Development and treatment of steroid resistant asthma model by adoptive transfer of murine helper T cell clones

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Background: To investigate the role of helper T (Th) cells in steroid resistant (SR) asthma, steroid sensitive (SS) and resistant (SR) Th clones were selected in vitro, and then adoptively transferred into unprimed mice. Effect of CTLA4-Ig was analyzed both in vitro and in vivo.

Methods: For in vitro evaluation of steroid sensitivity, ovalbumin (OVA) reactive Th clones were cultured with antigen presenting cells and OVA in the presence of various concentrations of dexamethasone (DEX). Proliferative responses of Th clones were measured by 3H-thymidine incorporation. For in vivo evaluation, unprimed BALB/c mice were transferred with Th clones, challenged with OVA, and administered with DEX subcutaneously. Bronchoalveolar lavage fluid (BALF) was obtained 48 hr after challenge, and the number of infiltrating cells was differentially counted. CTLA4-Ig was administered either intravenously or intranasally.

Results: SS and SR clones were selected based on the suppressive effect of DEX on the proliferative responses of antigen-stimulated Th clones. Airway infiltration of eosinophils and lymphocytes of mice transferred with SS clones was effectively inhibited by the administration of DEX. In contrast, those of mice transferred with SR clones were not significantly inhibited. Administration of CTLA4-Ig significantly suppressed the proliferation of DEX-treated SR clones in vitro, and the eosinophil infiltration of mice transferred with SR clones in vivo.

Conclusions: Steroid sensitivity of Th clones assessed in vitro was consistent with that of adoptively transferred asthma model assessed in vivo. Costimulatory signal mediated through CD28 is crucial for the induction of steroid resistance both in vitro and in vivo.

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and in different regions of the world. The aim was to estimate economic costs of asthma treatment in specialized outpatient care in a big city of Brazil.

**Methods:** Persistent asthmatics ≥ 6 years old under GINA outpatient treatment were consecutively included in a real life design and a society perspective/bottom-up approach. They underwent routine clinical visits at 3- to 4-month intervals and 2 interviews with 6-month intervals using a structured instrument, made by researchers not involved in their clinical treatment. Data on asthma costs were collected directly from patients or parents, regarding prior 3 to 6 months. Collected data were valued in Brazilian Realis (R$) by using data banks from Brazilian Ministry of Health (for public resources), Brazilian Medical Association (for supplementary system resources) and values informed by patients for private resources expenditures. Exchange rate used was US$ 1.00 = R$ 1.89 (purchasing power parity in 2012/World Bank).

**Results:** Of 117 subjects, 108 completed the study, with female predominance (n=79/73.8%). In initial evaluation, 16 (14.6%) had severe, 39 (36.2%) had moderate and 53 (49%) had mild asthma. Rhinitis was present in 83.3%, and 59.2% were overweight or obese. The majority had elementary schooling (n=76/70.4%) and the mean monthly family income was US$ 1,202.90 (SD=880.37), the lowest stratum of medium economic class in Brazil. The estimated mean asthma cost was US$ 882.37 per patient-year (SD=717.97), corresponding to 7% of mean annual family income (MAFI) and to 6% of per capita gross domestic product (GDP). Estimated mean cost of asthma plus rhinitis and associated respiratory infections reached US$ 1,052.22 per patient-year (SD=724.07), which corresponds to 8.3% of MAFI and 7% of per capita GDP. The severe, not controlled, obese and overweight asthmatics had greater asthma costs when compared to mild, controlled and normal weight ones, (differences=449.5%, 142.7%, 51.7% and 35.6%, respectively).

**Conclusions:** It is the first study describing data on associated costs of outpatient treatment of asthma in different severity levels in Brazil, which with think can be useful for public health policies. The annual estimated cost represents an important impact on family budgets and per capita GDP. Public health strategies offering wide access to treatment and stimulating weight reduction can contribute to better results, reducing costs of asthma in Brazil.

## A5

### A comparison between ARIA and visual analogic scale methods for classifying allergic rhinitis severity

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**Background:** There are different classification systems for allergic rhinitis (AR) severity, whose are used to guide treatment. Clinical observation suggests that ARIA method, made by doctors, and visual analogic scale of symptoms (VASS), made by patients, do not obtain the same results in many occasions. The aim of this study was to compare the results of these methods, applied at the same time in a cohort of adolescents and adults with AR under specialized outpatient care.

**Methods:** Retrospective study of clinical records of patients with AR in treatment between March-2011 and August-2012 at an university hospital in Rio de Janeiro/Brazil, where both classifications have been used routinely since 2010. Four hundred clinical sheets were reviewed, we excluded patients under 12 years old, without at least one cutaneous test positive to aeroallergens and those with incorrect clinical data. Kappa coefficient (Stata 11) was used to measure agreement between them using 2 (mild and moderate/severe), 3 (mild, moderate and severe) and 6 categories (also considering intermittent and persistent grades), according to original and modified ARIA classifications.

**Results:** Retrospective records of 124 patients: 88 were women (71%), the median age was 39 years (perc25-75=17-55) and 77 (62%) had associated asthma. Using ARIA modified method (ARIAM - Valero et al. 2007), they were classified as mild=55 (44.3%), moderate=56 (45.1%) and severe=13 (10.4%). Using VASS, patients classified themselves as mild=35 (28.2%), moderate=68 (54.8%) and severe=21 (16.9%). Kappa analysis in the entire sample showed low agreement at 2, 3 or 6 comparison levels between the classifications (κ=0.30, 0.39 and 0.37, respectively). The classifications were different in 51 (41.1%) patients when we compared 3 level of severity with lower agreements at 3 or 6 levels of comparison in females, in patients older than 18 years and in those with associated asthma. Better concordance was achieved in patients younger than 18 years (substantial), in patients without asthma (moderate) and in males (moderate).

**Conclusions:** Our findings suggest that many patients have a different perception of severity of their disease using VASS when compared with results from ARIA classification, with a low to moderate concordance between the two methods. Presence of asthma, age and gender seems to influence these results. Large studies comparing the outcomes using both methods to guide treatment may help us to define the better one to make therapeutic decisions in clinical practice.

## A6

### Side effects of the leukotriene receptor antagonists in asthmatic children

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**Background:** Leukotriene receptor antagonists (LTRAs) are drugs which have been widely used more than ten years. As the use of LTRAs increases, our knowledge with respect to their side effects increases as well.

**Objective:** Our study was aimed to evaluate the observed side effects of LTRAs used in patients with asthma.

**Methods:** 1024 patients who were only treated with LTRAs owing to asthma or early wheezing were included in the study for a five-year period. The observed side effects of LTRAs in these patients were retrospectively investigated. The side effects were divided into two parts as psychiatric and non-psychiatric.

**Results:** It was found out that 67.5% of 41 (4%) patients in whom side effects were observed was male and their average age was 6.5. The rate of patients with asthma was 63.41% and it was 36.58% for patients with early wheezing. It was determined that sex, age and diagnosis (early wheezing or asthma) of the patients were ineffective in the emergence of side effects. The average period for the emergence of side effects was the first month. It was observed that hyperactivity was the most frequently seen psychiatric side effect and abdominal pain was the non-psychiatric side effect.

**Conclusions:** The side effects of LTRAs were common in children. Therefore, patients must be informed at the beginning of the treatment and they must be evaluated at certain intervals.

## A7

### Food allergen sensitization patterns in Korean adult food allergy patients

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**Background:** Identification of the causative food in food allergy patients is crucial. However, offending allergens can vary with a country’s food choices and preparation methods. In this study, we analyzed the sensitization rate to specific food allergens in Korean adult food allergy patients.

**Methods:** This study enrolled 134 adult patients who visited the allergy clinic of Severance Hospital due to their allergic symptoms related to food ingestion. Patients underwent skin prick test (SPT) with 55 allergens. Our food SPT panel included hairtail, yellow cornvina, common eel, skate, squid, mackerel, anchovy, saury, octopus, chrysalis, sunflower seed, and pollock allergens prepared at our Institute of Allergy and reflecting the daily eating habits of Korean people.

**Results:** Of the 134 patients, 73 (54.5%) were sensitized to one or more food allergens. The sensitization rate of men (69.2%) was higher than that of women (45.1%) (p = 0.008).
Sensitization to chrysalis was detected most frequently at a rate of 25.4%. Sensitization rates to other food allergens prepared by us or that were relatively highly sensitized were as follows: maize grain (13.4%), shrimp (11.9%), almond (11.1%), sunflower seed (8.2%), mackerel (5.2%), pollack (5.2%), halibut (4.5%), anchovy (4.4%), squid (3.7%), saury (3.0%), common eel (3.0%), yellow corvina (3.0%), hairtail (2.2%), octopus (2.2%), and skate (0.7%).

Conclusions: Food sensitization patterns in Korean food allergy patients are different from those in other countries. Chrysalis showed the highest sensitization rate in Korean patients (25.4%). Interestingly, mackerel, pollack, halibut, anchovy and yellow corvina whites are popular food ingredients in Korea were also highly sensitized. Therefore, in prick test panel is needed to reflect the preferred food choices of a region.

A8 Circulating apo 2L levels decreased in hepatitis C with the pegylated interferon-2α treatment
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Background: Chronic hepatitis C (HCV) infects approximately 170 million people and causes more than 350 000 deaths every year. Information regarding pathogenetic mechanism of acute hepatitis C infection is limited. Following innate immune activation, cellular immunity, including natural killer (NK) cell activation and antigen-specific CD8 cells proliferation occurs. CD8+ T lymphocytes directly kill infected cells via direct cell-cell contact, and release antiviral cytokines (e.g. IFN, TNF).

Methods: Eleven HCV-treatment naive HCV infected patients were treated with weight-based ribavirin daily in addition to either weekly pegIFN alfa-2b at 1.5 µg/kg, weekly pegIFN alfa-2a, or alfobiferon alfa-2b at 900mcg every 2 weeks. All patients gave written informed consent approved by the Institutional Review Board prior to enrollment in the studies. Intensive serum monitoring was completed at study visits day 0 (pretreatment), weeks 4, 6 and 12.

Results: We aimed to investigate the relationship between IFN treatment response, HCV viral load and sApo 2L levels. Eleven HCV-treatment naive HCV infected patients were treated with pegIFN alfa-2a. Intensive serum monitoring Apo 2L levels were monitored at study visits day 0 (pretreatment), weeks 4, 6 and 12. HCV-RNA and sApo 2L levels decreased gradually with PegIFN-α 2 treatment and the differences were significant between day 0 and 4; 4 and 8; 8 and 12; 12 and 24 weeks (p<0.001, p<0.005 and p<0.005 respectively); between day 0 and 12th week (p=0.001, p<0.005 and p=0.000 respectively); between 6th week and 12th week (p<0.005 and p<0.005 respectively).sApo 2L levels decreased gradually with PegIFN treatment.

Conclusions: We suggest that, decreased level of circulating Apo 2L may reflect its increased binding to its ligand expressed on hepatocyte or lymphocyte under the influence of PegIFN treatment.

A9 Evaluation of sOX-2 levels in type 2 diabetic foot and neuropathic patients: association with disease activity
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Background: sOX-2 is a member of the immunoglobulin supergene family of receptors. sOX-2 was originally described as a myeloid receptor, being expressed on macrophages, granulocytes and dendritic cells, and also expressed on T cells, B cells, and natural killer cells. It displays a restricted tissue distribution, including activated T and B cells. sOX-2 is induced by inflammatory cytokines, including TNF- and bindost-OX-2 receptor. We evaluated other biomarkers like high-sensitivity CRP (hs-CRP) in DFI patients to compare with that of healthy controls. Possible correlations were investigated between these markers and creatinine levels, Wagner grading system (WGS), and body mass index (BMI), as well as sedimentation rate, preprandial glucose levels, and age.

Methods: We enrolled 23 healthy controls (group A) and 22 TZDM-DFI patients (group B). Group B patients had diabetic nephropathy and foot disease. The TZDM-DFI definition was infection, ulceration, or destruction of deep tissues of the foot associated with neuropathy and/or peripheral arterial disease in the lower extremity of people with diabetes.

Results: The demographics of the analyzed patients are shown in Table 1. Group B had the following values: DM period: 27.9±10.3 years [mean ±SEM], HbA1c: 9.52±0.44% [normal range: 4-6%] and WGS: 1.61 (5 patients with grade 1, 5 patients with grade 2, 7 patients with grade 3, and 5 patient with grade 4). The sOX-2 level in the patient group was 173.8±3.1 [mean ±SEM] and in the healthy control group it was 70.52±1.2 [mean ±SEM]. There was a positive correlation between these markers and creatinine levels, Wagner grading system (WGS), and sedimentation rates were higher in the patient group (p<0.0001, p<0.001, p<0.005, and p<0.0001, respectively). There was also a positive correlation between: HbA1c values and CRP, preprandial glucose, postprandial glucose, and sedimentation rate values (p<0.01, p<0.05, r=0.479; r2: 0.549; r3: 0.486; r4: 0.858); and between hs-CRP values and BMI values (p<0.05; r: 0.622). In subgroup analysis of TZDM-DFI patients we noticed that sOX-2 levels were higher in WGS I and II patients than in WGS III and IV patients.

Conclusions: All these results show that the levels of sOX-2 were higher in macrovascular complication of DM as DFI than in autoimmune diseases and inflammatory skin disorders. Thus, we suggest that there were vascular, immunologic, and neurologic components in DFI whereas autoimmune diseases and inflammatory skin disorders had only an immunologic component. This should be the evidence of has sOX-2 major pro-inflammatory effect in vascular complication.

A10 Perception of sleep-related disturbances by parents/guardians of patients with respiratory disease treated at the children's asthma prevention program (PIPA) - Uruguay, RS, Brazil
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Background: Inadequate sleep in children has been blamed for compromising cognitive function, school performance, among others. These changes also compromise the quality of life of children as well as parents. Sleep impairment has been described in 10% to 75% of children with persistent and severe diseases. The CSHQ is one of the instruments used to assess sleep quality in children. The objective of this study was to assess sleep behavior of children and adolescents followed at PIPA according to disease presented: asthma isolated or associated with other allergic diseases.

Methods: The validated version of CSHQ in Brazilian Portuguese was answered by parents of children and adolescents (n=296, 6 mo to 17 yrs) when admitted in PIPA. The scores of each of the 33 questions were entered into an Excel spreadsheet to enable the achievement of the
eight subclasses scores and the total score. Patients were divided into two groups: asthma alone (AA), and asthma associated with allergic rhinitis and atopic dermatitis (A+AR+AD). Total CSHQ score was correlated with body mass index (BMI). Statistical analysis was performed by Student t test and Spearman correlation with significance level of p less than 5%.

Results: There were no differences regarding mean age (months) of patients in AA and A+AR+AD groups (84.0 vs. 80.9, respectively). Total CSHQ score of group A (84.6±7.0) was significantly higher than A+AR+AD (82.7±7.2). However, there were no significant differences concerning the subscales that compose the CSHQ. Although the mean score of patients with AA was higher than those with A+AR+AD, the difference was significant only when considering the total score. The correlation between BMI with total CSHQ score was not significant.

Conclusions: Although there were no significant differences between the studied groups, the CSHQ scores observed were higher than those obtained during the validation of the questionnaire. Monitoring of sleep in patients with respiratory allergy is an important tool in the evaluation of their treatment.

A11 Can we swallow the idea of azathioprine as the next treatment option for pediatric eosinophilic esophagitis?
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World Allergy Organization Journal 2015, 8(Suppl 1):A11

Background: Eosinophilic esophagitis (EoE) is a burgeoning health concern impacting a growing proportion of the population. Experts advise utilization of either dietary modifications, swallowing of topical steroids or a combination for management. We present a child with EoE refractory to diet and topical corticosteroids who improved with oral azathioprine (AZA).

Methods: We have had a case of a 6 year old boy diagnosed with EOE after presenting with dysphagia to solids more so than liquids associated with severe odynophagia and vomiting. While on a PPI, the esophageal biopsy results revealed micro-abscesses, a thickened squamous basal layer and >150 Eos/hpf with normal esophageal pH monitoring. There was no evidence of increased eosinophils in the gastric and duodenal biopsies and no peripheral blood eosinophilia. Skin prick testing was negative to a panel of 70 foods including cow's milk. Food patch testing revealed negative to milk and eggs. Seleno-Ascorbate and upper endoscopy were performed and the patient was started on AZA.

Results: Follow-up four months later revealed significant improvement in his clinical symptoms. He had no symptoms of solid food dysphagia, odynophagia, impaction, abdominal pain or vomiting. His follow-up EGD still demonstrated hyperplastic basal cell layer but a tenfold reduction in intraepithelial eosinophils with a peak count of 15 Eos/hpf in his esophagus and no other histologic findings consistent with EoE. 18 months after starting AZA, his peak esophageal biopsy intraepithelial count remained at 15 Eos/hpf and his duodenum and stomach remained normal. To date he continues to tolerate AZA and has not manifested any drug adverse side effects. His growth has actually improved while on AZA.

Conclusions: AZA has previously been used as monotherapy to induce long term remission in adults with refractory corticosteroid-dependent EoE. Current review of the literature yielded no prior reports of safely using AZA in the pediatric EoE population to successfully reduce clinical symptoms and tissue eosinophilia as observed in our case. This index case report suggests that AZA can be considered as a safe adjuvant therapy in recalcitrant pediatric EoE cases.

A12 Circulating soluble apo 2L, soluble OX-2: a possible screening biomarker for stage-4 ovarian, endometrial CA
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World Allergy Organization Journal 2015, 8(Suppl 1):A12

Background: The aim of this study is to evaluate soluble tumor necrosis factor-related apoptosis inducing ligand (sApo 2L, sTRAIL) levels in ascites fluid to predict its clinical usage in detecting malignant ascites and soluble CD200 (sCD200, sOX-2) levels to predict its clinical usage in blood detecting breast cancer.

Methods: Ascites and sera samples from patients with known malignancy at the admission were collected. There were 14 stage-4 breast cancer (BC), 17 stage-4 ovarian cancer (OC) and 19 stage-4 endometrial cancer (EC) diagnosed later on. Control groups consisted of benign peritoneal fluids (n=53) and sera samples (n=25) from healthy subjects.

Conclusions: Concentrations of sCD200 in the serum samples were quantified using ELISA kits. CEA (Beckman Coulter System. Catalog Number:33200), CA-19-9 (Beckman Coulter System. Catalog Number:387687), CA-125 (Beckman Coulter System. Catalog Number:386357) and CA15.3 (Beckman Coulter System. Catalog Number: 387620). Levels were enumerated by fluoroenzyme immunoassy. Concentrations of sTRAIL in the serum samples were quantified using ELISA kits (Diaclone, France).

Results: The significant low level of sApo 2L was observed in peritoneal fluids from OC and EC patients than benign peritoneal fluids from control patients. Besides, positive correlation was observed between sApo 2L and aspartate aminotransferase (AST) in benign peritoneal fluid and sOX-2 and creatinine and sOX-2 and platelet in OC patients and sOX-2 and carcinoembryonic antigen (CEA) in EC patients and sOX-2 and blood urea nitrogen (BUN) in healthy subjects.

Conclusions: Our data indicate that low level of sApo 2L is a good biochemical marker detecting malignant ascites. Further decline in the level of sApo 2L was seen in EC than OC. Since higher level of sApo 2L was seen in higher level of AST, liver might involved its metabolism. Positive correlation detected between sOX-2 and creatinine, platelet, CEA, BUN needs to be elucidated.

