector. Deduced amino acid sequences were compared with previously reported allergens.
Result: A total of 54 Der f two clones were analyzed, 17 different variants with 2–8 amino acid substitutions were identified. Der f 2.0102 sequence accounted for 40.7% (22/54), Der f 2.0101 for 27.8% (15/54) and Der f 2.0116 for 5.6% (3/54). Deduced amino acid sequences of 60 Der p 2 clones were examined, and 28 variants with 1–5 amino acid substitutions were observed. Interestingly, all the sequences from Korean Dermatophagoides pteronyssinus isolate were found to have Thr at position 49, although most of the isoforms of Der p 2 reported to date (Der p 2.0101–2.0113) have Lys at 49th residue. Two variants (L40, T49, and N114; V40, T49, and N114) was found to be the most predominant (26.6%, 16/60; 20.0%, 12/60).
Conclusion: The sequence variations may influence on the monoclonal antibody binding, subsequently to the immunoassays for the determination of allergen content. The information on variants will provide important data for the house dust mite allergen standardization.

1918
IgE against cephalosporin side-chains

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Background: Cephalosporin antibiotics are known to induce potentially life-threatening IgE-mediated allergic reactions in sensitized individuals. Allergic reactions to cephalosporins have been estimated to occur in 1–3% of treated patients. On the basis of several studies it has been suggested that the allergic immune response to cephalosporins is dominated by side-chain specific IgE antibodies, thereby explaining the lack of cross-reactivity between most cephalosporins and penicillins. Clinical cross-reactivity between penicillins and cephalosporins that share the same side-chains has been demonstrated, and has formed the basis for prescription recommendations for penicillin and cephalosporin allergic patients. A possible reason for the importance of the side-chain is the demonstrated instability of the cephalosporin core structures, giving rise to a number of degradation products with a preserved C-7 side-chain. This hypothesis prompted us to experimentally investigate the occurrence of IgE antibodies that recognize cephalosporin C-7 side-chains.
Experimental: ImmunoCAP® tests were prepared containing the C-7 side-chains of cefaclor, cefuroxime, and ceftriaxone. Tests carrying the conjugated molecule of cefaclor, cefuroxime, or ceftriaxone were also prepared for comparative purposes. We performed sIgE assay using sera from 18 patients with immediate allergic reactions to cefaclor (12 patients), cefuroxime (4), cefonicid (1), and ceftriaxone (1).
Results: All patients had IgE antibodies against at least one conjugated cephalosporin. IgE to the side-chain of cefaclor was less frequent with two out of 12 patients positive. For the cefuroxime side-chain IgE was detected in two out of four cases, while the ceftriaxone allergic tested positive to the side-chain. The cefonicid allergic patient tested negative to all three side-chains. In some cases the concentration of IgE against the side-chain was higher than the corresponding conjugated molecule.
Conclusion: Cephalosporin ImmunoCAP with side-chains of cefaclor, cefuroxime, and ceftriaxone have been prepared. IgE assays were carried out and IgE antibodies against cephalosporin side-chains were detected in some patients. We believe determination of IgE against cephalosporin side-chains can be a useful tool in research on allergy to cephalosporins and may contribute to the understanding of the different epitopes involved.