A13 Interactions of immunological parameters among patients with periodontal disease
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World Allergy Organization Journal 2015, 8(Suppl 1):A13

Background: Periodontal disease could be defined as a disorder of supporting structures of teeth, including the gingiva, periodontal ligament and alveolar bone. Complement and cytokines are believed to be important in periodontal infections. The understanding of interactions between different cytokines, immunoglobulins and complements may help to understand the response of gingiva to inflammation and also progression of gingivitis to periodontitis.

Methods: 118 samples were obtained from periodontal pockets after supragingival plaque was removed from the teeth to be collected. Determination of C3 ,C4, IgA, IgM, and IgG protein protein by radial immunodiffusion (RID) plate containing a specific antibody was used. IgE was determined by ST AIA PACK (IgE II kit Tosoh Japan) . Determination of human interleukins IL-4 and IL-10 in periodontal patient by quantikine ELISA kit was carried out(R&D system,USA).

Results: It was found that a significant positive linear correlation between C3 and C4, C4 and IgA, and a significant negative correlation between C4 and IL10. The higher serum concentrations of IgA, IgM, IgG, IgE, C3, C4, IL-4, and IL10 was noticed among males than females The comparison of serum IgE and C4 concentrations between males and females were statistically significant (p < 0.05). While the comparison of serum IgG,
IgM, IgA, C3, IL-4, and IL-10 concentrations between males and females were statistically not significant (p > 0.05).

Conclusions: The immunological analysis results showed that the comparison of serum IgA, IgM and IgG; C3 and C4; IL-4 and IL-10 concentrations between patients and control groups were significant (p < 0.05). It was found significant positive linear correlation between C3 and C4, C4 and IgA.

A14 Exhaled nitric oxide and quality of life in asthmatic teenagers
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World Allergy Organization Journal 2015, 8(Suppl 1):A14

Background: Asthma is a lower airways inflammatory disease, often associated with rhinitis, which affects a significant number of teenagers and has impact on quality of life (QOL). Exhaled nitric oxide levels (FeNO) evaluation is considered to assess the degree of airways inflammation. We aim to investigate in asthmatic teenagers the relationship between FeNO levels and QOL.

Methods: Twenty-seven teenagers with asthma detected through the International Study of Asthma and Allergies in Childhood (ISAAC) questionnaire answered the ISAAC rhinitis module and underwent spirometry, FeNO measurement and evaluation of QOL through Pediatric Asthma Quality of Life Questionnaire (PAQLQ). Student t test and Kolmogorov – Smirnov test were applied for means comparison; association measures were performed through Pearson and Spearman correlation tests; a p-value<0.05 was considered to be statistically significant.

Results: 23 asthmatic teenagers presented associated rhinitis (AR group) and four had only asthma (A group). Ventilatory function showed to be within the normal limits; mean (± standard deviation) values for FeNO were 50.67 (± 39.17) ppm, 5.02 (± 1.08) for PAQLQ total score and 4.87 (± 1.34) for “symptoms”, 4.30 (± 1.56) for “emotional” and 5.67 (± 1.56) for “physical limitation” PAQLQ domains; there was no difference for FeNO values between AR and A groups. Association between FeNO and PAQLQ scores was observed for the total score (r=-0.47, p=0.01), "symptoms" (r=-0.45, p=0.02) and “emotional aspect” (r=-0.43, p=0.02) domains. The “symptoms” and “physical impairment” domains scores were lower in RA group and in those teenagers who had FeNO above 25ppb (p<0.05).

Conclusions: For asthmatic teenagers evaluated, QOL impairment showed to be related to higher levels of FeNO and to association of asthma with rhinitis.

A15 Knowledge on allergic diseases by community health workers
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World Allergy Organization Journal 2015, 8(Suppl 1):A15

Background: Although allergy affects thousands of people, economic and social costs with allergic diseases are still neglected. The model of primary health care (PHC) is based on the premise that prevention and health promotion are key. The community health workers (CHWs) are necessarily native community in which it operates, thus having a strong bond with the users of the health service. They are important in the transmission of information and monitoring of the environmental conditions in which patients are entered and verify the correct use of medicines. So, they are professionals who must be trained to assist allergy sufferers and their families, about the health-disease-care and quality of life process. The aim of this study was to strengthen the link between education, health and community services.

Methods: For evaluated the knowledge about allergic diseases, was made a cross-sectional study with CHWs in Montes Claros, MG, Brazil. A questionnaire was administered for 136 individuals of 33 PHC posts. The questions were about allergic diseases, its origin, treatment and care. This study was approved by the Ethics Committee.

Results: In 136 CHWs, 71% were female, 21% male and 8% were not identified, and they were aged between 21 to 58 years. As for education, 3% elementary School had Full, 1% had not completed High School, 54% had completed high school, 14% had higher education incomplete, 10% had completed higher education, has 1% technical Level, and 17% not answered. In closed question about knowledge of allergic diseases, 80% of CHWs responded positively; 18% ignored and 2% did not answer. But on the same issue but descriptive, 22% did not answer, and many placements were related to causes and myths and not the specific allergic diseases. Questions on knowledge of treatment and care for allergic diseases were positive for 60% of CHWs and unknown for 40%. When asked about previous participation in training on allergic disease 18% had a positive response, 80% negative and 2% did not answer. Of CHWs 92% showed interest in participating in a training activity on allergic diseases, and 6% showed no interest and 2% did not answer.

Conclusions: Based on this study, we found the lack about knowledge of allergic diseases, treatments and care by CHWs. Therefore will be serving as a basis to elaborate a project extension to enable them on this topic.

A16 Trends in hospital admission for asthma in Brazil 1998-2010
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World Allergy Organization Journal 2015, 8(Suppl 1):A16

Background: Asthma is a worldwide disease, affecting about 300 million people over the world, with reports of increased prevalence the last decades. Asthma is the forth cause of hospitalizations in Brazil. Hospital admissions to achieve clinical control of asthma are responsible for a significant part of the direct costs on health care by the Brazil’s Unified Health System (SUS), and affect the quality of life of patients and their families. Recent advances in medical therapy and improvements in providing access to asthma control programs can lead to rapid changes in rates of hospital admission. This paper updates the trends in hospitalizations due to asthma in Brazil.

Methods: This is a time series study. We used J45 and J46 code for asthma, according to International Classification of Diseases (ICD10), from 1998 to 2010. Initially, we calculated coefficients of asthma according to age groups, gender and location, using the demographic and morbidity data provided by Department of Informatics of the SUS. (DATASUS) Then, the coefficients were placed in a scatter diagram to visualize the function that best explains the temporal trend. After, models were fitted to choose equations that best explained the patterns observed.

Results: All rates linearly decreased, showing a downward trend in the number of hospitalizations. Brazil experienced a reduction of 55.2% in the total hospitalization crude rates for asthma, in the period from 1998 to 2010, with a drop of 12.632 hospital admission per year per 100,000 inhabitants. The extremes of age showed the greatest annual reduction. There was a reduction of 40,192 events of hospitalization among children under four years old and a drop of 24,511 cases among the elderly over 75 years old, per 100,000 age-adjusted inhabitants. The Brazilian macro regions that showed greater decline were the Northeast, South and Midwest with a decrease between 18 to 16 region-adjusted hospital admissions per year. Women showed a decrease of 13.544 and men 11,626 annually gender-adjusted cases per 100,000 individuals, with convergent trend to men’s during the studied period.

Conclusions: Despite the existing evidence of an increasing prevalence of the disease, there is a steady decline in hospital admissions due to asthma in Brazil during the observed period.

A17 Links between autism and allergy
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Background: Autistic and allergic patients share some immunological patterns. As an example, both have a Th1/Th2 imbalance toward the Th2 pattern. Here we try to demonstrate an immunological similarity: the
increased presence of anti-IgE and/or anti-receptor IgE antibodies using the ASST (anti serum skin test) technique.

Methods: 251 individuals participated in this study:
1. 42 with autism without allergies
2. 42 women (mothers of the autistic patients) without autism
3. 104 allergic patients without autism.
4. 63 normal health controls.

The ASST was performed injecting intradermically 0.05 ml of the each own serum in the volar surface of the forearm. Saline was used as a negative control. After 15 minutes the weals were measured. A result was considered positive when the weal diameter with the serum (this weal was a result of the presence of anti-IgE and/or anti-IgE receptor antibodies) was at least 3 mms greater than that one measured with the saline.

Statistical analysis: chi-squared and Fisher’s methods were used to evaluate the results.

Results: 1. from 32 autistics with positive ASST 30 of their mothers were also positives; and from 10 negative autistics 6 of their mothers were negatives. According with the statistical tests we can say that there is an association between the positive results and also with the negative results.
2. when comparing the 63 normal controls with the 42 patients with autism IgE, IgG2a and IgG1 antibodies without autism it was possible to conclude that the populations with autism and with allergies were not similar to the control group.

Conclusions: 1. the results of the tests in autistics and those ones with their mothers were strongly associated. This result may indicate that in autism genetics the presence of the anti-IgE and/or anti-receptor IgE antibodies can be a marker of heredity, which can be also a marker of autism; 2. the similarity of the results between the positive non-autistic allergies and positive non-allergic autistics shows that the presence of the antibodies may be a common factor between the two conditions, allergy and autism and 3. the presence of the antibodies in autism and allergy occurs differently when compared with the control group.

A18 Evaluation of the immune response induced by a mite derived fusion protein in BALB/c mice

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World Allergy Organization Journal 2015, 8(Suppl 1):A18

Background: The mite Dermatophagoides pteronyssinus is a significant source of allergens and is a major risk factor for allergic rhinitis and asthma. A more effective and safe way for allergen specific immunotherapy could be using recombinant allergens or their derivatives, such as hybrid molecules. This study was aimed to evaluate the immune response induced in mice by a hybrid recombinant protein, harboring several segments of major allergens of D. pteronyssinus.

Methods: We engineered a fusion protein called DPx4 assembling segments of four allergens of D. pteronyssinus in a single molecule. Three 8 female BALB/c mice groups were immunized on days 0, 7, 14 and 21 as follows: group 1 with 10 ug of DPx4, group 2 with 20 ug D. pteronyssinus extract and group 3 with PBS, antigens and PBS were adsorbed to Al(OH)3. After immunization each animal was challenged four times intranasally. Total IgE, IgG2a and IgG1 levels were determined by ELISA. Bronchial hyperreactivity was evaluated by methacholine challenge and measurement of measures enhanced pause (Penh). Mucus production in lung was evaluated with periodic acid-Schiff (PAS) and cellular infiltrate by hematoxylin-eosin staining.

Results: Animals treated with DPx4 showed significantly lower total IgE and IgG1 levels compared with mice treated with extract, while the IgG2a levels were higher but not statistically significant. Administration of DPx4 induced lower, but not statistically significant, bronchial hyperreactivity than that induced by administration of D. pteronyssinus. Treatment with DPx4 induced significantly lower inflammation around the peribronchial and perivascular zones than treatment with extract. The PAS staining revealed goblet cell hyperplasia and mucus hypersecretion in the bronchi of mice treated with D. pteronyssinus extract but not in mice treated with DPx4.

Conclusions: The administration of DPx4 in a mouse model of asthma induced a less bronchial inflammatory immune response than the mite extract, suggesting that it has potential value for the development of a mite allergen vaccine. Funded by Colciencias Grant No. 385-2009.

A19 Vaccination prevents allergic disorders in children

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Background: The association between vaccination and allergic disorders is discussed controversial. That’s why unsurprisingly parents refuse to get their children vaccinated due to the supposed risk of allergies in the later life caused by vaccination. The presented investigation tries to elucidate the potential link between vaccination and allergies.

Methods: 2187 study participants of different birth years (1988/89, 94/95, 98/99) but same age group (5-6 years old) were involved in 3 epidemiological studies using questionnaires, clinical examinations and determination of vaccination titer: a cross sectional study (S1) supplemented by the Leipzig part of a multicenter birth cohort study (S2) and a birth cohort study with children at risk for allergy (S3). Based on questionnaires, vaccination certificates and vaccination titer respectively it was distinguished between no, incomplete and full vaccination. All vaccinations recommended by the German Standing Committee on vaccination have been considered, such as vaccinations against tetanus, haemophilus influenza type B, measles etc. Targets were physician diagnosed atop eczema and any other allergic symptoms.

Results: All three studies (S1-S3) showed the lower the vaccination protection the higher the prevalence of allergic diseases. Prevalences (pooled dataset) % are for atopic eczema without/vaccination 29.6 / 22.1 and for allergic symptoms 38.9 / 32.7.

Logistic models have been adjusted for gender, older siblings, passive smoking, smoking during pregnancy, cats, traffic, parental predisposition (apart from S3, parental predisposition was including condition) and such exposures which have shown an association in the past like renovation activities. Vaccination was a significant factor of influence in every study. Considering adjustment the influence of vaccination was on eczema (pooled analysis) adjOR(vacc) [p; 95%CI] 0.66 [0.0013; 0.51] and on allergic symptoms adjOR(vacc) 0.74 [0.014; 0.59…0.94]. A meta-analysis delivers a PetroOR (95%CI) of 0.71 [0.55…0.92] for eczema and 0.76 [0.60…0.97] for allergic symptoms.

Logistic regression based on vaccination titer shows similar results adjOR 0.69; p=0.002 both for eczema and allergic symptoms.

Conclusions: All results show that vaccinations do not provoke allergies in later life. On the contrary vaccinations have a protective effect relating to allergies and even in the case of allergic predisposed children.

A20 Safety of injective immunotherapy with monomeric carbamylated allergoid given to pediatric patients with allergic rhinitis with/without asthma due to house dust mite

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World Allergy Organization Journal 2015, 8(Suppl 1):A20

Background: The safety and efficacy of Monomeric Carbamylated Allergoid in injections has been previously reported in adult patients. The aim of this case-series was to explore its safety in a paediatic populations. Monomeric Carbamylated Allergoids are chemically modified extracts characterized by hypoallergenic activity due to allergen lysines substitution and preserved structural conformation and size of the native allergen.
Methods: A total of 37 children (21 males, 16 females), mean age 8.06 years, were treated with Monomeric Allergoid in injections for house dust mite respiratory allergy (persistent rhinitis with/without mild asthma), and were followed up for a period of at least 12 months. After a build-up phase of 4 weeks (0.1 /0.2 /0.3 /0.5 mL per week), the treatment continued with monthly injection of 0.5mL. A standard questionnaire was used to collect data on local and systemic adverse reactions (ARs). The severity was graded as low (no need for treatment or dose adjustment), moderate (interference with activities/need for drugs/SCIT discontinuation), and severe (hospitalization/emergency care). A parental satisfaction on the clinical outcome (based on symptoms and drug consumption) was also collected (excellent, good, low, very low). Patients’ satisfaction was judged excellent by 51%, good by 43.5%, low by 5.5% of the patients’ parents.

Conclusions: The safety of immunotherapy with Monomeric Allergoid through an injective route appears confirmed also in paediatric patients. High patients’ acceptance and satisfaction have been observed.

A21 Drug rash induced by levothyroxine and oral desensitization
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World Allergy Organization Journal 2015, 8(Suppl 1):A21

Background: Synthetic Thyroxine (T4) is the treatment of choice for the correction of hypothyroidism.

Methods: We report a case of drug rash induced by levothyroxine and currently oral desensitization.

A 31 year-old woman had been diagnosed as Hashimoto’s Thyroiditis. She was having levothyroxine for 9 years when she began to present bilateral eyelids maculopapular rash. Blood exams and physical examination were normal except for the eyelids’ rash.

As she stopped using levothyroxine, the rash has disappeared. Her endocrinologist prescribed her other brands of levothyroxine, and the patient reported the same reaction.

Results: Therefore, we performed an oral desensitization with multiple doses of the drug preparation. The procedure was started at a dose of 1,00μg. Every 30 minutes the dose was increased until a total dose of 127,00μg.

After 2 months, she currently tolerates 100,00μg/d.

Conclusions: It is unusual that biological substances induce allergic reactions when given exogenously.

A22 Cardiopulmonary exercise testing (CPET) as preoperative test before lung resection
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World Allergy Organization Journal 2015, 8(Suppl 1):A22

Background: Lung resection is still the only potentially curative therapy for patients with localised non-small lung cancer (NSCLC). However, the presence of cardiovascular comorbidities and underlying lung disease increases the risk of postoperative complications. Various studies have evaluated the use of different preoperative tests in order to identify patients with an increased risk for postoperative complications, associated with prolonged hospital stay and increased morbidity and mortality.

Methods: In this topic review, we discuss the role of cardiopulmonary exercise testing (CPET) as one of the preoperative tests suggested for lung cancer patients scheduled for lung resection. We describe different types of exercise testing techniques and present algorithms of preoperative evaluation in lung cancer patients.

Results: Patients without known underlying lung disease with a preoperative FEV1 (forced expiratory volume in one second) greater than 2 L generally tolerate well pneumonectomy, whereas those with FEV1 greater than 1.5 L are expected to tolerate lobectomy. Although spirometric values strongly correlate with the severity of obstruction, they do not provide direct information regarding the degree of gas exchange and cardiovascular reserve. CPET reflects interactions between pulmonary function, cardiovascular status and oxygen uptake and utilization by the peripheral tissues.

Conclusions: Overall, patients with maximal oxygen consumption (VO2 max) <10 mL/kg/min or those with VO2 max <15 mL/kg/min and both postoperative FEV1 and DLCO <40% predicted are at high risk for perioperative death and postoperative cardiopulmonary complications, and thus should be offered an alternative medical treatment option.

A23 Home treatment with conestat alfa in attacks of hereditary angioedema due to C1-inhibitor deficiency
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World Allergy Organization Journal 2015, 8(Suppl 1):A23

Background: Conestat alfa, a recombinant C1-inhibitor concentrate (rhC1-INH), is a novel therapeutic option for the acute treatment of hereditary angioedema due to C1-inhibitor deficiency (C1-INH-HAE).

Methods: We analyzed 137 edematous episodes requiring acute treatment and occurring in 6 C1-INH-HAE patients. The patients were treated at home with a dose of 2100 U rhC1-INH per occasion. They recorded the time of rhC1-INH administration, time until the symptoms stopped worsening, time to the onset of symptom relief and to the complete resolution of symptoms. Any side effects were recorded in addition. Symptom severity and patient satisfaction were measured with a visual analogue scale (VAS).

Results: 70 HAE attacks occurred in abdominal viscosa, 4 in the upper airways, 35 in subcutaneous, and 28 in multiple locations. RhC1-INH was administered 60.0 (0.0-990.0) [median (min-max)] minutes after the onset of the attacks with a severity (upon injecting) of 57.0 (10.0-99.0) on a VAS. Clinical symptoms improved within 40.0 (0.0-900.0) minutes, and their complete resolution took 600.0 (88.0-3525.0) minutes. The time between the onset of the attack and the administration of rhC1-INH correlated with the time until the symptoms stopped worsening (R=0.3489, p<0.0001), time to the onset of symptom relief (R=0.2492, p=0.0041) and time to the complete resolution of symptoms (R=0.4541, p<0.0001). A second injection of rhC1-INH was administered in 5 attacks, because the symptoms did not improve or resolve completely.