1919
Recombinant scFv antibodies against chimeric proteins of Bet v 1 and Api g 1 for IgE epitope mapping

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Background: The pollen-fruit allergy syndrome is very common among people allergic to birch pollen and affects about 70% of the patients. This is due to IgE cross-reactivity of the major birch pollen allergen Bet v 1 and its homologues in plant food. We aimed to generate recombinant single chain antibody fragments (scFv) that inhibit IgE binding to Bet v 1.
Method: The ETH-2 phage display library was used to select recombinant scFv antibodies specific for Bet v 1 by performing three rounds of biopanning. Specificity of the phage clones displaying scFv antibodies was investigated by ELISA using Bet v 1 and Api g 1. Clones binding only to Bet v 1 but not to Api g 1, its homologous allergen in celery, were selected. These phage clones were then tested for their ability to recognize chimeric proteins of Bet v 1 and Api g 1. The four chimeric proteins Api-Bet-1 to Api-Bet-4 were constructed by grafting conformational epitopes of Bet v 1 onto the surface of Api g 1. Clones binding to Bet v 1 and to one of these chimers were selected and expressed in *Escherichia coli* HB2151. IgE inhibition ELISA with scFv antibodies were performed with sera of three birch pollen allergic patients.
Result: Forty individual phage clones were tested in ELISA resulting in two clones specific exclusively for Bet v 1. One of these phage clones strongly recognized Bet v 1 and the chimeric protein Api-Bet-3. This phage clone was selected for expression and purification of a recombinant scFv antibody. In competitive ELISA, this scFv antibody was able to inhibit binding of IgE from three birch pollen allergic patients' sera to Bet v 1 up to 25%.
Conclusion: This work, supported by grant SFB-F01802 from the Austrian Science Fund, demonstrated that the combination of epitope grafting and biopanning is a powerful method for IgE epitope mapping.

1920
Introduction of limonene essence which extracted from chrysanthemum maximum ramond ornamental flower as a hapten in intensification ofcontant allergies

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Background: Hap tens or incomplete allergen with carrier molecule which are in Protein type can be as a strong immunogenic factor of allergies. Limonene essence is from monoterpenoide group that extracted from plant's parts andorganele applied in pharmaceuticaland produces. In present research, we considered limonene which extracted from Shasta daisy plant's of Asteraceae family. Selection of chrysanthemum maximum Ramond was because of its diversity seasons, abundant application as an ornamental flower, and its plant in green area.
Method: Shasta daisy flowers collection from Tehran Flower Market, considered morphology by light and electronic microscopy. Essence from flower's dried powder and analyzed GC & GC/MS methods. Then amount limonene of flowers was 16% that considered by Chromatography Preparative, and in order to assurance from its purity, compared it with its trading component Limonenemerk. Extracted limonene combine with buffer glycerol for injection to peritoneal; and emulsion extract peritoneal in male guinea pig by weight 300 g injection for each 10 days, with extracts 0.5%, 1% & 1.5% into 7–10th ply group. Bleeding performed at 8 h, 48 h and 1 week after latest injection; and amount of eosinoiphils & lymphocytes, total IgE and NPT testes with amount of nose mucus eosinophils and OPT considered for a period of 1 month and amount of nose mucus eosinophils determined. Dermal testing in Patch test method, limonene combined with Vaseline and amount of weal and flare evaluated in place of test. Two of the guinea pigs are involved in anaphylaxis shock that pathology consideration by microtomiccutting and staining by H&E method from guinea pig lung.
Results: Animals with 0.5%, 1% & 1.5% extract indicated significant results for 1% & 1.5%. Also amount of total IgE with 1.5% was $P < 0.05$ significant. Consideration of dermal patch test for 85% of guinea pig was +4. In consideration of which involved in anaphylaxis, has observed demolition of lymphocytes, violent edema and lung inflammation. Amount of nose mucus eosinoiphils was $P < 0.01$ significant.
Conclusion: We can say that limonene essence molecule and in reaction with proteins of pollen grains from chrysanthemum maximum can increase the percent and has an important role in intensification of allergic. We suggested being careful in using ornamental flowers in indoor place such as hospitals, kindergarten and public places.