Conclusions: None of the patients experienced a recurrence of the attack, or drug-related systemic adverse events. The mean VAS score of patient satisfaction was 95.8.

Conclusions: Home treatment with rhC1-INH was an effective and well-tolerated therapy for all types of HAE attacks. Early treatment of the attacks resulted in better outcomes.

A24 Food allergy and PPI-responsive esophageal eosinophilia
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World Allergy Organization Journal 2015, 8(Suppl 1):A24

Background: A retrospective study to compare the food allergy prevalence in proton-pump inhibitor-responsive esophageal eosinophilia
A chart review was performed for 30 patients diagnosed with asthma, rhinitis, allergy, and GERD. Patients were categorized as having PPI-REE if past medical assessments noted significant symptomatic improvement with PPI therapy. Those without clinical response to PPI were categorized as non-responders. The two groups were compared on frequencies of other treatments offered (swallowed steroids (e.g. fluticasone, budesonide), esophageal dilatation), histology (eosinophil counts in esophageal biopsy at diagnosis) and frequency of positive food allergy tests. Statistical analysis used chi-square tests for frequency comparisons and student’s t-test for average eosinophil count comparison.

Results: Of the 30 patients reviewed, 12 were found to have PPI-REE. There was no significant difference in other treatments offered to PPI-REE and non-responsive patients (10/12 and 8/18, respectively; p = 0.21), average eosinophil counts at diagnosis (65.7 ± 29.2 and 42.6 ± 15.6, respectively; p = 0.14), nor in likelihood of food allergy as detected by skin prick (9/12 and 9/18, respectively; p = 0.98) or food patch testing (9/12 and 9/18, respectively; p = 0.60).

Conclusions: It was hypothesized that PPI-REE cases would be less atopic, with regards to foods, than non-responders due to the possible prevalence of undiagnosed GERD in the former group [1]. However, this review failed to show any statistically significant differences between the two groups. This is consistent with attempts of other groups to distinguish PPI-REE and EoE patients on other clinical parameters [2].

References

A25
Relationship between serum total IgE specific IgE and serum total eosinophil counts in asthma bronchial patients
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World Allergy Organization Journal 2015, 8(Suppl 1):A25

Background: Serum specific IgE levels, serum total IgE levels and serum total eosinophil counts in asthma bronchial patients were compared with healthy controls and the relation between serum specific IgE levels, serum total IgE levels and serum total eosinophil counts were evaluated.

Methods: 5 specific IgE level measurements (weed, 2 different tree panels (mixture of 5), feathers mix and dermatophagoides pterosyninus [Dp], and dermatophagoides farinae[Df]) and serum total IgE levels, serum total eosinophil counts of a total 60 patients with Asthma (21 of them with asthma and allergic rhinitis) aged 19 to 52 (41 female, 19 male) and 34 (20 female, 14 male) healthy persons were compared.

Results: 60 percent of patient study group was determined to have positive specific IgE, it is obtained that 70 percent of this positive specific IgE group has sensitivity to house dust mite antigen.

Asthma bronchial cases have specific IgE positivity level and total IgE level and total eosinophil counts were significantly higher than the control group. Patients with asthma and allergic rhinitis revealed significant correlation with specific IgE DF, total IgE and eosinophil counts, furthermore significant difference was behind between specific IgE Dp, total IgE and eosinophil counts.

Conclusions: In our study compared to other allergens, sensitivity against house dust was much more higher and it is coherent with other studies in literature.

The usefulness of evaluating serum total IgE or allergen specific IgE for reasons of diagnosis and management is mutable however serum IgE level is an important indicator of the intensity of inflammatory processes in allergic diseases and serum IgE, total eosinophil counts and specific IgE are helpful for diagnosis and developing therapeutic strategy in allergic diseases.

A26
Serum leptin and adiponectin levels correlate with mast cell activation during exercise-induced bronchospasm in asthmatic children
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World Allergy Organization Journal 2015, 8(Suppl 1):A26

Background: The aim of this study was to address the correlation between leptin, adiponectin and exercise induced bronchospasm (EIB) by measuring urinary metabolites of mast cell mediators such as 9α,11β-PGF2α, LTE4.

Methods: Seventy-two prepubertal children from the ages of 6 years to 10 years were recruited in the study. They comprised: asthmatic with EIB (n=24), asthmatic without EIB (n=21), and healthy controls (n=27). We measured exhaled nitric oxide (eNO) and serum eosinophil cationic protein (ECP), leptin, adiponectin and cytokines. The urinary concentrations of LTE4 and family members of ECP, were measured.

Results: Leptin and adiponectin were significantly higher than the non-responders due to the possible prevalence of undiagnosed GERD in the former group [1]. However, this review failed to show any statistically significant differences between the two groups. The maximal decreases in % FEV1 after exercise were positively correlated with leptin levels and negatively with serum adiponectin levels in asthmatic children. Leptin presented positive associations correlated with post-exercise urinary excretion of 9α,11β-PGF2α, LTE4, and adiponectin presented negative associations correlated with post-exercise urinary excretion of LTE4.

Conclusions: Serum concentrations of the adipocyte-derived hormones leptin and adiponectin are correlated with EIB/HBr and urinary metabolites of mast cell mediators induced by exercise challenge in asthmatic children.

A27
Allergic sensitisation in elderly patients with rhinitis
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World Allergy Organization Journal 2015, 8(Suppl 1):A27

Background: Available data suggest that allergen sensitisation declines with age, causing physicians to often disregard the allergic component in the pathogenesis of respiratory conditions in the elderly. Atopy is rarely considered in the clinical assessment of the geriatric rhinitis patients, and these patients are infrequently referred for allergy evaluation.

Methods: The study included patients older than 65 years with rhinitis and an age- and gender-matched control group. Skin prick tests (SPT) with inhalant allergens (house dust mites, Alternaria, trees pollen, grass pollen, ragweed and mugwort pollen, animal dander) were performed on all the subjects. Detailed medical history was obtained and a questionnaire inquiring about the severity of symptoms, medication, family history of atopy was administered.

Results: A total of 71 patients with rhinitis / rhinoconjunctivitis (mean age 69.8 years) were recruited, 11 of them also had asthma. Twenty nine patients (40.8%) had at least one positive SPT result, compared to only 10 subjects (14%) in the control group. The most common allergic sensitisation was found to be house dust mites in both groups. In the rhinitis group, 13 patients were found to be polysensitised. Symptom scores revealed that 44 patients (61.9%) assessed their nasal symptoms as severe.

Conclusions: Despite the immune modifications occurring in the old age, the prevalence of allergic sensitisation in geriatric patients with rhinitis is substantial. If properly evaluated, these patients, who often present with severe symptoms, can benefit from preventive measures such as allergen avoidance and even specific immunotherapy.
A28 Association between excess weight and asthma in adolescents of Niterói, Rio de Janeiro, Brazil

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World Allergy Organization Journal 2015, 8(Suppl 1):A28

Background: The objective of this study was to evaluate the association between excess weight (EW) and asthma in adolescents.

Methods: Cross-sectional study with students ages 10-14 years of public schools of Niterói, Rio de Janeiro State (RJ). For asthma diagnosis was used the International Study of Asthma and Allergies in Childhood (ISAAC) questionnaire. The classification of nutritional status was obtained by the Z-scores of Body Mass Index (BMI) for age. It was considered overweight (OW) values ≥ Z-score+1 and obesity Z-score+2. Chi-square test, prevalence ratio and their respective confidence intervals of 95% were used to evaluate the association between the prevalence of asthma ("wheezing in the last 12 months") and nutritional categories of BMI. We used logistic regression to study these associations adjusted for socio-demographics of the sample. Differences between the BMI and the presence of asthma were analyzed by Student’s t-test. The adopted level of significance was 5%.

Results: Between June/ December 2010, were evaluated 464 adolescents (54% female). The prevalence of asthma was 10.9%. Regarding nutritional category, 29.1% had OW and 12.1% obesity. No significant associations were observed between asthma and EW, even when adjusted for age and sex. The mean BMI was higher among asthmatic boys (21.05±6.42 SD x 20.01±3.49 SD;p=0.47), while the opposite occurred among the asthmatic girls that had lower BMI than non-asthmatic ones (20.64±1.79 SD x 21.78±8.40 SD;p=0.05). However, no significant statistics regarding this parameter differences occurred.

Conclusions: There were no associations between asthma and EW in the study sample. However due to the concomitant high prevalence of these NCDs in Niterói, RJ and the high load of this conditions on the Brazilian health system, future longitudinal studies in this area must be carried out in our country.

A29 Berberine reduce allergic inflammation in a house dust mite allergic rhinitis mouse model

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World Allergy Organization Journal 2015, 8(Suppl 1):A29

Background: Berberine (Ber), is widely used as an antibacterial, antifungal, and anti-inflammatory drug, has been used as a gastrointestinal remedy for thousands of years in China. However, the direct evidence for the anti-inflammatory effects of Ber in allergic disease has remained elusive. The purpose of this study was to reveal whether Ber treatment reduces allergic inflammation in an AR mouse model and to elucidate the mechanisms.

Methods: BALB/c mice were divided into control, Derf, Ber, Ber + Anti-CD25 groups. All mice except for the control group were sensitized by intraperitoneal injection of Dermatophagoides farinae (Derf). After sensitization, the Ber treatment was started nasally for five times a week (1 mg/kg of anti-CD25 monoclonal antibody (mAb) per injection), or five days in the first week followed by three times a week for every two days from the second to the fifth week. Berberine, 250 mg/kg body weight, was administrated orally 1 hour before the last OVA challenge. The nasal congestion in early phase and late phase of allergic reactions were evaluated.

Results: Both Ber and Ber + anti-CD25 groups showed a significant improvement in nasal congestion compared with the control group. Moreover, the inhibition rate of nasal congestion in Ber group (45%) was significant higher than the Ber + anti-CD25 group (58%). The serum IL-13 levels were enhanced than Ber group in Ber + anti-CD25 groups, serum IL-10 levels were decreased than control, Derf and Ber groups. In Ber + anti-CD25 mAb groups, Foxp3 mRNA levels were decreased than control group. In Ber group, percentage of CD4+CD25+Foxp3 levels were increased than Derf group. In Ber + anti-CD25 mAb group, percentage of CD4+CD25+Foxp3 levels were decreased than Ber group. The percentage of CD4+CD25+Foxp3+ T cells were increased in the Ber than the Derf groups. And Foxp3 mRNA levels were increased in the Ber than control groups (all, p < 0.05).

Conclusions: In our studies, Ber significantly reduces allergic inflammation. And our studies suggest that the mechanism of Ber may be associated with CD4+CD25+Foxp3+ Treg cells possibly through not only number but also the function.

A30 Novel mouse model of steroid-resistant allergic rhinitis by repeated intranasal administration of OVA

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World Allergy Organization Journal 2015, 8(Suppl 1):A30

Background: Allergic rhinitis (AR) is one of uncontrollable inflammation diseases by a corticosteroid administration. Thus an ideal AR animal model had been required in this research field in order to develop a new effective remedy. We report our establishment of the novel AR animal model resistant to nasal corticosteroid.

Methods: BALB/c mice were sensitized by intraperitoneal injection of ovalbumin (OVA) / ALUM. Two weeks after the sensitization, the mice were administrated OVA intranasally for five times a week (One-week-challenge arm), or five days in the first week followed by three times a week for every two days from the second to the fifth week (Five-week-challenge arm). In the both arms, the day before the first challenge, the mice were randomly divided into four groups (n=8): negative control (NC), vehicle control (VC), mometasone furoate (MF), and dexamethasone (DEX). For the NC groups, sensitized mice were intranasally treated with saline instead of OVA. In the MF groups, 5 μg/10 μL of MF was administrated intranasally 30 minutes before the last OVA challenge. In the DEX groups, 1 mg/kg of DEX was administrated orally 1 hour before the last OVA challenge. The nasal congestion in early phase and late phase were measured by two-chambered, double-flow plethysmograph system as specific air way resistance (sRAW) 10 minutes and 3 hours after the last OVA challenge, respectively. The mice were sacrificed by CO₂ gas inhalation and the nasal paraffin sections were made for histological evaluation.

Results: In the One-week-challenge arm, the sRAW in MF and DEX group were lower than VC group both in the early (inhibition rates: MF 73%, DEX 94%) and the late phase responses (MF 76%, DEX 84% inhibition). In the Five-weeks-challenge arm, MF and DEX reduced the nasal congestion in the early phase (MF 42%, DEX 58% inhibition), however, the inhibition rate of the late phase was significantly decreased in the MF group (MF 28%, DEX 50% inhibition). The epithelial hyperplasia and the inflammatory cells infiltration were observed in the nasal mucosa, and these grades were more remarkable for Five-week-challenge arm than One-week-challenge arm.

Conclusions: After five weeks OVA challenge, the nasal congestion remained partially even after the nasal corticosteroid treatment. This repeated OVA administration method would provide a quite useful novel disease model to elucidate the mechanisms of nasal steroid-resistant-AR and develop a new remedy.

A31 Are there predictive symptoms/signs for a positive oral cow’s milk challenge in patients suspected of cow’s milk allergy?

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World Allergy Organization Journal 2015, 8(Suppl 1):A31
Background: Cow’s Milk (CM) is the main allergen involved in food allergy in children and it is responsible for the majority of Oral Food Challenges in our unit. The aim of this study was to describe differences between children with negative and positive CM food challenge (CMFC).

Methods: 128 children with suspected CMA were undergone to CMFC (June/2007 to Feb/2014) and comprised two groups according to the result: negative test (passed, PG, n=100) and positive test (failed, FG, n=28). Both groups were analyzed regarding to age at first reaction, gender, nutritional status, breastfeeding, familial history of FA, symptoms reported, presence of asthma, allergic rhinitis or atopic dermatitis and results of skin prick test (SPT). FG was analyzed according to age at first reaction, severity of symptoms, presence of atopic diseases and symptoms. Anaphylaxis was not classified.

Results: Comparing both groups, FG was significantly associated with patient’s reports of urticaria (79% x 40%; OR=5.5; 95%CI:2.1-14.8; p=0.05), pruritus (46% x 7%; OR=28.0; 95%CI:7.1-110.1; p<0.0001), vomiting (54% x 26%; OR=3.3; 95%CI:1.4-7.8; p=0.01), rhinoconjunctivitis (18% x 5%; OR=4.1; 95%CI:1.1-15.5; p=0.04) and anaphylaxis (36% x 16%; OR=2.9; 95%CI:1.1- 7.5; p=0.03). Gender, age at first reaction, exclusively breastfeeding, familial history of FA, presence of other atopic diseases and diameter of SPT (histamine, CM and milk fractions) did not differ between the groups. Less than 10% of all children were underweight. The median amount of CM elicited during CMFC was 13mL and it was not related to severity of symptoms, presence of atopic diseases or age at first reaction. During CMFC, 50% of FG patients presented with urticaria and 14%, an anaphylactic reaction.

Conclusions: Although CMA has been frequently suspected in Brazilian children, just a small amount (21.8%) really confirmed the diagnosis. There were no specific clinical characteristics for a positive CMFC reaffirming the need of CMFC for the diagnosis of CMA.

A32

Oral food challenges in a specialized allergy outpatient clinic in São Paulo, Brazil

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World Allergy Organization Journal 2015, 8(Suppl 1):A32

Background: Oral food challenge (OCF) is the most reliable method to diagnose food allergy in suspected children. The aim of this study was to describe the profile of patients undergone to OCF in the Division of Allergy and Clinical Immunology, Federal University of São Paulo, especially for cow’s milk (CM).

Methods: A retrospective study of chart analysis of 171 patients undergone OCF, between June/2007 and Feb/2014. Food tests comprised CM, egg, soy, peanuts, nuts, seafood, meat, chicken, tartrazine, chocolate, wheat and coconut. Patients were evaluated according to the type of CM’s challenge (open or double-blind placebo-controlled), aim of the procedure (diagnosis or follow up tolerance), symptoms, body mass index, time of breastfeeding, age at first reaction, family history of food allergy, presence of other atopic diseases (asthma, allergic rhinitis and atopic dermatitis) and skin prick test.

Results: 65% of patients were male (n=111) with median age of 3 years and 2 months. The most common tested foods were CM (n=148), egg (n=22) and soy (n=19). CM’s challenges were: negative in 109 (74%), inconclusive in 4 (3%) and positive in 34 (23%) tests (27 open food challenge and 7 double-blind placebo-controlled). From patients who had a positive OCF, 52% had referred cutaneous symptoms, 22% gastrointestinal symptoms, 19% respiratory symptoms and 7% claimed to have had anaphylaxis. When they undergone to OCF, cutaneous symptoms were observed in 68% and 5% had an anaphylaxis episode. 35% of children elicited symptoms after less than 1min ingestion of CM. 67% of all reactions were classified as mild (skin and/or upper respiratory tract) and 33% as severe reaction (skin and lower respiratory tract). Among the group that passed OCF, 17% (n=18/109) were in a CM free control. As asthma is heterogeneous, it would be useful to determine whether the maker’s levels correlate with phenotypes of the disease. The aim of the study was to investigate the relevance of YKL-40 as a biomarker of asthma phenotype.

Methods: Level of YKL-40 was determined by means of immunoassay in sera of 167 asthmatics (116 women, 51 men; aged 18-88; mean age: 49 years) and 81 healthy controls (50 women, 31 men; aged 18-86; mean age: 48 years). On the basis of clinical criteria asthmatics were divided into four groups: atopic – 83 patients, non-atopic - 65, aspirin asthma - 12, asthma with underlying vasculitis - 9. Differences between groups
were compared with the use of U-Mann-Whitney’s test. Correlations between variables were assessed with Pearson’s test.

**Results:** YKL-40 levels were significantly higher, on average, in asthmatics compared to control group (mean levels: 66.8 U/l and 44.9 U/l respectively; p<0.001). YKL-40 correlated with lack of asthma control (p<0.001) and diagnosis of exacerbation (p<0.001). The highest mean concentration was found in atopic asthmatics – 72U/l which was significantly higher compared to non-astopic patients – 61 U/l (p<0.05). Weak correlations were found between YKL-40 levels and CRP as well as FEV1. However no correlations have been found between YKL-40 level and sex, blood eosinophils count and neutrophils count.

**Conclusions:** YKL-40 correlates with asthma control, atopy, FEV1, and CRP. The latter suggests that YKL-40 concentration may depend on severity of inflammation what seems confirmed by the elevated levels in numerous inflammatory diseases and neoplasms.

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**A35**

The effect of PM10 on allergy symptoms in allergic rhinitis patients during spring season

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World Allergy Organization Journal 2015, 8(Suppl 1):A35

**Background:** PM10 (particulate matter less than 10 μm) is known as a major air pollutant component that affects allergy symptoms. We have studied the effects of PM10 on allergy symptoms in allergic rhinitis patients during the spring season.

**Methods:** We have reviewed allergic symptoms score changes in 108 allergic patients and in 47 healthy controls by evaluating their 120-day symptom diaries from February to May 2012. At the same time, the pollen counts and PM10 concentration were also assessed by the city environmental center. We have compared the symptom scores before and 2 days after the PM10 concentration was elevated over 100 μg/m3. Additionally, we have also investigated long-term, 120-day observations.

**Results:** The PM10 concentration during the 120-days was less than 150 μg/m3. There were no significant correlations between the PM10 concentration change and allergic symptom scores or drug usage. Allergic symptom scores were significantly correlated, however, with pollen counts and out-door activity times (p<0.001).

**Conclusions:** This study demonstrates that PM10 concentrations less than 150 μg/m3 did not influence allergy symptoms in allergic rhinitis patients during the ASD season in 2012 year.

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**A36**

Physicians’ attitude to allergen immunotherapy (AIT) prescription: an Italian survey

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World Allergy Organization Journal 2015, 8(Suppl 1):A36

**Background:** Allergen Immunotherapy (AIT) is a valid treatment for respiratory allergy. Its effectiveness strictly relates to physicians’ attitude towards prescription and towards implemented strategies to favour adherence. We conducted a questionnaire-based survey among doctors usually prescribing AIT, to evaluate their approach to AIT prescription in routine clinical practice.

**Methods:** A sample of 36 doctors (54 years, range 32-71; 12 males) working in health public setting (23) or private office (13) filled in an ad-hoc questionnaire. The items included: available time to visit patient and prescribe AIT; patient’s education to AIT or therapeutic alternatives; time dedicated to AIT description; barriers to AIT prescription; patients elective for AIT and contraindications; approach to poly-sensitized; explanation of advantages and drawbacks of different administration routes; use of informed consent.

**Results:** Most doctors (58%) have 30’ for diagnosis and treatment prescription. Patients are always informed about the AIT existence. The majority of doctors reluctant to prescribe AIT, are discouraged by fear of adverse reactions (2%). Time spent to AIT description is 10’ in 72% of prescribers. All doctors quote the main differences of action between AIT and drugs. Most doctors follow guidelines for indication and contraindications and prescribe AIT to poly-sensitized patients (77%), with a maximum of two simultaneous desensitisations. In choosing sublingual or injections, patient’s opinion is regarded by 58% of doctors. Advantages and burdens of AIT are always exhibited, often distinguishing between the two routes (97%). Informed consent is required by 53% of doctors, 42% only for injections and 11% for both routes. Most doctors (69%) consider a problem prescribing AIT to immigrants.

**Conclusions:** Despite the short available time, interviewed doctors appear very informative on AIT features during prescription. Patient’s values appear highly considered.

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**A37**

The relative clinical impact of sublingual immunotherapy with carbamylated monomeric allergoids on allergic respiratory symptoms

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World Allergy Organization Journal 2015, 8(Suppl 1):A37

**Background:** To assess the cumulative and allergen-specific magnitude of effect, and its relative clinical impact, of sublingual allergy immunotherapy with carbamylated monomeric allergoids for allergic rhinoconjunctivitis. Carbamylated allergoids are hypoallergenic extracts with enhanced bioavailability, consequently to a partial resistance to enzymatic degradation, providing efficient dose-tuning.

**Methods:** Literature was searched for double-blind placebo-controlled randomized trials administering this treatment, without any restrictions. Pooled analysis of the effects on total symptoms scores (TSSs) during the first season of treatment was performed and for each selected trial the relative clinical impact (RCI) was calculated as the percentage reduction in TSSs obtained with active treatment compared to placebo. The effect size (SMD), the overall and allergen-related RCI were used to estimate an indirect comparison with pharmacotherapy (based on summary data recently extracted from literature).

**Results:** Eight studies (4 in grass, 2 in mites, 1 in pollutry, 1 in ragweed allergy) met inclusion criteria and were pooled, comparing overall 180 patients treated with active and 155 with placebo. The overall SMD for TSSs resulted [-0.99 (IC -1.41 to -0.57) p<0.001] with a significant interstudy heterogeneity (I² = 68%). SMD for grass pollen tablets was [-0.58 (IC -0.89 to -0.27) p<0.001], for mite tablets [-1.54 (IC -2.07 to -1.02) p<0.001]. The weighted mean RCI was overall -31.69%, for grass pollen tablets -32.14%, for mite tablets -24.27%.

**Conclusions:** Indirectly compared to the relative clinical impact of standard pharmacotherapy (antihistamines RCI: -15.0%; antileukotrienes RCI: -65.5%; nasal corticosteroids RCI: -23.5%), carbamylated monomeric allergoids result highly effective in providing symptoms relief in seasonal and perennial allergic rhinoconjunctivitis. This estimation is most likely conservative and apparently reduced by the numerous methodological aspects that differentiate clinical trials on drugs and allergen immunotherapy.

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**A38**

Asthma hospitalization in Brazil: how much was it cost in the last fifteen years?

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World Allergy Organization Journal 2015, 8(Suppl 1):A38

**Background:** Asthma presents high burden in health system worldwide, including Brazil. The aim of this study was to evaluate the cost spent due to asthma hospitalization in Brazil (1998-2012).

**Methods:** Data were obtained from the National Mortality Database from The Ministry of Health of Brazil. Total cost spent per year due to asthma hospitalization, media of cost per hospitalization, media of days for each event for each region were evaluated for the period 1998 to 2012 using simple descriptive analysis and times series analysis.

**Results:** We recorded a total cost up to 660 million dollars in the whole period of study, from asthma hospitalization. The annual cost in Brazil is about 44 million dollars/year, which represents about 164.13 dollars for each event. Duration of a hospitalization in our country means 3.2 days per event, varying from 2.7 to 4.4 days. These costs varied from USD...
50,476,829 in 2000 to USD 34,369,568 in 2012. Comparing the Brazilian regions, only at extreme years 1998 and 2012, the total cost due to asthma hospitalization were, respectively: Midwest (USD 3,246,138 and USD 3,837,184), South (USD 7,726,774 and USD 5,907,261), Southeast (USD 11,330,123 and USD 8,697,415), North (USD 2,762,194 and USD 3,837,194) and Northeast (USD 14,638,311 and USD 14,246,062). Difference between first and last years of analysis suggests decline at cost in all Brazilian regions, except North (one of the poorest region in Brazil). Furthermore, Northeast region presents the biggest spent with asthma hospitalization in Brazil (25.3% of total costs).

Conclusions: Cost due to asthma hospitalization in Brazil is still large and unacceptable. However, a trend of slight decline was observed except in North region. Clinical implications: Focused health policies for asthma can reduce morbidity and mortality due to this disease and, consequently, reduces direct costs and burden of asthma.

A39
Analysis of the prevalence of subtypes of angioedema without urticaria in a reference center in Rio de Janeiro – Brazil
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Background: Angioedema is a highly heterogeneous group of conditions and is characterized by sudden, pronounced swelling of the lower dermis and subcutaneous. Because of its frequent coexistence with urticaria, it is often classified in the same manner as urticaria. However, it also includes categories not associated with urticaria. Angioedema without urticaria is characterized by hereditary and acquired angioedema and histaminergic and nonhistaminergic angioedema. The prevalence of subtypes of angioedema without urticaria was estimated at the Clinical Immunology outpatient service of an University Hospital, in Rio de Janeiro.

Methods: We have classified 118 (40 males and 78 females) outpatients with angioedema without urticaria in categories: hereditary angioedema (HAE), angiotensin-converting enzyme (ACE) inhibitor-induced angioedema and idiopathic angioedema.

Results: HAE was showed in 98 of 118 patients (83%). ACE inhibitor-induced-angioedema was showed in 16 patients (13.5%) and 4 patients (3.5%) were diagnosed with idiopathic angioedema, after a complete investigation of all causes of angioedema.

Conclusions: In our casuistic, HAE was the most prevalent type of angioedema without urticaria, as described in the literature. However, the prevalence of ACE inhibitor-induced-angioedema found in our study was higher, since the reported incidence of this condition ranges from 0.1 to 6%. Correct diagnosis of the subtypes of angioedema without urticaria should be the basis of better understanding and the treatment of these conditions.

A40
Safety of sublingual immunotherapy for asthma with standardized house dust mite vaccines in a tropical setting: Results of a nation-wide pharmacovigilance study
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Background: Pharmacovigilance studies are helpful to follow the use of allergen immunotherapy in clinical practice. Industrially manufactured allergen vaccines (VALERGEN) of three mite species (including the tropical species Dermatophagoides siboney and Blomia tropica) have been recently introduced country-wide in Cuba for asthma treatment. To assess the safety and efficacy of allergen immunotherapy by injection or sublingual routes, using VALERGEN vaccines in the routine clinical practice.

Methods: A national prospective study was conducted using the cohort adverse event monitoring method. Patients have been followed at least for 12 months. The study has included 2108 asthmatic patients above 5 years old, attending 24 allergy services in 10 provinces. Efficacy variables were measured using a standard questionnaire, reporting data on the last two weeks prior to the administration.

Results: 52.5% of included patients received SLIT and 47.5% SCIT, 51.3% were children. Overall, 101 adverse reactions were reported. The frequency of local reactions per administration was 0.16% and 0.013%, for SCIT and SLIT, respectively; whereas the frequency of systemic reactions was significantly greater for SCIT (0.204%) versus SLIT (0.03%). All systemic reactions by SLIT were classified as mild whereas 2 severe (Grade IV) reactions were reported by SCIT. The frequency of both local and systemic reactions was significantly greater in adults as compared to children. On the other hand, significant increase of Quality of Life index, decrease of asthma severity and frequency of asthma manifestations and drug consumption was found, as compared to pretreatment values for both administration routes in a similar extent.

Conclusions: The results confirm the efficacy of SCIT and SLIT using standardized house dust mite allergens vaccines for asthma treatment, as well as the higher safety profile of the sublingual route.

A41
Epidemiology of allergic rhinitis in Korean children
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World Allergy Organization Journal 2015, 8(Suppl 1):A41

Background: Allergic rhinitis (AR) is a most common disease among allergic diseases in Korean children. We designed to investigate the rate and kinds of sensitized allergic children with allergic rhinitis.

Methods: The subjects were 12,469 school students (6,440 girls and 6,029 boys) in 5 areas (Incheon city, Busan city, Gwangju city, Kyoungki-do, Choongchungbook-do) from 2011 to 2014. Allergic rhinitis have diagnosed with positive ‘current symptoms and sign for allergic rhinitis’ on Korean ISAAC questionnaire and 1 more than proven allergen by skin prick test. Elementary school students were tested for 20 common aeroallergens, whereas middle and high school students were tested for 25 allergens. The 27 allergens included Dermatophagoides pteronyssinus, Dermatophagoides farinae, pollen (birch, alder, oak, Japanese cedn, pine, willow, elm, maple, Bermuda grass, timothy grass, rye grass, orchard grass, meadow grass, vernal grass, mugwort, Japanese hop, fat hen, ragweed, and plantain), pet (dog and cat), and mold (Penicillium, Aspergillus, Cladosporium, and Alternaria).

Results: The prevalence of AR is 21.9% (18.0% in girl and 25.5% in boy) in school, 23.8% (18.5% in girl and 28.2% in boy) in middle school, 24.1% (21.4% in girl and 26.8% in boy) in high school. Sensitization rate of allergen in students with AR was D.pteronyssinus (77.0%), D.farinae (68.2%), pollen (37.6%), molds (12.4%). Sensitization rate of cat and dog are 12.5% and 3.2%.

Conclusions: This is the first data of prevalence of AR in Korean children. AR in Korean boy is more prevalent than in girl. Perennial AR is more frequent than seasonal type.

A42
IgG1/IgE ratio is relevant for the protective effect of an alum-adjutated allergen vaccine in a murine model of local allergen challenge
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World Allergy Organization Journal 2015, 8(Suppl 1):A42

Background: The new anti allergenic vaccine is based on purified allergens from Dermatophagoides siboney and the combination adjuvant containing a TLR-4 ligand and alum. We propose that IgG1/IgE ratio is
effective to assess the clinical efficacy of this experimental vaccine. Aim: To evaluate the immunogenicity of formulation variants of a D. siboneya adjuvanted vaccine with varying levels of allergen adsorption on to alum.

Methods: Vaccine formulations with different allergen adsorption levels were obtained by variation of phosphate ions and alum hydroxide content. In a preventative experimental setting, BALB/c mice were treated subcutaneously with 3 doses of each vaccine variant seven days apart. Further, mice were subjected to aerosol allergen challenge. The allergen-specific antibody response was assessed by determining serum levels of IgE, IgG, IgG1 and IgG2a by ELISA, as well as the local allergenic response by cytokine levels in broncho-alveolar lavage.

Results: All variants induced allergen-specific IgG1 and IgG2a antibodies after three immunization doses. The low alum variant showed significant reduction of IgE, whereas the variant with the highest adsorption level (lowest phosphate content) showed significant increase of IgG1. In contrast IgG2a antibodies were not affected by allergen adsorption. A significant increase of the IgG1/IgE ratio was observed for all variants in challenged mice as compared to Th2 controls, with preponderance of the variants with reduced alum content and highest adsorption level. Cytokine levels in BAL indicated a mild but significant shift from Th2 to Th1/Th0 pattern. Histological examination of lungs showed a diminished allergic inflammatory response in vaccinated mice. Reduced size of granulomas at injection site was noted in subjects vaccinated with the low alum formulation variant.

Conclusions: Serum IgG1/IgE ratio can be indicative of a protective immunogenicity in a murine model of respiratory allergy. Higher allergen adsorption on to alum could be related to a more effective presentation pathway, or to the function of IgG1 as blocking antibody.

A43 Assessment of stability and compatibility of dermatophagoides and blomia allergen mixture for sublingual immunotherapy

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Background: House Dust Mites are important etiological agents of respiratory allergy. Allergen mixtures are often used for specific immunotherapy in polysensitized patients, although scientific evidence to support efficacy, safety and stability is scarce. Sublingual immunotherapy (SLIT) is being gradually accepted as an alternative to conventional subcutaneous immunotherapy. For SLIT, higher allergen doses are recommended, so the development of pharmaceutical formulations allowing the administration of such high doses is particularly relevant. Therefore, the aim of this work was to develop and evaluate liquid formulations of allergenic extracts of house dust mites: Dermatophagoides pteronyssinus, Dermatophagoides siboney and Blomiatropolicalis, containing glycerol, for administration as sublingual vaccine.

Methods: Starting from the freeze-dried active ingredients of standardized allergen products, developed by National Center of Bioproducts (BIOCEN, Cuba), there were obtained several formulation variants of the mixture of three allergens, with glycerol concentrations ranging from 20 to 50%. Biologic activity was measured by IgE inhibition ELISA and in-vivo Prick Test.

Results: The mixture of three allergens, as well as, individual formulations at two concentration levels: 20 000 or 200 000 BU/mL, containing glycerol 20 or 50% showed stability at room temperature for 6 months in a sealed vial, in contrast to aqueous formulation that at the highest concentration showed a fast degradation. Glycerol 20 or 50% was also effective as microbiological preservative agent.

Conclusions: The technical feasibility and compatibility of ingredients of these formulations was experimentally demonstrated. The formulation containing 200 000 BU/mL, 10 times the concentration used for SCIT would be particularly suitable for SLIT.

A44 Staphylococcal superantigen-specific IgE antibodies and its correlation with asthma severity

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World Allergy Organization Journal 2015, 8(Suppl 1):A44

Background: Elevated IgE antibodies to Staphylococcal toxins (superantigens) are related to asthma severity in a few studies. We have investigated this hypothesis in an adult asthmatic population from the Clinical Immunology outpatient service of an University Hospital. Our objectives were: to detect the presence and the degree of IgE-mediated sensitization to staphylococcal toxins in vitro in asthma patients; to correlate the presence and concentration of specific IgE against staphylococcal toxins with asthma severity; and to assess whether elevated levels of serum IgE specific for staphylococcal toxins may have predictive value for asthma severity.

Patients and methods: We studied 142 patients, diagnosed by clinical spirometric findings as asthmatics, attended at the Clinical Immunology outpatient service of an University Hospital. They were divided into two groups according to their asthma severity index: group 1 (n=72), mild intermittent or mild persistent asthma, and group 2 (n=70) with moderate or severe asthma. After clinical history and physical examination, they were screened for serum specific IgE against staphylococcal enterotoxins types A (TXA), B (TXB), C (TXC) and TSST (toxic shock syndrome toxin).

Results: Patients mean age was 49.5 years-old, most of them were female and caucasian. 26.1% of them were former smokers. The majority also had rhinitis, positive prick tests for inhalant allergens, and family history of atopy. 62 patients had a positive IgE dosage (43.7%): 29 for TXA (20,4%), 35 for TXB (24,6%), 33 for TXC (23,2%), e 45 for TSST (31,7%). The mean dosage of the positive tests were: TXA - 0.96 U/L, TXB - 1.09 U/L, TXC - 1.21, TSST - 1.18 U/L. There were no significant differences between the number of positive tests or mean dosage when compared both groups 1 and 2.

Conclusions: In our study, IgE anti-staphylococcal TXA, TXB, TXC and TSST were not significant related to asthma severity, and had no predictive value in relation to asthma severity.

A45 Clinical and laboratory factors and their relation to asthma severity

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World Allergy Organization Journal 2015, 8(Suppl 1):A45

Background: Many factors are related to asthma severity. We have investigated clinical-epidemiological and laboratory findings in an asthmatic population of an University Hospital, and evaluated their impact for asthma severity.

Patients and methods: We have studied 142 patients with asthma, diagnosed by clinical spirometric findings, attended at the Clinical Immunology outpatient service of an University Hospital. They were divided into two groups according to their asthma severity: group 1 (n=72), mild intermittent or mild persistent asthma, and group 2 (n=70) with moderate or severe asthma. They were submitted to medical history, physical examination and laboratory routine tests, x-rays, spirometry and aeroallergens skin prick tests, and their findings were compared between both groups.

Results: Patients mean age was 49.5 years-old, most of them were female and caucasian. 26.1% of them were former smokers. The majority also had rhinitis, positive aeroallergens skin prick tests, and atopy family history. The comparison of numerical variables between groups 1 and 2 was statistically significant for age (higher in group 2), and for absolute and % predicted peak inspiratory flow (lower in group 2), and pre and post bronchodilator FEV 1 % predicted (lower in group 2). Comparisons
of categorical variables between the two groups showed a significant difference in the prevalence of rhinitis (p<0.001), and a statistical trend for increase of eosinophil percentage, more common in group 1. We also observed in group 1 a statistical trend with the positivity of aeroallergens prick tests, and owning a pet. A statistical trend for hypertension, gastroesophageal reflux and hyper or hypothyroidism was observed in group 2.

Conclusions: Contributed to asthma major worsening: age, worse lung function parameters (FEV1 and peak flow), gastroesophageal reflux, and hyper or hypothyroidism. Contributed to asthma minor worsening: rhinitis, hypersensitivity and asthma, positive aeroallergens skin prick tests, and owning a pet.

A46
Obesity: an asthma aggravating factor?
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World Allergy Organization Journal 2015, 8(Suppl 1):A46

Background: Several trials have demonstrated an association between obesity and asthma severity. Body Mass Index (BMI) is a metric used to estimate the amount of body fat. It’s one of the best methods for population assessment of overweight and obesity. We have investigated the relationship between BMI and asthma severity in an adult asthmatic population from the Clinical Immunology outpatient service of an University Hospital.

Methods: 142 adult patients, diagnosed by clinical spirometric findings as asthmatics, were divided in two groups based on their asthma severity: group 1 [(n= 72): Mild Intermittent and Mild Persistent Asthma] and group 2 [(n= 70): Moderate and Severe Persistent Asthma]. Patients BMI were calculated and compared between both groups.