1921
Evaluation of allergen-specific sublingual immunotherapy of platanus orientalis pollinosis using polylactic-co-glycolic acid in mice

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Background: Allergen-specific sublingual immunotherapy (SLIT) is widely considered as an effective and noninvasive alternative delivery route to subcutaneous allergy desensitization. More amounts of allergen, at least 50–100 times, are needed for SLIT that may be explained by low delivery efficacy of allergen to langerhans-like dendritic cells (DCs) of oral mucosa. Nanoparticles such as polylactic-co-glycolic acid (PLGA) as biodegradable and mucoadhesive polymer delivery vehicles can improve the bioavailability of orally administered proteins. To evaluate the effectiveness of PLGA in improving of SLIT, immunotherapy with the main allergen of Platanus orientalis pollen (Pla or 3) has been targeted for Platanus pollinosis in a PLGA allergen-entrapped nanoparticle system. We propose PLGA may prolong the mucosal contact of the allergens and facilitate their capturing by DCs, resulting in better way to prime the local immune system.
Method: Pla or 3 treated mice will be subjected sublingually to PLGA-rPla or 3. Immune response profile would be investigated and compared with different formulations and delivery routes.
Result: Recombinant Pla or 3 has been produced and entrapped in PLGA nanoparticles. Immunological study is under investigation.
Conclusion: During SLIT, the allergen is captured by local Langerhans-like DCs. Allergen administration strategies based on mucoadhesive formulations could enhance SLIT efficacy, reduce allergen dosing, and simplify immunization method. In this point of view, our hypothesis is that PLGA nanoparticle as a biodegradable polymer

could allow the design of a more efficient SLIT.

1922
Chitosan for mucosal antigen/allergen delivery

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Background: Chitosan is a cationic polymer derived from chitin obtained from crustacean and insect skeletons, and mushrooms. It is very promising both as an adjuvant and a delivery vehicle for antigens, especially for mucosal immunization, inducing both cellular and humoral responses. Chitosan-based aqueous dispersions, gels, sponges and micro/nanoparticles have been shown to be capable of carrying antigens and adjuvants. For sublingual immunotherapy (SLIT), successful results have also been reported with chitosan formulations, facilitating allergen contact with the oral mucosa and uptake by antigen-presenting cells (APCs).
Method: Gel, aqueous dispersion and particulate systems were prepared using chitosan with different properties such as molecular weight, deacetylation degree and solubility as well as different chitosan derivatives such as carboxy methylated chitosan (MCC) and trimethylated chitosan (TMC). Tetanus toxoid (TT) and bovine herpes virus (BHV-1) were incorporated into these systems, and immune responses were studied in animal models following nasal immunization of TT incorporated formulations. Furthermore, a viscous hydrogel (Viscosan®) was produced from chitosan with different properties for sublingual delivery of a model allergen. The viscosity and mucoadhesivity of the gels were investigated using TA.XTPlus Texture Analyser (Stable Micro Systems).
Results: Significantly increased immune responses were obtained for TT with both the aqueous dispersions and nanoparticles. Particle size and the surface charge was found to have an influence on immune response. Encapsulation of TT into the nanoparticles offers advantage over aqueous dispersion, by protecting the antigen from the potential undesired environment at the nasal surface and preventing the loss of the antigen before reaching the target M-cells. The integrity and antigenicity of BHV-1 incorporated into microparticles was shown to be affected by the properties of chitosan. The viscosity and mucoadhesivity of the Viscosan® formulations were found to be suitable for mucosal application which would allow the allergen to contact longer with the mucosa hence improve the uptake.
Conclusion: Our results showed that the versatility in physicochemical properties of chitosan and its ability to form different delivery systems provide an exceptional opportunity to engineer antigen-specific adjuvant/delivery systems.