Results: Patients mean age was 49.5 years-old, most of them were female and Caucasian. 26.1% of them were former smokers. Mean weight was 66.17kg in group 1 and 69.36kg in group 2. Mean height were 159.23cm and 157.1cm respectively. Mean BMI was significantly higher (p<0,05) in group 2 [(BMI=28,06), comparing to group 1 (BMI=26,15)].

Conclusions: In this study, BMI was associated with asthma severity.

A47
Response of human leukocytes after stimulation with excreted-secreted toxocara canis larval antigens
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World Allergy Organization Journal 2015, 8(Suppl 1):A47

Background: Specific immunotherapy by administration of allergen extracts has been successfully used in asthma, allergic rhinitis and for venom. The identification of molecules which could be used as adjuvants in anti-allergy immunotherapeutic preparations is highly desirable. Anti-allergy immunotherapy has been associated with the induction of regulatory T cells. Helminths possibly downmodulate immune responses to airborne allergens, indirectly, through the stimulation of a regulatory network.

Methods: In this study, it was investigated whether excreted-secreted toxocara canis larval antigens (TES) (native) could elicit recall immune responses that could potentially inhibit a Th2 response, in nine allergic and ten non-allergic individuals’ peripheral blood mononuclear cells (PBMC). PBMC were cultivated in vitro in the presence or absence of these extracts at 37 °C and 5% CO2 during 48 and 120 hours and their supernatants were evaluated for cytokine production (TGF-β, IL-10, IL-12, IFN-γ, IL-6, TNF-α, IL-5 IL13 and IL-17).

Results: The antigen induced cytokine production in all PBMC preparations. Stimulation of the production of Treg cytokines (TGF-β and/or IL-10), accompanied or not by stimulation of cytokines production associated with the Th1 response (IL-12 and IFN-γ), but without stimulation of Th2 cytokines (IL-5 and IL-13) and IL-17, by antigen TES, was seen with 6 out of 10 allergic patients’ PBMC.

Conclusions: The results indicate that antigen TES induce Treg with or without Th1 immune responses. Searches of molecules, in this extract, which specifically induce this profile is suggested.

A48
Trends in asthma mortality in Brazil in the 0-4 and 5-34-year age groups
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World Allergy Organization Journal 2015, 8(Suppl 1):A48

Background: Bronchial asthma is a chronic disease with large prevalence rates in Brazil and most industrialized countries. Asthma deaths are rare but, in most cases, preventable with appropriate early diagnosis and disease control. The objective of this study was to update trends in asthma mortality in Brazil according to age groups of 0 to 4 and 5 to 34 years.

Methods: Data on asthma mortality were obtained from the Mortality Information System - SIM/DATASUS (Departamento de Informática do SUS – Brazilian Health System Database), using the International Classification of Diseases codes J45 and J46 for the period from 1980 to 2010. An ecological time-series study was conducted to analyze time trends in standardized mortality rates of asthma, using regression models for the 0-4 and 5-34-year age groups.

Results: The asthma deaths rates in the age group 0 to 4 years showed a decrease of 78.8% and dropped from 26.1 to 4.00% of all deaths group due to asthma. Asthma rates in 5 to 34 year age group also recorded declines of 75.3%, ranging from 8.0 to 12.2% of the total of asthma deaths. There was a linear, decreasing trend in asthma mortality from 1980 to 2010 in Brazil in both age groups, whereas in the general population there was a third order polynomial trend. Discussion: Asthma mortality in the population ranging from 0 to 34 years of age showed a linear and constant decrease, but the rate of decrease was greater in the 0-4-year age group. The group aged 5 to 34 years also showed a linear decline in mortality, but slower than the previous group. The linear decrease found in both age groups contrasts with the heterogeneous asthma mortality trend in the general population in Brazil. The causes of this asthma-related mortality decline in younger age groups are still matter of debate.

Conclusions: This study showed a continuous decrease in asthma mortality in Brazil in the 0-34-year age groups.

A49
Kawasaki disease: a confusing trigger in hemophagocytic lymphohistiocytosis
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World Allergy Organization Journal 2015, 8(Suppl 1):A49

Background: Hemophagocytic Lymphohistiocytosis (HLH) is a severe hyper inflammatory condition that demands prompt recognition and aggressive treatment. It can be triggered by different conditions including other inflammatory diseases like Kawasaki disease (KD). The diagnosis of both may be difficult and their symptoms can overlap.

Methods: Case reporting.

Results: A 4-year-old boy was hospitalized to investigate a fever of unknown origin. At day 24 of persistent fever, he presented rash and left coronary artery dilatation (3.6mm) were detected, and was diagnosed with atypical KD. He received high-dose immunoglobulin (IVIG, 2g/Kg, in 3 days) but fever had persisted and coronary dilatation worsened (left coronary artery 4.2mm and anterior descending artery 2.8mm and circumflex artery 2.6mm). At day 33 he presented severe clinical deterioration and fulfilled diagnostic criteria for HLH. As KD was considered the HLH trigger, a modified protocol for treatment was applied. He was treated with IVIG and dexamethasone (initial dose
10mg/m²/day) with remission of the fever after the first dose and progressive clinical and laboratory improvement. Due to the persistence of splenomegaly, thrombocytopenia and neutropenia, he received one dose of etoposide at day 48 with resolution of the cytopenias. Clinical and laboratory parameters improved to normal levels, coronary arteries dilatation reduced (left coronary artery 2.2mm, anterior descending artery 2.0 mm and circumflex artery 1.6mm), allowing progressive reduction of the corticosteroid. Splenomegaly is the only abnormality that still persists after 40 days of treatment.

Conclusions: The case showed that HLH may be a complication of KD and that the adequate treatment for HLH, even with less aggressive immunossupression, allowed fast and impressive clinical improvement. It is important to be aware of this possible association to guarantee a better long term prognosis.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A50

Hyperoxia increases interleukin-17 in airway epithelial cells, alveolar type II cells and alveolar macrophages after ovalbumin-induced lung inflammation

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Background: There is no clear evidence on the pattern of inflammatory responses in exacerbation of neither asthma nor whether the hyperoxia is able to modify it. Because the hyperoxia induces reactive oxygen species and oxidative stress we believe this condition could interfere in the expression of interleukin-17 (IL17) in airway epithelial cells, alveolar type II cells and alveolar macrophages.

Methods: The experimental design was approved by the Ethics Committee of Federal University of Ouro Preto (UFOP). No.092/2012. Groups of female BALB/c mice (8 weeks old; 24.53±0.31g) were divided randomly in to five experimental groups as follows: Control group (CG) remained to air room; PBS group received aluminum hydroxide in phosphate buffered saline (PBS); OVA group (OVA) received ovalbumin and aluminum hydroxide in PBS; O2 group (O2) was exposed to 100% oxygen in a chamber for 24h; OVA+O2 group (OVA+O2) was exposed to 100% oxygen for 24h, received ovalbumin and aluminum hydroxide in PBS. The data were presented as the mean ± standard error of the mean. For continuous data, we used a One-Way Anova followed by the Student-Newman–Keuls post hoc test. For non-continuous data, we used the Kruskal–Wallis test followed by the Dunn’s post hoc test. In all instances, the significance level was set at 5% (p<0.05).

Results: In bronchoalveolar lavage the hyperoxia decreases macrophage number in O2 (2.82±0.2) and OVA+O2 (1.72±0.15) and increases neutrophils number in O2 (1.79±0.13) and OVA+O2 (1.72±0.15), compared to CG (macrophage: 5.36±0.33) and (neutrophils: 0.02±0.00). The Lymphocytes number were higher in O2 (1.08±0.07) and OVA+O2 (0.97±0.08) compared to CG (0.43±0.02). When the animals were exposed to oxygen and ovalbumin, concomitantly (OVA+O2 : 4.55±0.23), the hyperoxia decreases lymphocytes number when compared to OVA (4.55±0.23). The TNF-alpha content were higher in PBS (134.00±7.03), OVA (126.30±4.00), O2 (141.60±6.08) and OVA+O2 (129.60±5.05) when compared to CG (94.67±2.03). In lung sections, the hyperoxia increases interleukin-17 in airway epithelial cells, alveolar type II cells and alveolar macrophages after ovalbumin-induced lung inflammation. When the animals were exposed to oxygen and ovalbumin, concomitantly, the staining with IL17 were increase when compared to OVA (p<0.001).

Conclusions: Hyperoxia-induced oxidative stress increases IL17 in airway epithelial cells, alveolar type II cells and alveolar macrophages after ovalbumin-induced lung inflammation.

A51

The comparison of anxiety and depression levels in asthma and COPD patients

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Background: Both asthma and COPD affect mental health due to their impact on activities, sleep and social life of patients and can be resulted in anxiety and depression. The objective of the study was to determine and compare the prevalence of anxiety and depression in asthma and COPD patients.

Methods: Subjects without known psychiatric diseases were consecutively recruited from pulmonary and allergy out-patient clinics at the third level hospitals. Diagnosis of asthma and COPD was based on GINA and GOLD guideline, respectively. Depression and anxiety symptoms were evaluated using Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI).

Results: Study group consisted of 53 patients-30 with asthma and 22 with COPD. All patients had moderate-to severe diseases. COPD group was older, had more smoking history and higher number of hospitalization than those in asthmatics. Atopy rate and education level was higher in asthmatics than those in COPD group. The mean BDI and BAI scores were 17.96±12.39 and 20.57±12.67 in the whole group. Both group had similar degree of anxiety (21.23±11.7 vs. 19.7±14), whereas BDI score was significantly higher in COPD group than that in asthmatics (15.63±13.6 vs. 21±10.1) (p<0.02). Age, gender, smoking history, education level, atopy status, number of emergency room admission was not correlated with scores of BDI and BAI for both group. The only effective parameter on BDI score in COPD patients was having comorbidities.

Conclusions: Both asthmatics and COPD patients regardless of their sociodemographic and clinical features have similar degree of anxiety. In addition COPD patients are more depressive than asthmatics. The study indicates that psychiatric evaluation should be a part of tailoring therapy in chronic respiratory diseases.

A52

Anxiety and depression levels are different in patients between allergic rhinitis and asthma

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World Allergy Organization Journal 2015, 8(Suppl 1):A52

Background: AR and asthma, often seen in younger adults and had social- psychological burden, are common chronic diseases. The objective of the study was to determine and compare the prevalence of anxiety and depression in allergic rhinitis (AR) and asthmatics.

Methods: Subjects without known psychiatric diseases were consecutively recruited from pulmonary and allergy out-patient clinics at the third level hospitals. Diagnosis of asthma and AR was based on GINA and ARIA guideline, respectively. Only patients without asthma were chosen for AR group in order to compare with asthma. Depression and anxiety symptoms were evaluated using Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI).

Results: Study group consisted of 60 patients-30 with asthma and 30 with AR. All patients had moderate-to severe diseases. AR group was younger; but the mean disease duration was not significantly statistically different. AR group had higher education history than those of asthmatics. Number of smokers in both groups were equal. Female gender was predominant in both groups. In asthmatics, 53.3% had positive skin prick test with aeroallergens. Polysensitization rate was 56.25% and 63.3% in asthmatics and AR group, respectively. The most common sensitization pattern was mite plus mould sensitization. The mean BDI and BAI scores were 11.47±11.14 and 15.22±11.31 in the whole
group. Both BDI and BAI scores were significantly statistically different in the study groups (Table 1). Asthma and low level of education was found as the important factors for BAI in multiple regression analysis.

Conclusions: AR patients without asthma seem to have better coping mechanism than that of asthmatics.

A53
Hyperimmunoglobuline e syndrome: case report
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World Allergy Organization Journal 2015, 8(Suppl 1):A53

Background: Hyperimmunoglobulin E syndrome (HIES) is a rare disease caused by a primary complex immunodeficiency, with IgE serum levels over 2,000 U/mL. The syndrome is characterized by the following triad: 1) recurrent staphylococcal abscesses, 2) recurrent airway infections; 3) elevated serum IgE concentration. Our patient presented signs that are compatible with HIES in distinct moments of his life – microabscesses associated with eczema at adolescence, respiratory infections from childhood until present moment and seric IgE level of over 2,000 in recent dosage.

Methods: This is a case report.

Results: A 55 year old male complains of intense pruritus over entire body, with 100°F fever and shiver episodes when pruritus was more intense, associated with 11kg weight-loss during one year. During first year of life, he presented furunculosis; at adolescence, featured diffuse eczematous lesions, highly pruritic and associated with frequent impetiginisation. Patient has asthma since childhood, with two previous hospitalizations due to pneumonia. At dermatologic exam, patient presented hyperkeratotic erythematous-desquamative plaques, with edema, erosions and desiccated serous crusts, as well as fissures and ulcers. Linear excoriation signs and xerodermia were present in all integument. IgE dosage evidenced levels over 2,000 U/mL, without especific exact value. The result of pathological exam presented spongiotic and psoriasiform superficial dermatitis with proeminent eosinophilic. Several therapeutic approaches have been tried in the past, all unsuccessful. It was then prescribed Metrotrexate with folic acid and prednisone – patient responded with significant clinical improvement, especially decrease of pruritus. The dose of prednisone is progressively decreased until 40mg/day associated with Metrotrexate 7.5mg 3 times/week and folic acid 5mg 4 times/week. Patient persists with important decrease of lesions and consequent improvement of life quality.

Conclusions: Cutaneous infections often happen, and furunculosis and cellulitis may be observed. “Cold abscesses”, which are neither erythematous nor painful, occur mainly in patients that are not submitted to prophylactic antibiotic therapy; they are pathognomonic of HIES, though not indispensable for diagnosis. Recurrent respiratory infections cause pulmonary sequelae that lead to chronic respiratory failure, the main cause of death in patients with this disease. HIES is a condition whose diagnosis is hard, mostly due to its rarity. Frequently, patients pass by several medical institutions and go through partially or completely unsuccessful therapeutic approaches, what delays even more the correct diagnostic conclusion and the beginning of effective treatment. Nevertheless, after the introduction of appropriate immunosuppressive therapy, patients tend to stabilization of clinical condition and important improvement of life quality.
A56
Hemophagocytic lymphohistiocytosis: contribution from clinical and laboratory criteria for the diagnosis
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World Allergy Organization Journal 2015, 8(Suppl 1):A56

Background: To describe, among the diagnostic criteria proposed for Hemophagocytic Lymphohistiocytosis (HLH), which ones were the most valuable for the diagnosis of the disease in pediatric patients in a Reference Center for Primary Immunodeficiencies (PID).

Methods: It was a descriptive and retrospective study carried out in the period from 2009 to 2014, including patients diagnosed as familial or secondary HLH, from a Brazilian Pediatric Reference Center for PIDs. The criteria used for diagnosis was from Histioocyte Society HLH-2004 Protocol. All data was collected from patients’ records.

Results: Eight patients (4 males) were evaluated, being diagnosed 2 mutations in the perforin gene (in 3 patients, including twins), 3 secondary to Chédiak-Higashi syndrome, 1 associated to Epstein-Baar virus infection, 1 associated to Kawasaki syndrome, and another unknown cause. The median age at diagnosis was 29.5 months (from 2 months to 12 years). The median time necessary to confirm HLH was 21 days (from 15 to 42 days), and the most precocious ones were in patients with genetic mutations. Fever was the first symptom presented by all patients, the incidence of thrombocytopenia was also 100%; anemia, hypertriglyceridemia and increased ferritin were presented by 87%; hypoparathyroidism by 75%; neutropenia and splenomegaly by 62%; hemophagocytosis in bone marrow by 37%. The most frequent criteria combination was fever, thrombocytopenia, anemia, increased ferritin and hypertriglyceridemia. Soluble CD25 and NK-cell activity weren’t available at the diagnosis. By the time HLH was established, all patients were receiving antibiotics. Their outcomes were 2 deaths, 2 bone marrow transplants with good evolution and 4 patients are still in follow-up.

Conclusions: This study points out the importance to think about HLH as differential diagnosis, applying the diagnostic criteria, in order to proper diagnosis and treatment. It also highlights that hemophagocytosis in bone marrow, despite being characteristic, wasn’t found in all patients, proving that isn’t essential to the diagnosis.

A57
Risk factors associated with frequent infections in the elderly
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World Allergy Organization Journal 2015, 8(Suppl 1):A57

Background: Aging is associated with structural and functional changes in the immune system which may be responsible for a higher incidence of infection in the elderly.

The aim of the study was to assess the prevalence of infections among elderly students of the Academy of Healthy Ageing and to establish factors associated with frequent infections in the elderly.

Methods: The questionnaire including questions about infections, medication, comorbidities and socio-economic background was filled by 157 students (83% women and 17% men, mean age 68.2) of Academy of Healthy Ageing, one of the initiatives of the Healthy Ageing Research Centre. Univariate and multivariate logistic regression analysis was used to establish factors associated with frequent respiratory, urinary and cutaneous infections.

Results: At least one infections of respiratory system during last year were reported by 71% of elderly students. The mean number of infections was 3.2 per patient. Herpes simplex infection was reported by 40% of students (mean number 0.9) and 32% study participants had urinary tract infections (mean number 0.74). Frequent respiratory, urinary and cutaneous infections were reported by 45.2%, 10.2% and 14% of students respectively. 37% of elderly were treated with antibiotics at least once during past year, and only 2% of study subjects were hospitalized due to infection.

The risk factors for frequent (defined as more than 3 per year) respiratory infections in multivariate analysis were inflammatory arthritides (RA, gout) OR=1.64 (CI95% 1.01-2.67) and polytheraphy (more than 5 prescription drugs) OR=1.93 (CI95% 1.11-3.36). Multivariate analysis did not reveal the risk factors for frequent infections of urinary tract or Herpes simplex infection. In univariate analysis frequent urinary tract infections were associated with diabetes: OR=2.32 (CI95% 1.26-4.27) and anti-diabetic treatment (OR=2.35(CI95% 1.21-4.61).

Conclusions: Frequent infections among elderly students of the Academy of Healthy Ageing are associated with certain comorbidities and medications used.

A58
Bio immune(G)en medicine in allergic diseases especially asthma
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World Allergy Organization Journal 2015, 8(Suppl 1):A58

Background: Bio Immune(G)en Medicine is a diagnostic and therapeutic method representing a new immunomodulating way of approaching the asthmatic disease.

Methods: To reach diagnosis this method uses a wide range of biological parameters providing a great deal of significant information in the context of allergy such as lymphocyte typing and protein profiles or the Th1/Th2 differentiation, as well as many bacterial and viral serologies, to substantiate the biological diagnosis and guide the therapeutic result.

Within this therapy, numerous immune-competent signaling molecules are used, especially microRNAs representing actually one of the best known epigenetic processes, which are prepared according to the homeopathic dilution-dynamisation mode to ensure total safety in terms of any adverse side-effects.

Results: This allows developing of a biomimetic and holistic immune therapy involving the neutralization of certain microbial agents, of which regulatory, medium-to-long-term effects are proving to be extremely beneficial to patients in a large number of allergic diseases.

Conclusions: The description of some clinical cases of asthma will help to highlight the way in which this innovative method links with effectiveness the findings of basic research to human clinic and therapeutics.

A59
Pneumonia in common variable immunodeficiency after change in environment
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World Allergy Organization Journal 2015, 8(Suppl 1):A59

Background: Common Variable Immunodeficiency (CVID) is a Primary Immunodeficiency characterized by an association of IgG deficiency with IgA and/or IgM deficiency, and a decrease in the function of specific antibodies, discarding other causes of hipogamaglobulinemia. The recurrent pneumonia are among the main clinical manifestations of CVID, which appear between 20 and 40 years of age in most cases. The aim of this study was to analyse the possible relationship between environmental changes and the onset of pneumonia in patients with primary CVID.

Methods: A prospective cross-sectional study was conducted after approval by the Institutional Review Board and written consent of the patients, as protocol number 16622913.5.0000.5479. Eighteen patients with CVID regularly followed in a specialized sector tertiary hospital were studied for one year (March 2013 to March 2014). Inclusion criteria were a previous diagnosis of CVID with a positive history of recurrent pneumonia. All received monthly replacement with human immunoglobulin. We investigated the clinical characteristics of the onset of pulmonary symptoms by standard questionnaire for all.

Results: Among the patients studied, 10 were male and 8 female, with mean age of 23 years old (6 to 64 y). The median age for the onset of recurrent pneumonias was 6,5 years (3months to 32y). The mean age of CVID diagnostic was 11 years (5 to 39 y). The time period from the onset of first pneumonia to the CVID diagnostic was 5,6 years. Five of 18 CVID
patients have the positive relation between onset of clinical recurrent pulmonary infections after environmental changes.

Conclusions: We observed that 28% of patients with CVID studied began presenting pneumonia after changes in the physical environment, especially after living with a greater number of individuals. We believe it is important hypothesis CVID in patients with recurrent pneumonia after changes in the physical environment. It is possible that part of the bimodal age distribution CVID diagnostic result of changes in the physical environment. More studies are needed in order to know the cause of the clinical manifestations are delayed at CVID.

A60
A comparative analysis of adverse drug reactions: pre- and post regional pharmacovigilance center in a single tertiary hospital
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World Allergy Organization Journal 2015, 8(Suppl 1):A60

Background: The number of adverse drug reactions (ADRs) has been significantly increased since the introduction of regional pharmacovigilance centers (RPVC) in Korea. We compared the reporting and clinical features of ADRs after starting the RPVC in a single tertiary hospital, and investigated the attitude and knowledge of ADR reporting and pharmacovigilance.

Methods: ADR data were collected from April 2012 to November 2013 in Dong-A University hospital in which started the RPVC since February 2013. We compared the ADR data before and after starting the RPVC. A questionnaire survey was conducted in a total of 436 health care workers.

Results: The total number of reported ADRs increased from 420 to 1265. The number of reported ADRs significantly increased since 2012. Majority of the health care workers reported ADR reporting is necessary (98.9%) and is their obligation (96.3%), while only 38.1% have previous knowledge of ADR reporting.

Conclusions: The number of reported ADRs significantly increased since the introduction of RPVC in a tertiary hospital. The causative drugs and clinical manifestations of ADRs changed. The ADR reporters diversified and they have the knowledge and responsibility to ADR reporting.

A61
Role of the asthma predictive index (API) in assessing the development of asthma among Brazilian children
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World Allergy Organization Journal 2015, 8(Suppl 1):A61

Background: The purpose of the present study was to evaluate the development of asthma in 8-12 year-old children who were seen for an acute wheezing episode in infancy, and to determine the effectiveness of the API in predicting the development of asthma in this group of children.

Methods: Sixty one of 76 children who participated in a previous study (Camara et al JACI 2004;113;551-7) aimed at identifying risk factors for acute wheezing in infancy were re-evaluated at the ages of 2-4 and 8-12 years. They had been seen at the Emergency Room (ER) for an episode of wheezing at the age of 6-24 months. At the age of 8-12 years, parents completed a questionnaire on respiratory symptoms; 52 children underwent skin prick testing with a panel of inhalant and food allergens and 48 performed methacholine challenge tests. Children were considered asthmatic at the age of 8-12 years if they presented previous physician-diagnosed asthma, or at least one of the following symptoms in the past 12 months: wheezing, cough or chest tightness with exercise, or dry cough without colds, accompanied by bronchial hyperresponsiveness, defined by a PC20 <4mg/ml methacholine challenge test. A positive API (at least one major criteria: physician-diagnosed eczema or parental asthma; or 2 of 3 minor criteria: physician-diagnosed allergic rhinitis, wheezing without colds or peripheral eosinophilia ≥4%) was established based on information collected when the children were 2-4 years-old. Sensitivity, specificity, predictive values, likelihood ratios and confidence intervals (CI) of the API for the diagnosis of asthma at 8-12 years-old were calculated.

Results: Among the 48 children evaluated at school age, 20 (41.7%) were diagnosed with asthma; 13 of them (65%) had a positive API at 2-4 years. Of the 28 children who did not develop asthma, only 9 (32.1%) had a positive API. Sensitivity and specificity of the API were 65% (CI=40.8-84.6) and 67.9% (CI=47.7-84.1), respectively. Positive and negative predictive values were 59.1 (CI=38.7-79.7) and 73.1 (CI=59.9-86.3); and positive and negative likelihood ratios were 2.02 (CI=1.5-2.73) and 0.51 (CI=0.37-0.72), respectively.

Conclusions: Asthma at school age was diagnosed in 41.7% of children seen in the ER for acute wheezing in infancy. The chance of developing asthma at school age was two times higher in children with a positive API, as compared with API negative children.

A62
Difficulties of caregivers of cow’s milk allergy patients in understanding the labeling of processed products
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World Allergy Organization Journal 2015, 8(Suppl 1):A62

Background: Cow’s Milk Allergy (CMA) is the main food allergy (FA) in children and its treatment includes restricted milk diet. The correct identification of terms that mean milk ensures the efficacy of treatment. The aim of this study was to identify the main factors involved in the caregivers’ ability to recognize the presence of milk in products labels.

Methods: Cross-sectional and descriptive study was carried out with CMA patient’s caregivers in follow-up at a pediatric reference center for FA. All of them were previously instructed about labels. This study included a questionnaire about the knowledge regarding the labels reading. Caregivers evaluated 20 labels (15 of foods, 3 of medicines and 2 of cosmetics) and should decide if the product was safe and the reason it can or not be offered to the patients. 15/20 contained words meaning milk protein. Results were expressed in number of labels reading (20 labels/caregivers).

Results: Twenty-eight caregivers fulfilled the questionnaire. The caregivers were 78.5% mothers and 21.5% fathers and about their school years 78.2% finished high school or college degree. The median of patient’s follow-up was 12 months (0.03-144). Twenty caregivers deal with patients that presented at least one episode of anaphylaxis. All caregivers referred label reading: 25 read every time they buy the product and only 9 read the labels after buying, before storing and offering. Labels were correctly read in 75.7% being lactose, casein and whey protein the most common correctly identified terms. The most common mistakes were related to the terms lact and caramel color. About medicines the most difficulties was to localize de terms related to milk in the package leaflet. Main factors regarding wrong comprehension were small or unclear printing, difficult localization and ingredients in foreign language.

Conclusions: Labels reading is part of food allergy treatment and demands constant reinforcements stressing the necessity of continuous label reading. Labels quality must improve in many aspects in order to help caregivers understanding of milk labels and avoid patient’s accidental intake.

A63
Transitional B cells and CD21low in patients with ataxia-telangiectasia
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World Allergy Organization Journal 2015, 8(Suppl 1):A63
Background: We aim to evaluate the proportion of transitional immature and CD21low B cells in patients with Ataxia-telangiectasia (AT), a complex disease with humoral and cellular immune dysfunction.

Methods: Blood samples were obtained from 18 AT patients and 15 age-sex-matched controls (C). This study was approved by the Medical Ethic Committee of the Federal University of Sao Paulo. Total numbers of T, B, and NK cells were enumerated from whole blood samples using TruCount Tubes. Peripheral blood mononuclear cells (PBMC) were cryopreserved, thawed and stained with conjugated monoclonal antibodies: anti-CD19-PerCP; anti-CD3-APC/Cy7; anti-CD24-PE; anti-CD21-APC; anti-CD38-PE/Cy7. Five-color flow cytometric immunophenotyping was performed on a BD LSRIIFortessa (BD Biosciences), and data were analyzed with FlowJo software (TreeStar, Stanford University, CA). Transitional B cells were characterized as CD3+CD19+CD24hiCD38lo and CD21low B cells as CD3+CD19+CD21hiCD38lo. Statistical analysis was performed with SPSS 20.0 and STATATA 12, and a significance threshold of <0.05 was used.

Results: From 18 patients, 15 were male and 3 female, aged from 5 to 25 years old. There were 3 pairs of siblings. Consanguinity was present between 2 parents. Ten of them are being treated with immunoglobulin replacement therapy. One of them had recovered from a neoplastic hematologic disease. The total number of lymphocytes was reduced in AT patients (928 - 4579 cel/mm³) compared to controls (1646 - 6601 cel/mm³) (p<0.001). Total CD3+ (AT = 1163.8 cel/mm³; C = 2247.2 cel/mm³; p<0.001), CD4+ (AT = 531.4 cel/mm³; C = 1153.3 cel/mm³; p<0.001) and CD8+ (AT = 507.6 cel/mm³; C = 880.3 cel/mm³; p=0.007) numbers were decreased as well. B cells counts also showed a reduction compared with controls (AT = 117.8 cel/mm³; C = 469.3 cel/mm³; p<0.001). By contrast, natural killer numbers were increased (AT = 583.9 cel/mm³; C = 357.3 cel/mm³; p=0.004). Proportion of transitional B cells was reduced compared with those seen in healthy control subjects (AT = 2.2%; C= 7.3%; p=0.001). On the other hand, the CD21low B Cells showed an increased proportion (AT= 25%; C=49.4%; p<0.001).

Conclusions: Patients with AT had disturbed B-cell homeostasis as evidenced by low transitional B cells and a large proportion CD21low B cells.

A65 Burden of reduced FEV1 (<80% of predicted) and doctor diagnosed asthma and their association with smoking and BMI among urban adult population in Barrackpore, West Bengal (India)

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World Allergy Organization Journal 2015, 8(Suppl 1):A65

Background: Bronchial asthma is a common and important cause of morbidity in adults. The World Health Organization (WHO) estimates that, the number of people suffering from asthma will exceed 100 million by 2025. Two recent national studies reported the burden of ‘self-reported’ and ‘diagnosed’ bronchial asthma to be 1.8% and 2.5% respectively in adult Indians. The diagnosis of Chronic Obstructive Pulmonary Disease (COPD) and bronchial asthma in developing countries are mostly empirical, and not dependent on ventilatory function evidence.

The study aims to measure the burden of reduced predicted forced expiratory volume in one second (FEV1), doctor diagnosed asthma, comparative relation of the two and to assess the role of smoking habits and body mass index (BMI) on both: reduced FEV1 and doctor diagnosed asthma.

Methods: The cross sectional study was conducted among 3575 adult individuals. Subjects were recruited from longitudinal study of urban population cohort in Barrackpore, West Bengal. ‘Asthma’ was defined as a positive response to the question ‘Has been a doctor ever told you that you have asthma?’. Pulmonary function test was performed by trained and supervised spirometry technicians using computer based electronic spirometers. The predicted level of FEV1 was derived from Global Initiative for Asthma (GINA) guideline. The BMI was calculated by weight and height [weight (kg)/height (m)²] and classified according the WHO. The study was approved by the Institutional Ethics Committee of Barrackpore Population Health Research Foundation, India.

Results: Overall 3.02% (108 individuals) of the population reported doctor diagnosed asthma, 3.02% male and 3.02% female. Reduced FEV1 (<80% of predicted) was reported in 11.94% (427) in the total study population, 15.45% (210) male and 9.79% (217) female. 319 (8.92%) of participants with FEV1<80% and (39.13%) were FEV1<60% (not previously diagnosed). 39.22% of males and 0.22% of females were current smokers. Significant association was seen in the reduced FEV1 (<80% of predicted) in respect of never, former and current smoking (p<0.05) while asthma was not significantly associated with reduced FEV1 (p=0.25).

9.51% were found to be obese 4.49% (61 of 1359) male and 12.60% (279 of 2216) female. BMI was significantly associated with reduced FEV1 (p<0.05) but not with doctor diagnosed asthma.

Conclusions: The prevalence of reduced FEV1 (<80% predicted) was high compared with doctor diagnosed asthma among the urban adults in the study area. Undetermined and undiagnosed asthma and or chronic obstructive pulmonary disease is an unrecognized significant non-communicable disease burden in this urban Indian community.

A66 The relationship between serum vitamin D level and wheezing and allergy

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World Allergy Organization Journal 2015, 8(Suppl 1):A66

Background: Vitamin D plays a role in various immunoregulatory and antimicrobial effects and it is associated with the development of allergy and asthma. The aim of the study is to investigate the relationship between serum 25-hydroxy vitamin D levels and the risk of wheezing and allergy.
A67 Vitamin D serum levels in allergic rhinitis
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World Allergy Organization Journal 2015, 8(Suppl 1):A67

Background: Recently it has been suggested that, the worldwide increase in allergic diseases such as asthma, allergic rhinitis and food allergy is associated with low serum vitamin D levels. The aim of this study was to measure serum vitamin D levels in patients with allergic rhinitis.

Methods: Serum vitamin D (25-hydroxyvitamin D), calcium, phosphorus, alkaline phosphatase and parathyrin hormone levels were assessed in 200 patients with allergic rhinitis diagnosed clinically and the results of skin prick tests for aeroallergens. Subjects with serum containing less than 20 ng/ml vitamin D were deemed deficient.

Results: The mean vitamin D levels in the study group was found 14.7 ng/ml and 68% of patients had vitamin D deficiency.

Conclusions: The present study showed that the majority of allergic rhinitis patients had vitamin D deficiency. Therefore measuring vitamin D serum levels could be helpful in the routine assessment of patients with allergic rhinitis.

A69 Sublingual immunotherapy with a carbamylated monomeric allergoid in cat-allergic patients suffering from rhinoconjunctivitis and/or asthma. A multicenter, cross-sectional survey
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World Allergy Organization Journal 2015, 8(Suppl 1):A69

Background: In this cross-sectional survey our purpose is to evaluate the clinical outcome and safety of allergoid sublingual immunotherapy in cat-allergic patients suffering from rhinoconjunctivitis and / or asthma.

Methods: All patients were drawn anonymously from twenty-one practices across Germany. For this survey, a questionnaire was designed to standardize the patient interviews that were performed by the investigators. Patients were prescribed monomeric allergoid sublingual tablets for an initial up-dosing therapy and afterwards for maintenance therapy. Primary endpoints were improvement of symptoms, medications score and safety during therapy with monomeric allergoids.

Results: In total, 70 patients completed the questionnaire. Of 70 patients, 35.7% were males and 64.3% females. Regarding rhinitis symptoms, almost thirty percent (29.1%) of the patients had become symptom-free during the first year of therapy. This number increased to 52.8% of the remaining patients in the second year, and to 80% of the remaining patients in the third year of therapy. Similar results were valid for conjunctivitis with 35.6%, 55.2% and 72.7% from the first to the third year of therapy. For asthmatic patients, 35.1% had become symptom-free during the first year, 58.3% during the second year, and 70% during the third year of therapy. At baseline, usage of asthmatic medication was 1.33 ± 1.48 (mean ± SD) relative to 0.68 ± 1.23 (mean ± SD) at the time of the questionnaire conduct, with p ≤ 0.05. For anti-allergic medication,
baseline medication score was 1.01 ± 1.37 (mean ± SD) relative to 0.45 ± 0.87 (mean ± SD), with p ≤ 0.001. Regarding safety, no events of death, no anaphylactic reactions, no serious adverse events, and no systemic adverse reactions occurred. Only seven local adverse reactions were reported in 7 patients. Besides the major endpoints, secondary endpoints such as patients’ improvement of quality of life, patients’ compliance, patients’ satisfaction, and trust in the therapy were remarkably enhanced.

**Conclusions:** Monomeric allergoid sublingual tablets show clinical advantages in a practice environment and under real-life setting conditions. The results of other studies could be reinforced by the results of our study, with significant reduction in medication score, symptom improvement, and a considerable safety outcome. It can be claimed that a sublingual monomeric tablet therapy is safe and well tolerated and significantly reduces rhinitis symptoms in cat-allergic patients.

### A70 Comparison between allergic extracts of mites manufactured with raw materials from different sources

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**Background:** Allergenic extracts from different companies or even different batches of the same company can show great variation in allergens content and relative potency (RP). The objective of this study was to compare allergic extracts of mites produced with raw material from different suppliers.

**Methods:** Seven allergenic extracts produced with Dermatophagoides pteronyssinus from six suppliers were compared: extract A (USA), B and C (Spain), D (Argentina), E (Costa Rica), F and G (The Netherlands). This evaluation was carried out comparing the dosages of groups 1 and 2 major allergens of Dermatophagoides (ELISA - INDOOR Biotechnologies), RP (Competition ELISA - FDA Allergenic) and protein bands pattern (SDS-PAGE) among extracts.

**Results:** The content of groups 1 and 2 allergens ranged from 21 (B) to 49 μg/mL (A), and from 4 (D) to 50 μg/mL (F), respectively. The RP varied from 0.25 (D) to 2.08 (F), when compare with the FDA Allergenic IHR. The protein bands pattern were characteristic of mite D. pteronyssinus, however, in F were observed some protein bands which had not seen in others extracts, and in G were observed only group 1 and 2 major allergens. The results showed that there are significant differences between extracts made with raw material from different suppliers and even between extracts produced with raw material from the same supplier (extracts F and G). The results found in this study cannot be explained by differences in the manufacturing process, since all extracts were produced by the same process. The extracts with the greatest quantity of major allergens and relative potency (A and F) were produced with semi-purified raw material (both with more than 99% of purity), while the other extracts were produced with mite whole culture (mites, feces and culture media).

**Conclusions:** It was concluded that the quality or purity of raw material used in the manufacturing process of allergic extracts directly influences the final product quality, and therefore, analytical methods to control the relative potency, in order to assure batch to batch reproducibility, are essential to effectiveness and safety of allergenic products.

### A71 Prevalence of late cutaneous reactivity to metabisulﬁtes in patients with and without chronic eczema in Argentina

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**Background:** Sulfites are used as preservatives and antioxidants in the cosmetic, pharmaceutical and food industry. The prevalence of sensitization caused by sulfites in Argentina is unknown.

**Methods:** Twenty two participants, 14 males and 8 females (mean age 31 years old), without eczema (Group 1) and 20 patients, 3 males and 17 females (mean age 35 years old), with chronic eczema (Group 2), living in Rosario, Argentina, were patch tested (PT) with sodium metabisulfite (MBS – CAS: 7681-57-4) 1% in petrolatum and with Brazilian Contact Standard Series (FDA Allergenic, Brazil). For the test, Finn Chambers (SmartPractice, USA) with 8mm (standard series) and 12mm (MBS) of diameter were used and the patch testing was performed according to the International Contact Dermatitis Research Group criteria (2 days of occlusion, readings on D2 and D4, using a score from + to ++ +). Chi-squared test was used to examine whether there was a significantly statistical difference between positive reactions frequencies observed in two groups. The significance level for group differences was set at p<0.05. The software used for this analysis was the GraphPad version 6.