1923
Focusing of blocking IgG antibodies towards the IgE binding sites of birch pollen allergen Bet v 1 with a vaccine conatining non-allergenic Bet v 1 peptides

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Allergen-specific immunotherapy (SIT) is the only disease-modifying treatment of type I allergy. One major mechanism of SIT is the induction of blocking antibodies, which compete with IgE for allergen binding and down regulate allergic inflammation. In this study we have expressed in *Escherichia coli* four recombinant fusion proteins consisting of two peptides derived from the major IgE binding site of Bet v 1 and the hepatitis B surface protein PreS. Purified fusion proteins lacked reactivity with IgE from birch pollen allergic patients and did not induce basophil activation. The peptides induced no or low T cell proliferation in PBMC from birch pollen allergic patients. Bet v 1-specific IgG antibodies were higher in rabbits immunized with a fusion protein containing four copies of one of the two peptides than with a fusion protein containing only two copies. The highest Bet v 1-specific IgG response was obtained with the fusion protein containing two copies of each of the two peptides. These IgG antibodies cross-reacted with Bet v 1-homologous pollen and food allergens. Interestingly, pre-incubation of sera from birch pollen allergic patients with rabbit IgG raised against the latter fusion protein showed a significantly stronger inhibition of the binding of allergic patients' IgE to rBet v 1 than pre-incubation with rabbit IgG raised against the complete rBet v 1. This finding could be explained by epitope mapping studies demonstrating that immunization with rBet v 1 induced IgG antibodies also against several epitopes on Bet v 1 which are not involved in allergic patients IgE recognition. The vaccine based on the fusion protein consisting of the two copies of each of the two Bet v 1 peptides and PreS induces better blocking IgG responses than rBet v 1 and holds promise to lack IgE and T cell mediated side effects. It may allow safe vaccination against birch pollen and related allergies.

1924
Bet v 1-specific cytokine profiles of peripheral blood mononuclear cells over a 3-year period of specific immunotherapy

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Background: Over the last decades many studies were performed investigating the immunologic changes induced by allergen-specific immunotherapy (SIT). While most of them focused on SIT-induced alterations at early time-points, we here show data of a long-term, longitudinal study following nine birch pollen allergic patients over a 3-year period of SIT.
Method: Cytokine profiles from the supernatant of Bet v 1-stimulated peripheral blood mononuclear cells (PBMC) were evaluated at distinct time-points during induction and maintenance phase of SIT and compared to values before initiation of treatment by means of ELISA. The cytokines analyzed were IL-5, IFN-γ, IL-10 and TGF-β, as markers for T helper (Th2) 2, Th1 and regulatory T (Treg)-like cells, respectively, as well as IL-21 and IL-27, which recently gained interest in the context of inducing and promoting type 1 Treg (Tr1) cells.
Result: There was still a pronounced increase of allergen-specific IL-5-secretion during birch pollen season in the first and second year of SIT. However, this increase ceased to appear in the last year of treatment. Analyses of IFN-γ-production showed only marginal changes over the whole observation period. In contrast, secretion of the immunoregulatory cytokine IL-10 was substantially enhanced during natural birch pollen exposure in the first year of SIT accompanied by alterations of the Tr1 cell-differentiation and expansion factor IL-27 and IL-21, respectively. Unlike the aforementioned cytokines, no allergen-specific TGF-β-production could be detected during the 3 years of SIT.
Conclusion: These data show a dynamic profile of immunological mechanisms leading to allergen tolerance by a 3-year treatment of SIT. Correction of an imbalance between the different T cell populations seems to be mainly characterized by

substantially increased anti-inflammatory IL-10-secretion in the early phase of SIT, followed by decrease of the Th2-cytokine IL-5 at the end of therapy.