**Results:** Three participants (13.6%) of Group 1 and four (20%) of Group 2 presented positive reactions to MBS. There was no statistical difference between groups (p=0.58). All participants of group 2 presented at least one positive reaction to substances of the Brazilian Contact Dermatitis Standard Series (FDA Allergenic) while no participants from Grupo 1 reacted to it. None of the patients who were treated with PT (+) and/or (-) had a suspected history of symptoms elicitation after the consumption of food and/or beverages with MBS as additive.

**Conclusions:** We concluded that MBS 1% in petrolatum is suitable for patch test but the relevance of positive reaction to MBS 1% has to be better explained before its use in standard series.

### A72 Allergological work-up in the suspicion of drug hypersensitivity in patients undergoing allergens-specific immunotherapy

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**Background:** Poorly documented self-reported drug allergy (DA) is a frequent problem in daily clinical practice and has a considerable impact on prescription choices. Atopy has been described as a risk factor for drug hypersensitivity (DH). The aim of this study was to better investigate the cases of suspicion of DH reported by patients undergoing subcutaneous allergen-specific immunotherapy (SCIT).

**Methods:** In this prospective study conducted since 2013, we firstly evaluated the self-reported cases of DH in patients undergoing SCIT in the Allergy Department of our Hospital. The SCIT has been indicated to atopic patients based on the dust mite in vivo or in vitro specific-IgE (D. pteronyssinus and/or B. tropicalis) and clinical relevance of these allergens. We excluded cases with unrelated history of DH. For the evaluation of suspected DH, we used the European Network for Drug Allergy (ENDA) questionnaire and the DA work-up followed the ENDA recommendations.

**Results:** Of all 1400 patients undergoing SCIT evaluated on May/2013, 691(49,3%) replied the first questionnaire, 133(19%) of those self-reported having drug allergies. Forty-five (34%) indicated hypersensitivity to antibiotics (ATB), 46(35%) to non-steroidal anti-inflammatory drugs (NSAIDs), 5(4%) to both ATB and NSAIDs, 3(23%) to other drugs and 6 (4%) didn’t remember the medication involved. Of the 133 reports, 65 (46%) were evaluated by ENDA questionnaire and 68 (48%) refused to undergo the drug-allergy evaluation. Of those 65 evaluated cases, forty-two (65%) were women and the mean age was 28 (4 to 70 years). Thirty (46%) cases had history of immediate reaction and the mean time between the reaction and the evaluation was 10 years. Eleven (17%) cases were excluded and the DH investigation has been offered to 54 (83%) patients, from whom 38(58%) had possible/probable clinical history of DH. Twenty-five (38%) cases refused or were not interested in undergoing the investigation and 11(17%) are still under investigation. Of 18(28%) who completed the investigation, 11 were with NSAIDs and 7 with antibiotics, all negative.

**Conclusions:** The major result of this study confirmed that DH reactions occurred in less than one quarter of patients with a history suggesting possible DA. Negative results on DA work-up may have occurred due to the loss of sensitization and cofactors not included in the diagnostic
procedure. Diagnostics tests in individuals with self-reported DA can exclude these conditions.

A73
Clinical and epidemiological aspects of patients with cow’s milk allergy followed in a public health reference center in central Brazil

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Background: The prevalence of cow’s milk allergy (CMA) has increased in last decades. The disease affects especially young infants and their clinical presentation can be diverse, often associated with comorbidities. The diagnosis is essentially based on clinical aspects and challenge tests. Its treatment demands strict adherence to elimination diet, with avoidance of milk protein and, for infants, the use of special hypoallergenic formulas. The increase in demand for these formulas, costly to the Public Health System, makes it necessary to better characterize the target population of assistance programs.

Methods: This is a descriptive, observational, cross-sectional study based on secondary data collected from a standardized first consultation’s form, regarding clinical and epidemiological aspects of patients who have requested special formulas due to previous diagnosis of cow’s milk allergy and were referred to a Municipal Health Centre of Food Allergy in Central Brazil.

Results: Between January 2011 and May 2012, 449 patients (55% male) were admitted. The mean age at admission was 11.34 months (± 8.03), while the average age of onset of symptoms suggestive of food allergy was 3.87 months (± 4.19). Almost 90% of the patients presented symptoms during the first year of life. Extensively hydrolyzed formulas were the mostly requested. Absolute predominance of non-IgE-mediated cases was noted (88.4%), typically with late presentation and preponderance of digestive (91.3%) and systemic (33.4%) symptoms, with rare anaphylactic reactions (03 cases). Children under one year have had significantly more digestive symptoms than older infants. At admission time, 24.6% infants younger than 6 months were overweight (z < -2 weight-for-age score). Despite the family history of atopy in up to 75% of cases, over 80% of children had consumed milk with intact cow’s milk protein at weaning. Half the patients using soy formulas have started their consumption before 6 months of life. The proportion of infants with the diagnosis of Gastrooesophageal Reflux Disease was 68%, and 90% of them were taking acid suppressors drugs.

Conclusions: The better characterization of the population seeking special formulas allows the generation of public health interventions in the fields of prevention, diagnosis and treatment, and also optimize overall patient care combined with effectiveness and lower costs.

A74
Impact of subcutaneous specific-allergen immunotherapy in the quality of life of brazilian moderate/severe atopic dermatitis patients

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Background: Atopic dermatitis (AD) is known as having an important influence in the quality of life (Quol) of patients and their families, even though, the impact of the subcutaneous specific-allergen immunotherapy (SCIT) in this field has sparsely been accessed. This project aims to evaluate the effect of SCIT in the Quol of Brazilian patients with moderate/severe AD and their families.

Methods: We analyzed 40 patients with diagnosis of moderate/severe AD based on the SCORAD and allergological work-up, under follow-up in the Allergy Department of our Hospital between 2012 to 2014. The cluster SCIT has been indicated based on the dust mite specific-IgE (Dermatophagoides pteronyssinus and/or Blomia tropicalis) and clinical relevance of these allergens. To access the quality of life of patients and their families, we used specific questionnaires previously validated to Brazilian Portuguese, the Infant’s Dermatitis Quality of Life Index (IDQOL) and Dermatitis Family Impact Questionnaire (DFI), and applied before and after 12 months of the use of SCIT. The Quol index scores were evaluated from 0 (best index of Quol) to 32 (worst index of Quol).

Results: Of all 40 patients, 50% were women and the mean age was 12.4 years. The average index score of IDQOL before the immunotherapy was 13.59 and 7.7 after 12 months of the SCIT (P<0.001). Meanwhile, the average DFI was 13.54 in the first evaluation and 8.5 in the last evaluation (P<0.001). A positive correlation was observed between the severity of AD and IDQOL scores. The most important factors related to the decrease of the IDQOL were the improvement of pruritus (from 2.4 index to 0.9), quality of sleep (from 1.6 to 0.9) and feelings for having a cutaneous disease (from 1.3 to 0.7), the only domain we didn’t find significant difference was related to the impressions the patients have regarding the ongoing treatment (frequency of hospital visits). The major important domains of the DFI scores differences were the quality of the family’s sleep (from 1.0 index to 0.3), leisure (from 1.0 to 0.5) and costs (from 1.8 to 1.3). No significant difference was seen in the domain regarding the responsibility of the family on keeping the patient’s treatment.

Conclusions: This study demonstrates that AD severity impaired the IDQOL as well as the DFI. The SCIT showed to be effective on increasing the Quol of AD patients and in their families, decreasing the index of the majority of both IDQOL and IDF domains.

A75
Follow-up of asthma control and quality of life after discontinuation of omalizumab in severe asthmatic patients

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Background: There is evidence that long-term omalizumab treatment might have disease-modifying activity, however, important questions concerning treatment duration after clinical improvement remain unanswered. This study aimed to evaluate follow-up of asthma control and quality of life after discontinuation of omalizumab in severe asthmatic patients previously treated with long term omalizumab.

Methods: This is a prospective, observational study. Omalizumab therapy was stopped in 16 severe allergic asthmatic patients who previously treated with omalizumab over a 3 years period. Asthma Control Test (ACT), Asthma Quality of Life Questionnaire (AQLQ), pulmonary function test and severe exacerbations were recorded for one year at three month intervals after discontinuation of omalizumab.

Results: The mean age was 53.5±9.5 and duration of asthma was 21.2±11.2 years. Serum total IgE level was 380.3±196 IU/mL. Mean duration of omalizumab treatment was 54.6±15 months. Loss of asthma control was documented in 10/16 patients (62.5%). The mean time to the first moderate to severe asthma exacerbation after discontinuation was 2.68±2.2 months. No correlation was found between time to loss of control and duration of omalizumab treatment. The mean score of ACT in the time of discontinuation of omalizumab decreased from 22.13±1.2 to 21.06±1.5 at 3 months (p=0.0001) and to 19.3±2.0 at 12 months of discontinuation (p=0.005). The number of exacerbation within the last 12 months increased from 1.3±0.9 to 3.4±3.2 (p=0.006), and the number of hospitalization increased from 0.12±0.26 to 0.6±0.9 within 12 months of discontinuation. The mean score of AQLQ decreased from 4.17±0.8 to 3.26±0.7 at 12 months of discontinuation (p=0.0001).

Conclusions: The discontinuation of omalizumab after the successful long term therapy was associated of early loss of asthma control, moderate to severe exacerbation of the disease, and impaired quality of life. This suggest that the decision regarding discontinuation of omalizumab treatment should be undertaken individually after careful evaluation of benefits and risks in severe asthmatic patients eventhough they had been treated with a long enough course of omalizumab.
A76
Haemophagocytic lymphohistiocytosis - a case report in infant
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Background: The purpose of this case report is to alert for a serious disease, potentially lethal, often confused with sepsis, however, it is an auto inflammatory disease, with massive activation of macrophages and consequent tissue destruction.

Methods: Review of electronic medical record.

Results: We report a case of an infant, 1 year and 8 months old, male, that was in intensive care unit for five months with initial diagnosis of acute diarrhea, dehydration and hemolytic uremic syndrome. The infant developed fever, hepatosplenomegaly, cutaneous rash, bicytopenia, elevated serum ferritin, liver enzyme abnormalities, encephalitis, acute renal failure and serum hypogammaglobulinemia. The diagnosis of haemophagocytic lymphohistiocytosis was suspected and confirmed with biopsy of bone marrow with evidence of haemophagocytosis. Chemotherapy was instituted promptly with etoposide, dexamethasone and intravenous human immunoglobulin (immunomodulation dosis), with a favorable evolution and discharge from the intensive care unit.

Conclusions: We call attention to the clinical and laboratory diagnosis of haemophagocytic histiocytosis which is a potentially lethal disease if not diagnosed early.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A77
A new CARD9 mutation (R101S) in a Brazilian patient with DEEP dermatophytosis
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World Allergy Organization Journal 2015, 8(Suppl 1)A77

Background: Deep dermatophytosis had been described in HIV and immunosuppressed patients. Recently, the association with autosomal recessive CARD9 deficiency was found in individuals previously classified as “immunocompetent”. We describe a new CARD9 mutation associated with dermatophytosis.

Methods: We report a 24-year-old Brazilian male with deep dermatophytosis with Trichophyton mentagrophytes isolated from the skin lesions. Ospornophagocytosis of Candida was performed. CARD9 was amplified with specific primers.

Results: The symptoms initiated with oral candidiasis at 3 years old, generalized afterwards and treated with oral and local therapy. At 11 years old well delimited, desquamative and puriginous skin lesions appeared; ketoconazole and itraconazole were maintained for 5 years. At 14 years old, the lesions were ulcerative, secretive and painful in the shoulders (15cm of diameter); terbinafine and posaconazole were used without result. His brother presents superficial dermatophytosis and one sister are heterozygous for this mutation. Laboratory evaluations showed eosinophilia and high IgE levels; Candida killing was clearly impaired in the patient.

Conclusions: This is the first report of CARD9 deficiency in a Brazilian family and the first report of a CARD9 R101S mutation. A different mutation affecting the same amino-acid (R101C) had been previously described in two Moroccan siblings with deep dermatophytosis.

A78
Endobronchial ultrasound transbronchial needle aspiration in the evaluation of the mediastinum lymph nodes: safety evaluation
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World Allergy Organization Journal 2015, 8(Suppl 1)A78

Background: Evaluation of mediastinal lymph nodes is of paramount importance for accurate staging in lung cancer and often dictates optimal treatment. Mediastinoscopy is considered the “gold standard” for sampling lymph nodes, but it is an invasive, costly technique that requires general anesthesia. Newer staging techniques have emerged. Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is a minimally invasive technique that permits accurate and adequate sampling of mediastinal and hilar lymph nodes under direct, real-time visualization of lesions. The aim of this review is to evaluate the safety profile of this increasingly performed procedure.

Methods: A detailed search was conducted through bibliographic databases (PubMed Central, Medline) using combinations of the terms “complications or adverse events”, “endobronchial ultrasound transbronchial needle aspiration” and “mediastinum or mediastinal lymph nodes”.

Results: Fifty-five studies were retrieved reporting the presence or absence of complications following EBUS-TBNA. Eighteen of these focused specifically on safety issues. Complication rates ranged from 0.15% to 1.44% in meta-analyses, large retrospective reviews and nationwide surveys. The results of smaller studies were heterogeneous, but overall few adverse events have been reported. Case reports have also been included in the review.

Conclusions: So far, based on data from well-structured studies, originating from experienced medical centers, EBUS-TBNA is a safe technique with rare complications. On the other hand, some studies have raised issues mainly on the infectious and traumatic complications of this technology, and although data are not sufficient, these issues must be put under consideration. Nevertheless, overall EBUS remains a safe procedure.

A79
The evaluation of frequency and risk factors of house dust mites allergy in obese children
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World Allergy Organization Journal 2015, 8(Suppl 1)A79

Background: During last years, more frequently increase of number of obese children was observed in the European and American societies. The increased body mass has numerous health consequences, including impairment function of the respiratory and immunology system.

Aim: The aim of the study was to evaluate the frequency and risk factors for dust mites allergy in children with obesity.

Methods: 103 school age children (7-16 y.o. M 50, F 53) with obesity (centile of BMI>97) were included to the study. All children were under the care of the out-patient endocrinology department. Clinical data, detail interview about the risk factors of obesity and allergies, were evaluated. Prick skin tests (Allergopharma) with common allergens and spirometry (Jaeger) were performed in all children. The statistical analysis was done using program Statistica vs 10.0.

Results: 23 (22%) children had HDMA. 16 (70%) children with HDMA presented symptoms of asthma and allergic rhinitis, 6 (26%) only rhinitis. Patients without HDMA (nHDMA): 2 (3%) had rhinitis chronica, 6 (8%) asthma, 5 (6%) had both asthma and rhinitis chronica. Children with HDMA had more frequently rhinitis chronica than nHDMA children (p<0.05) and asthma with rhinitis chronica (p<0.05). The age, breastfeeding, parents obesity, coexisting of thyroid and hyperinsulinemic disturbances, type of obesity, exposition to house animals, did not significantly correlating with HDMA. The parents allergies increased the risk of HDMA in obesity children (p<0.05).

Conclusions: 23% school aged obese children had HDMA. The most frequency of clinical manifestation of HDMA in obese children was asthma with rhinitis chronica (70%). The parents allergy was a risk factor for HDMA. A screening for respiratory abnormalities and HDMA in obese children, seems to be of significant importance.
A80
Efficacy of injection specific immunotherapy for grass pollen seasonal allergic rhinitis
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World Allergy Organization Journal 2015, 8(Suppl 1):A80

Background: Allergy to pollen grass causes significant morbidity in Poland. Allergic rhinitis is a common condition which, at its most severe, can significantly impair quality of life despite treatment with antihistamines and topical nasal corticosteroids. The aim of the study was to evaluate the efficacy of injection specific immunotherapy (STI) mixture grass pollen allergode in 20 000 AUM/ml for seasonal allergic rhinitis.

Methods: 72 patients followed 12-month immunotherapy and 63 patients were observed without immunotherapy. Clinical efficacy was based on symptom and medication scores and the percentage of healthy days (days without symptoms or medication). Severity of rhinitis scales, visual analogue scale, evaluation of the treatment by doctors and patients, immediate and delayed cutaneous response and quality of life questionnaires were also studied.

Results: The patients with immunotherapy showed decrease in symptoms (p = 0.01), medication (p = 0.003) and both (p =0.001), increase of healthy days (p=0.02) one year after treatment. Rhinitis severity scales decreased after immunotherapy. Both clinical evaluation by physicians and patient’s self-evaluation showed efficacy in 81% and 74% of the patients with STI. None of these changes were observed in group without STI. Immediate cutaneous response was significantly reduced in STI patients compare to other patients, one year after STI.

Conclusions: A recombinant allergen vaccine can be a effective and safe treatment to reduced symptoms of allergic rhinitis.

A81
Prostaglandin I2 inhibits IL-33-induced IL-5 and IL-13 production by human type 2 innate lymphoid cells
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World Allergy Organization Journal 2015, 8(Suppl 1):A81

Background: Group 2 innate lymphoid cells (ILC2) are characterized by their expression of cytokines including IL-5 and IL-13 in response to IL-33. ILC2 are critical in mediating influenza virus-induced airway hypersensitivity and are associated with allergic inflammation. However, the factors regulating human ILC2 (hILC2) cytokine responses are not fully defined. In this study, we tested the hypothesis that prostaglandin I2 (PGI2), a lipid product formed in the cyclooxygenase (COX) pathway of arachidonic acid metabolism, suppresses IL-33-induced cytokine responses by hILC2.

Methods: hILC2 (Lin-CD25+CD127+ cells) were purified by flow cytometric cell sorting from peripheral blood mononuclear cells and stimulated with IL-33 and IL-2 in the presence of the PGI2 analog cipicoram or vehicle.

Results: We found that hILC2 expressed the IL-33 receptor and the PGI2 receptor IP. Treatment of the cells with cipicoram significantly decreased IL-5 and IL-13 production, and the inhibition was associated with lower levels of mRNA expression of the transcription factors involved in the production of these cytokines and ILC2 development including gata3, gfi-1, Ror-α and Id2. cAMP-elevating reagents such as db-cAMP and PGE2 had a similar inhibitory effect on IL-5 and IL-13 production by hILC2.

Conclusions: These data indicate that PGI2 inhibits hILC2 cytokine secretion and suggest that use of Cox inhibiting drugs may increase the risk of developing allergic diseases by augmenting ILC2 cytokine responses.

A82
Allergic/infusion reactions reported with cetuximab and rituximab
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World Allergy Organization Journal 2015, 8(Suppl 1):A82

Background: Monoclonal antibodies (mAbs) used in cancer therapy may cause allergic/infusion reactions (AIRs). To assess the scope of this problem, a pilot literature search was conducted.

Methods: Using terms for oncology mAbs and AIRs, English-only articles were searched in PubMed, EMBASE, and BIOSIS. The search was conducted on Nov 19, 2013, with no date limiters. Cetuximab (C) and rituximab (R) were among the most commonly reported mAbs, and these were analyzed further. Articles were excluded if AIRs couldn’t be quantified.