1925
Differential regulatory protein expression of peripheral blood mononuclear cells to CpG modified plasmid DNA

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Background: Low immunogenicity is a major drawback of DNA vaccines. Insertion of molecular adjuvants like CpG motifs into the plasmid backbone of the DNA construct is a promising strategy to improve vaccine immunogenicity. This study aims to evaluate the effects of such modified plasmid DNA on human peripheral blood mononuclear cells (PBMC).
Method: Human D and K types of CpG motifs were inserted into the plasmid backbone of a Blot 5 allergen encoding plasmid template. CpG motif modified plasmid (pVAXhBlot-DTKT), unmodified plasmid (pVAXhBlot5) and free CpG oligonucleotides (DTKT ODN) were cocultured *in vitro* with PBMC for 5 and 24 h. The culture supernatant was collected and assayed via Milliplex multi-analyte profiling and cytokine array.
Result: pVAXhBlot5, pVAXhBlot5-DTKT and DTKT ODN elicit proinflammatory cytokines and chemokines, IL-6, IL-8, MIP-1alpha and MIP-1beta in a dose dependent manner when cocultured with PBMC for 5 h. Co-stimulation of PBMC with pVAXhBlot5, pVAXhBlot5-DTKT and DTKT ODN for 24 h showed the dose dependent induction of IL-6, IL-8, MIP-1alpha, MIP-1beta as well as IL-10. pVAXhBlot5-DTKT elicits higher levels of IL-6, IL-8, MIP-1alpha and MIP-1beta from PBMC when compared to pVAXhBlot5 and DTKT ODN. In addition, higher levels of IL-6, MIP-1alpha and MIP-1beta were still released by pVAXhBlot5-DTKT stimulated PBMC upon 24 h of coculture. At an early timepoint of 5 h of coculture, pVAXhBlot5-DTKT induces upregulation of the release of PDGF-AA, GRO-alpha, NT-4, osteoprotegerin, VEGF-D, GM-CSF, IL-1alpha, MCP-1 and ENA-78 from PBMC and downregulation of the release of ErbB3, IP-10, angiogenin, IGFBP-2 and MCP-2 when compared to pVAX-hBlot5. This profile shifted at a later timepoint of 24 h whereby pVAXhBlot5-DTKT induces upregulation of the release of angiogenin, Flt3Ligand, I-309, IL-10, MCP-1, MCP-4, MIP-3alpha, PARC, TARC and TECK from PBMC and downregulation of the release of IL12p40 when compared to pVAX-hBlot5.
Conclusion: Insertion of CpG motifs into the plasmid backbone enhanced the immunogenicity of DNA vaccines by inducing the release of proinflammatory cytokines and chemokines from PBMC. This represents a promising strategy to enhance immunogenicity of DNA vaccines in general. In addition, the observation of differential regulatory protein expression to the modified plasmid may shed new light in elucidating the underlying mechanism of DNA vaccination.

1926
Histopathologic changes of lung in mice born from asthmatic mothers

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Background: Asthma is a chronic respiratory disorder with origins in early life. Epidemiologic studies have identified an increased risk for asthma in children of asthmatic mothers. Our aim is to determine the histopathologic changes in the lungs of offsprings of asthmatic mother mice and whether these changes are temporary or permanent, and influenced by treatment of asthma.
Method: Mice were divided into nine groups each including seven mice. Group I (mothers without asthma), Group II (offsrings of mice without asthma on the 1st day of life), Group III (offsrings of mice without asthma on the 6th week of life), Group IV (asthmatic mothers without treatment), Group V (offsprings of Group IV on the 1st day of life), Group VI (offsprings of Group IV on the 6th week of life), Group VII (asthmatic mothers with treatment), Group VIII (offsprings of Group VII on the 1st day of life), Group IX (offsprings of Group VII on the 6th week of life). Mice in Group IV and Group VII were sensitized with ovalbumine. Mice in Group I were administered saline instead of ovalbumine. All mice mated with healthy male mice in the last month of the challange period. Mice in Grup VII were administered dexamethasone at the last week of pregnancy. Mice were sacrificed at previously mentioned days and histopathologic changes of lungs were evaluated by light and electron microscopy.
Result: The comparison of Group V with Group II, the thicknesses of subepithelial smooth muscle and epithelium and mast cells counts were significantly higher in Group V ($P < 0.05$). In comparison of Group VIII with Group V, these parameters significantly improved in Group VIII ($P < 0.05$). The comparison of group VI with Group III, the thicknesses of subepithelial smooth muscle and epithelium, mast cells and goblet cells counts were significantly higher in Group VI ($P < 0.05$). The comparison of Group IX with Group V, these parameters significantly improved in Group IX ($P < 0.05$).
Conclusion: Our study was showed that histologic changes in the lungs of offsprings of asthmatic mother mice were developed prenatally. These changes were not temporary but influenced by asthma treatment of mother. New studies are needed to determine these changes and influencing factors.

1927
Introduction of cytoplasmically expressed Phl p 5 into hematopoietic stem cells induces molecular chimerism in a murine model in IgE mediated allergy

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Background: Robust strategies for the prevention of allergy are currently not available. In a preventive murine model employing myeloablative and non-myeloablative irradiation we showed that tolerance towards an allergen is induced through transplantation of retrovirally transduced syngeneic bone marrow (BM) expressing a membrane-anchored allergen (i.e. molecular chimerism). Besides, transplantation of BM of a transgenic mouse ubiquitously expressing membrane-anchored Phl p 5 leads to stable chimerism. To eliminate the risk of anaphylaxis by surface expression of full length allergens we investigated in the present study if cytoplasmic expression of Phl p 5 is sufficient for the induction of B- and T-cell tolerance.
Method: The cDNA of Phl p 5 lacking the original leader sequence was cloned into retroviral vector pMMP-IRES eGFP. BALB/c BM cells (BMC) were retrovirally transduced *in vitro* to express the allergen Phl p 5 determined by GFP-coexpression using an internal ribosomal entry site (transduction efficiency: 7% and 9%). Pre-

conditioned (8 Gy total body irradiation) BALB/c mice received 7–10 × 106 Phl p 5-transduced BMC iv and were subsequently challenged with recombinant Phl p 5 and the major birch pollen allergen Bet v 1 (specificity control) at multiple time points post-BM transplantation (BMT).

Result: Myeloablated recipients ($n = 16$) transplanted with Phl p 5-transduced BMC developed white blood cell molecular chimerism (16/16; pooled data from two independent experiments) and persistence of chimerism was evident throughout follow up (e.g. 13 mean % GFP+ myeloid, 2% GFP+ CD4 T cells, 26 weeks post BMT). In contrast to chimeras expressing membrane-anchored Phl p 5, most chimeras expressing Phl p 5 in the cytoplasm developed a humoral response towards Phl p 5. In T-cell proliferation assays chimeras expressing Phl p 5 in the cytoplasm showed specific hypo-responsiveness to Phl p 5 (7/11) compared to immunized mice.

Conclusion: Here we demonstrate that chimeras expressing Phl p 5 in the cytoplasm do not show B cell tolerance in contrast to those expressing membrane-anchored Phl p 5. Contrarily, at least partial T cell tolerance towards Phl p 5 appears to ensue in most chimeras expressing Phl p 5 in the cytoplasm. The mechanisms underlying the lack of B cell tolerance in chimeras expressing Phl p 5 cytoplasmically need to be investigated.

1928
Nutritional immunomodulation — bovine colostrum for immune and gut health

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Background: Bovine colostrums (BC) contains several bioactives: growth factors, antimicrobials and immunomodulators such as immunoglobulin, transferrin, cytokines. While the need for colostrum in neonates is well established, the systemic effects of feeding BC to adult humans is gaining increased attention. However, no systematic studies evaluating the immunomodulatory effect of BC in dogs have been reported. The aim of this study was to evaluate the immunomodulatory effect of BC in a canine animal model and leverage it for nutritional immunotherapy.

Method: The trial was conducted in two phases: Pre-test (8 weeks) and test (40 weeks). Twenty-four dogs (mean age 2.5 years), were randomized into two groups. In 'pre-test' phase both groups were fed a nutritionally complete diet. At the end of 'pre-test' phase all dogs received a Canine Distemper Vaccine (CDV), and dogs in 'test group' were switched to diet supplemented with spray dried BC. Response to CDV vaccine was evaluated by measuring vaccine specific plasma IgG. Gut Associated Lymphoid Tissue (GALT) response was assessed by measuring fecal IgA. Gut microflora was evaluated by Temporal Temperature Gel Electrophoresis (TTGE) methodology. Repeated measures analysis of variance was used to test for differences between groups and statistical significance considered to be $P < 0.05$.

Results and Conclusion: Dogs fed diets supplemented with BC demonstrated enhanced immune status by showing significantly higher vaccine response and significantly higher levels of fecal IgA as compared to the control group. Supplementing diets with BC also resulted in significantly increased gut microflora diversity and stability [both measures of enhanced gut health] in the test group. In conclusion, diets supplemented with BC significantly enhanced immune health and gut health in our canine animal model. This data would have important implications for the use of bovine colostrums (BC) for immunomodulation in humans.

1929
Omega-3 affects the levels of interleukine-4, interleukine-5, interleukine-8, interleukine-10 tumor necrosis factor-alpha in food allergy murine model

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Background: The purpose of this study was develop and the evaluation of levels IL4, IL5, IL8, IL10, TNF-alpha in food allergy murine model.

Method: Female, 6–8 weeks of age, 21 Balb/c mice were used in this study. Mice were divided into three grups; each contained seven mice. First and second groups received standard mouse diet and omega-3 fatty acids enriched diet was given to third group during the study period. Mice in second and third group were sensitized with 10 μg intraperitoneal ovalbumin (i.p. OVA) on days 1, 7 and 14. From day 21, challenging intragastric doses of ovalbumin 100 μg were given to both groups one dose per week for 8 weeks with gavage method. Twenty-four hours after the last intragastric challenge (day 71) all the animals were sacrified.

Result: We showed the levels of cytokines (pg/ml) in murine groups Table 1.

Conclusion: We could be show omega-3 antiallergic effects the levels of IL4, IL5, IL8 on group III murine model.

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Omega-3 effects in food allergy murine model

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Background: The purpose of this study was to develop physiological model of food allergy and to show the beneficial effects of n-3 PUFA on food allergy murine model.

Method: Female, 6–8 weeks of age, 21 Balb/c mice were used in this study. Mice were divided into three groups; each contained seven mice. First and second groups received standard mouse diet and omega-3 fatty acids enriched diet was given to third group during the study period. Renz method and murine model of Sakamoto et al were used as sample. Mice in second and third group were sensitized with 10 μg intraperitoneal ovalbumin (i.p. OVA) on days 1, 7 and 14. From day 21, challenging intragastric doses of ovalbumin 100 μg were given to both groups one dose per week for 8 weeks with gavage method. Twenty-four hours after the last intragastric challenge (day 71) all the animals were sacrified.

Table 1. For abstract 1929

Cytokines	Group I (pg/ml) ± SD	Group II (pg/ml) ± SD	Group III (pg/ml) ± SD
Interleukine- 4	16.9 ± 6.5	60 ± 46.5	18.4 ± 8.4
Interleukine- 5	29 ± 18.1	95.6 ± 36.7	50 ± 38.5
Interleukine- 8	63.5 ± 38.4	347.7 ± 185.06	105.6 ± 36.7
Interleukine- 10	315.7 ± 63.7	259.9 ± 156	518 ± 179
Tumor necrosis factor- alpha	32.2 ± 12.2	105 ± 62	48.4 ± 39

Result: Eosinophil and mast cell numbers were evaluated in gut mucosa. Histopathologic evaluation were given number of eosinophill and mast cells in murine grups: Group 1: Eosinophill; 30 mast cells (toluidin blue): 6.29 mast cells (MCT): 4.43 Grup II: Eosinophill; 143.3 mast cells: 30.50 mast cells: 16.33 Grup III: Eosinophill; 6 1.67 mast cells: 10.0 mast cells: 4.43 When compared the histopathologic evaluation of mice in second group with sham, eozinophil and mast cell numbers found increased statistically. Eosinophil and mast cell numbers decreased statistically significant in the third group.
Conclusion: n-3 PUFA decreased eosinophill and mast cell numbers in food allergy murine model.

1931
Omega-3 fatty acids suppress cytokine gene expression related to allergy and selective transcription factors in mast cells

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Background: Because the interaction between omega-3 fatty acids and mast cells has remained largely unknown in immune disorders such as allergy, we investigated whether they suppress mast cell activation by examining cytokine productions related to allergy and selective transcription factors involved in the regulation of the cytokine gene expressions.
Method: Bone-marrow derived mast cells (BMMCs), MC-9 and P815 mast cells as well as EL-4 T cells were used to investigate cytokine gene expressions. The NC/Nga mouse, an animal model of atopic dermatitis, was used to test whether oral administration of fish oil containing high levels of omega-3 fatty acids suppresses mast cell activation *in vivo*.
Result: Omega-3 fatty acids dramatically decreased PMA and ionomycin (PI)-induced Th2-associated cytokine productions (IL-4, IL-5 and IL-13)in BMMCs as well as MC/9 mast cells as well as mRNA expression of the genes, which was accompanied by the suppression of nuclear expression of GATA-1 and GATA-2 mast cell specific transcription factors, while they did not change the levels of mRNA expression. Furthermore, they inhibited the nuclear expression of NF-AT1, NF-AT2 and NF-κB p65 but not AP-1 (c-Fos and c-Jun). On the contrary; they seldom showed significant effects on IL-4 and IL-5 and slight decrease in IL-13 production in EL-4 T cells. In P815 mast cells, which do not express GATA-1 the suppressive effects on the cytokine production were abolished. Finally, oral administration of fish oil, but not olive oil significantly decreased dermatitis severity and infiltration of mast cells expressing CD117 and GATA-1 as well as eosinophils was greatly inhibited.
Conclusion: Omega-3 fatty acids might target mast cells with much greater intensity than T cells to suppress Th2 cytokine gene expression related to allergy by inhibition of nuclear expression of GATA-1 and/or GATA-2 as well as other selective transcription factors, which may be one of the cellular and molecular mechanisms for omega-3 fatty acids in modifying allergic disease.

1932
Food protein induced colitis of infants and older children: altered expression of TNF-α, TGF-β, TGF-β receptor-1 in colon mucosa

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Background: Food protein-induced colitis (FPIC) is mostly a non-IgE mediated disease where a T-cell-mediated reaction to cow's milk protein has been suggested. The pathogenetic mechanisms of FPIC has not been studied, so far. We determined the expression of TGF-β, TGF-β receptor-1, TNF-α, CD86 and CD23 on the colon mucosa to investigate their roles in the pathogenesis of the two subtypes of FPIC; infantile FPIC and FPIC of older children.
Method: We studied 57 patients with a mean age at referral of 2.9 ± 4.02 years. Group I: infantile FPIC, <6 months, $N = 21$; Group II: FPIC of older children, >1.5 years of age, $N = 7$; Group III: non-allergic eosinophilic colitis, $N = 7$; Group IV: children with juvenile hyperplastic polyps, $N = 22$. Immunohistochemical stains on colonic biopsy specimens were performed.
Result: Group II patients had significantly lower TGF-β expression compared to other three groups. The expression of TNF-α was significantly higher in Groups I, II and III compared to that of Group IV. The expression of TGF-β-receptor-1 was significantly lower ($P = 0.049$) and CD86 higher in Group I than in Group IV ($P = 0.012$). Eosinophil counts/HPF in lamina propria was significantly correlated with CD86 expression ($P = 0.026$, $r = 0.388$).
Conclusion: Our results suggest that TNF-α is implicated in the pathogenesis of all subtypes of eosinophilic colitis of infancy and childhood, whether allergic in nature or not. The decreased activity of TGF-β receptor-1 accompanied by increased expression of CD86 in infants and decreased activity of TGF-β in older children appear to play role in the development of FPIC.