Results: 940 articles met criteria, including 167 and 83 for C and R, respectively, describing 19,861 and 5064 mAb-treated patients. AIRs were reported in 1694 (8.5%) and 647 (12.3%) C and R patients, but these numbers may be low as some articles only reported grade 3/4 or severe reactions. Various terms were used to describe AIRs (eg, anaphylaxis (AX), allergic reaction (AR), hypersensitivity reaction (HR), infusion reaction (IR)), so it was often difficult to distinguish the type of AIR. Some AIRs were reported as grade 4 HRs but not specifically noted as AX. Also, it was hard to attribute an AIR to a specific agent when the mAb was part of combination therapy. Grade 3/4 AIRs were noted in 633 (3.2%) and 215 (4.2%) C and R patients. AX specifically was noted in 88 (0.4%) and 64 (1.3%) C and R patients. Among C patients, 13 fatalities were attributed to AIRs, with none in the R group.

Conclusions: Although a well-known adverse event, the magnitude of AIRs with C and R still may be underestimated. The presence of the galactose-galactose epitope in mAbs produced in murine cell lines, as with C, contributes to AIRs. The frequency of AIRs was likely underestimated in this review due to limited reporting in the medical literature and varied classification. Various AIR terms were used interchangeably, sometimes within a single article. Grade 4 AIRs were not always labeled as AX. Grade 3/4, AX, or fatal AIRs were rare but are clinically significant when they occur. Management of AIRs often was not reported, nor was the incidence of delayed AIRs, which may have been unknown. This suggests a need for more standardized reporting of AIRs. Appropriate steps for prevention/treatment of AIRs should be taken when these mAbs are utilized. Readily available therapies for the treatment of AIRs may be helpful (eg, epinephrine autoinjectors); however, these products are not indicated for patients at risk for delayed AIRs.

A83
A gain-of-function mutation of STAT1 in a 3-year-old child with chronic mucocutaneous candidiasis and autoimmune hepatitis: a case report
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World Allergy Organization Journal 2015, 8(Suppl 1):A83

Background: Chronic mucocutaneous candidiasis (CMC) is a heterogeneous group of primary immunodeficiency diseases (PID) characterized by chronic and recurrent infections of the skin, nails, and oropharynx, mostly caused by Candida sp. CMC is often associated with autoimmune and endocrine disorders. However, CMC may be the only or the main phenotype in patients with AD IL-17F and AR IL-17RA deficiencies, as well as gain-of-function (GOF) mutations of STAT1.

Methods: Case report - we describe a 3-year-old female child with a history of chronic candidiasis since 11 days of age (oral, genital, skin and nails), as well as several episodes of acute otitis media. The patient also presented local reaction to BCG. Her mother had systemic lupus erythematosus and CMC. Evolution: At 2 years of age the patient developed recurrent fever, hepatomegaly, jaundice, dark urine and abdominal distension. She was hospitalized and diagnosed with overlapping cholangitis and autoimmune hepatitis. The laboratory evaluation showed progressive increase of liver aminotransferases; presence of nodules in the spleen, infectious bronchiolitis and maxillary sinusopathy (all by CT scan), and esophageal candidiasis. The patient was treated with amphotericin, corticosteroids, antibiotics and azathioprine, and she had progressive improvement of general state and of the symptoms. She was discharged with fluconazole and azathioprine continuously; she maintains little skin and nails lesions.
Immunoglobulins, complement, and lymphocytes subpopulations were normal. A genetic analysis was performed and revealed a GOF heterozygous mutation in STAT1:coiled-coil domain NM_007315: exon 1C.

Results: In this case report we presented a rare PID that curses with autosomal recessive inheritance and a specific growth factor receptor deficiency. The most common clinical manifestation was atopic eczema and mean total IgE was 225 IU/mL. The mean wheal to hen’s egg in prick test was 4.8 mm. The following laboratory aspects were evaluated: Eosinophilia was considered over 400 cells/µm³. The technique used for specific IgE was immunofluorescence. The result of prick test was the average of the papule, considered positive papules over 3 mm. The results were presented as mean values.

Methods: A seventeen year old girl diagnosed with Cystic Fibrosis at 3 months of age. The clinical manifestations evaluated were: atopic eczema (27.0%), urticaria (24.5%), atopic eczema associated with urticaria (13.2%), anaphylaxis (8.8%), gastrointestinal tract manifestations (8.8%), respiratory tract manifestations (8.8%), urticaria and angioedema (7.5%) and angioedema (1.8%). The following laboratory aspects evaluated were: Eosinophilia was present in 30.1% of patients. The mean total IgE was 1108.8 IU/mL. The specific IgE to hen’s egg was 9.3 IU/mL and to the allergic component ovomucoid was 1.9 IU/mL. The mean wheal to hen’s egg in prick test was 4.8 mm.

Conclusion: It was concluded that allergy to hen’s egg was more common in males. The opportunistic diagnosis of allergy to hen’s egg was considered late, on the other hand, oral tolerance was achieved rapidly. The most common clinical manifestation was atopic eczema and mean total IgE was elevated.

A86
A case report of ABPA, cystic fibrosis and asthma treated with omalizumab
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World Allergy Organization Journal 2015, 8(Suppl 1):A86

Introduction: In Canada the use of Omalizumab is restricted to patients with moderate to severe allergic asthma. However there are some cases reports showing its effectiveness in other conditions like chronic urticaria, ABPA and patients with nasal polyps and asthma. Although there are also reports of using omalizumab in patients with cystic fibrosis and ABPA, there are not controlled trials confirming their efficacy.

Case report: A seventeen year old girl diagnosed with Cystic Fibrosis at the age of 6 and subsequently developed ABPA at the age of 15 but also had clear evidence of bronchiol asthma confirmed by history and spirometry. She also had significant environmental allergies. The diagnosis of ABPA was confirmed based on 5 or more criteria accepted by international committees and Cystic Fibrosis by genetic testing. She also had pancreatic insufficiency consistent with Cystic Fibrosis. Because her condition was gradually deteriorating requiring despite the use frequent courses of antibiotics, prednisone and admissions to the hospital, it was decided to place her on omalizumab in August 2012. The dose based on her weight and total IgE was 225 mg every 2 weeks.

Results: She felt better subjectively within two months after she was placed on omalizumab and after almost 2 years of treatment she had a significant improvement in all objective parameters including lab investigations, decreased need for steroids, antibiotics, admissions to the hospital and quality of life. She has not had any adverse reactions.

Summary: It is known that Cystic Fibrosis together with ABPA will induce a more significant deterioration of the lung function than either alone and seriously interferes with quality of life. However, it appears that adding omalizumab to her current treatment has had an overall significant benefit that was sustained over 2 years.

The authors are aware that although it is unlikely that there will be RCT in this unique group of patients, case reports such as the one presented, might encourage others to follow the same approach in specific patients.
Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A87
Persistence of positive skin test 25 years after a penicillin-induced anaphylaxis
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World Allergy Organization Journal 2015, 8(Suppl 1):A87

Background: Skin tests are important in the investigation of hypersensitivity drug reactions (HDR), particularly when betalactams are involved. However, the sensitivity decreases with time. It has been described that skin tests become negative around five years after a betalactam hypersensitivity reaction. We report a patient with persistence of a positive skin test twenty five years after an anaphylactic reaction due to penicillin.

Methods: Literature review and case description.

Results: We assessed a 39 years old female with a history of severe penicillin allergic reactions in the past. She reported two reactions after taking benzathine benzylpenicillin intramuscularly (IM) in 1989. Firstly, thirty minutes after she took a dose because of a urinary tract infection, she developed urticaria on her arms. She was treated with antihistamines and told to take a second dose after a week. When she took the second dose, she developed a severe reaction compatible to anaphylaxis: urticaria, angioedema, bronchospasms and asthma. She was not treated with epinephrin, but she got better after taking corticosteroids, antihistamines and bronchodilators. She was then told to avoid beta lactams in the future. She had never taken those drugs again, but she used to have contact urticaria when preparing amoxicillin to their children. In 2014, she was diagnosed as having syphilis in pregnancy. Then, she was referred to our outpatient clinic specialized in HDR so that we could perform a desensitization to benzathine benzylpenicillin. First of all we performed skin tests with penicillin G potassium 10.000UI/mL. The prick test was negative, but the intradermal one was positive, confirming the presence of specific IgE. During the desensitization, she develop palp and sole pruritus and rhinoconjunctivitis, but the procedure was concluded successfully and she could be treated with the whole dose of 7.200.000UI by IM route.

Conclusions: Despite the literature data, we reported a patient having a positive skin test to penicillin a long time after the initial immediate reaction. We speculate that she continued being stimulated by cutaneous contact with amoxicillin, maintaining specific IgE production. In conclusion, skin tests should always be performed before a challenge procedure, specially when the initial reaction was severe.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A89
Systemic nickel allergy syndrome
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World Allergy Organization Journal 2015, 8(Suppl 1):A89

Background: Systemic nickel allergy syndrome (SNAS) is characterized by contact dermatitis associated with systemic symptoms after ingestion of foods containing nickel.

Methods: Demonstrate SNAS which is characterized by contact dermatitis to nickel and systemic reactions after ingestion of rich foods nickel. We evaluated adult patients with ages between 18 and 65 years, positive patch test for nickel, grades 3 and 4, and who had symptoms suggestive of SNAS. These patients had eczematous lesions of contact dermatitis did not disappear. That even with the exclusion of products containing nickel in this composition worsened without new skin exposure to these products. The study was made with 331 patients selected among January of 2012 to April 2014, and 87 of them related worsening with ingestion of food that they didn’t know who to identify.

Results: During the elimination diet of rich food in nickel for 60 days, patients reported significant improvement and, or abscense of symptoms, mainit gastrointestinal and cutaneous. After the period, the diet was reintroduced in 43 patients, and others 44, maintained the exclusion diet for 60 days. At the first group, there was a reset of symptoms between the seventh and the twentieth day free diet. The second group maintained the exclusion diet, continued without symptoms.

Conclusions: The SNAS is fully associated based foods rich in nickel, found in cereals (oats, barley, corn, soy, whole wheat flour), fruits (apricot, cherry, grape, pear, fig, melon, banana, plum, kiwi), vegetables (broccoli, onion, spinach, lettuce, chicory, asparagus, cauliflower), meats (cooked ham), fish and seafood (salmon, hake, octopus, oysters, lobster, calamari), sweet (cocoa and derivatives, brioches and clad masses) and also related to household utensils used in food preparation. Unfortunately, we still lack the oral vaccine for nickel, available only in Europe, the results are good. Therefore, we can only control our patients with an exclusion diet. Patients with contact dermatitis to nickel, gastrointestinal symptoms and urticaria, must be investigated about the ingestion of foods containing nickel.
**A90**
**Asthma in pregnancy: association of asthma control test (ACT) with clinical management by the global initiative for asthma (GINA)**

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**Background:** Asthma is probably the most common chronic medical condition in pregnancy, with a worldwide prevalence estimated between 8-13%. The present study aims to identify a possible association between asthma control by GINA with ACT at the end of the second trimester of pregnancy, a period considered the highest risk of clinical deterioration and exacerbations of asthma.

**Methods:** A retrospective, cross-sectional study of 103 pregnant women with asthma who were treated during the period October 2010 to October 2013, the asthma clinic in pregnancy, Hospital das Clínicas, Federal University of Pernambuco. The level of asthma control by GINA and the ACT for pregnant women with asthma was evaluated in the same time period, between the twenty-first and twenty-seventh week of pregnancy. The association between the ACT and the level of clinical control by GINA by Chi-Square test was performed.

**Results:** A total of 103 pregnant patients with asthma, 79 (76.7%) with the age range between 18-34 years of age were analyzed. Analyzing the initial care of these patients, 50 (48.5%) of them were aged < 20 weeks already showing a high body mass index, overweight in 50 (48.5%) of them. Of asthmatic pregnant women, 62 (60.2%) used beta-agonist inhaler short acting during exacerbations and kept using their inhaled corticosteroids continuously with doses of 400 to 800μg per day. Among the most frequent comorbidities, stood out hypertension and gestational diabetes, and among other atopic diseases diagnosed 47 (45.6%) had rhinitis. Mild persistent asthma was more frequent S1 (49.5%) and the presence of asthma control showed 8 (11.2%) uncontrolled, 32 (44.4%) partially controlled and 32 (44.4%) controlled. In the analysis of the association chi-squared test was used and statistically significant association between the clinical control of asthma by GINA and the ACT in pregnancy with p < 0.001.

**Conclusions:** This study shows that both clinical control by GINA as ACT can be used in asthmatic pregnant women, especially at the end of the second trimester, a period of deterioration and exacerbations of asthma in pregnancy. We include the importance of the ACT to be a subjective instrument of easy application, interpretation and with good reproducibility that does not require spirometry to assess the level of asthma control in pregnancy.

**A91**
**Quality of life and disease activity assessment in patients with chronic urticaria**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A91**

**Background:** Chronic urticaria (CU) is a debilitating disease that affects patients’ quality of life (QoL) and the only questionnaire developed specifically to CU is the *Chronic Urticaria Quality of Life Questionnaire (CU-QoL)*. The aim of this study was to evaluate the QoL of patients with CU and to correlate it with disease activity.

**Methods:** The Brazilian Portuguese version of the CU-QoL was self-administered in 96 adults with CU treated at the outpatient clinic of a university hospital. Disease activity was assessed using the Urticaria Activity Score (UAS). The following characteristics were also studied: age, gender, type of urticarial and duration of disease. ANOVA was used to compare the results of CU-QoL between the different groups. The relationship between the CU-QoL total score and dimensions and the UAS score was assessed by Pearson correlation coefficient.

**Results:** The study population comprised 85% women, with a median age of 46.5 years (IQR: 31-58.5) and median disease duration period was 19 months (IQR: 9.25-60). The main diagnosis was chronic spontaneous urticaria (CSU) (55.2%), with 21.9% associated with physical urticaria (PU); 18.6% had chronic autoimmune urticaria (CAIU), with 11.4% associated with PU, 27.1% had PU alone and 33.3% presented dermographic urticaria. Mean UAS score was 1.52±1.73 (0-6). The total CU-QoL mean score was 33.39±21 (0-100) and dimension I (sleep/mental state/feeding) had the greatest impact on QoL. The items with the highest mean score were about itching (59) and nervousness (58) and the lowest were about eye edema (34) and sports activities’ limitations (35). The analysis of variance showed that women had greater impairment of quality of life in the dimensions I and III (edema/limitations/appearance) (p=0.02; p=0.01). Patients with CAIU and PU are more affected in total score and in all dimensions (p=0.005; p=0.008; p=0.04; p=0.008). The CU-QoL was moderate correlated with UAS (r=0.45) (p<0.001) and was able to discriminate between patients with different degrees of disease severity. The CU-QoL was significantly lower in patients with PU than with CAIU and QoL. CU-QoL and UAS are important instruments not only in research, but also to evaluate treatment outcomes and must be used in clinical practice.

**A92**
**A case of ofloxacin-induced anaphylaxis mediated by non-IgE mediated, but an IgG4 mediated basophil activation mechanism**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A92**

**Background:** Ofloxacin is a second-generation fluoroquinolone that frequently has been prescribed against various bacterial infections. Serious hypersensitivity reactions will increase with high worldwide consumption. There have been few case reports of ofloxacin induced anaphylaxis and its pathogenic mechanism is not well understood. In this study, we investigated pathogenic mechanisms in a 20-year old female patient with ofloxacin induced anaphylaxis. She had suffered from allergic rhinitis sensitive to house dust mites for several years and a previous history of acute urticaria induced by non-steroidal anti-inflammatory drugs. She developed generalized urticaria and anaphylaxis after oral ingestion of ofloxacin.

**Methods:** To investigate immunologic mechanisms, we prepared ofloxacin-human serum albumin (HSA) conjugate to detect serum-specific IgE antibody to ofloxacin-HSA conjugate using ELISA. To confirm specific IgG4 mediated mechanism, we performed a basophil activation test (BAT) with additions of ofloxacin and anti-IgG4 antibody using peripheral basophils from the patient and 3 healthy controls.

**Results:** When we measured serum specific antibodies to ofloxacin-human serum albumin (HSA) conjugate using ELISA, serum specific IgE was not detectable, but high serum specific IgG4 was detected. Moreover, basophil activation test showed a significant up-regulation of CD203c with additions of ofloxacin and anti-IgG4 antibody in the patient with no significant changes in 3 non-atopic healthy controls.

**Conclusions:** These findings suggest that ofloxacin can induce anaphylaxis via non-IgE, but specific IgG4 mediated response in the pathogenic mechanism.

**A93**
**Primary care doctor’s diagnosis of difficult-to-treat asthma in school age children**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A93**

**Background:** In primary care settings difficult-to-treat asthma may be interpreted as severe asthma. Little is known about diagnostic outcomes in children referred to secondary paediatric referral centres with an established primary care doctor’s diagnosis of difficult-to-treat bronchial
asthma. The objective of the present study was to assess diagnostic outcome in school age children referred to a secondary paediatric referral centre with an established primary care doctor's diagnosis of difficult-to-treat bronchial asthma.

Methods: 482 consecutively referred children aged 5-14 (mean 7.9) years, 99 girls (21%) and 383 boys (79%) with a primary care doctor's referral diagnosis of difficult-to-treat asthma were included from the prospective Asthma in a Secondary Pediatric Referral Centre Study (ASP 2002) in the present survey. At referral and during a 6 months evaluation period patient characteristics, history, symptoms, signs and results of type 1 allergy tests, spirometry, post bronchial beta-2 agonist dilution tests, 4-weeks daily measurement of peak flow rates, corticosteroid reversibility trials and exercise challenge tests were entered into a pre-defined electronic form. The secondary referral centre (SRC) diagnosis of asthma was based on these data.

Results: A diagnosis of asthma was confirmed in 200 (41%), whereas it could not be confirmed in 282 (59%) of the children. Allergic rhinoconjunctivitis was diagnosed in 96 (48%) in the confirmed group, in 87 (31%) in the not confirmed group. A variety of differential diagnoses was made in the children in whom asthma was not confirmed.

Conclusions: In more than half of school age children with a primary care doctor’s diagnosis of difficult-to-treat asthma referred to a secondary paediatric referral centre the diagnosis may not be confirmed. Sensitivity and specificity of the diagnosis of asthma in schoolchildren made in primary care settings need further improvement.

A95 How asthmatic patients use digital media looking for asthma information?

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World Allergy Organization Journal 2015, 8(Suppl 1):A95

Background: The aim of this study was to verify how asthmatic patients use digital media looking for asthma information.

Methods: Cross-sectional study using a standardized written questionnaire: How frequently do you use the social media? Do you use any social media to obtain asthma information? Would you like to receive asthma risk factors attacks and medication use orientation by social media? Have you interest to ask a doctor about asthma information using social media? The instrument was applied in Brazil (Curitiba, Uruguayan and São Paulo) and Ecuador (Guayaquil). Patients or parents of children were invited to answer the questionnaire.

Results: One hundred and eighty two patients or parents answered the questionnaire. 49.5% were males, median age 10 years (range 1 to 86) and a median disease time of 5 years (range 0 to 47). All patients were using asthma control medication; Facebook is the main social media used (50%). One hundred thirty six (76.4%) have no or limited access to the Web. Internet was the first choice (25.6%) of patients to obtain information about asthma. SMS was chosen as preferred digital media (66.7% and 64.7%, respectively) to receive asthma risk factors attacks, medication use recording and tool to ask a doctor. Forty five (27.6%) had smartphone.

Conclusions: Patients like to use social media to obtain asthma information, but access needs to be widely available.

A96 Severe asthma: prescribing criteria and asthma control test

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World Allergy Organization Journal 2015, 8(Suppl 1):A96

Background: Severe asthma are linked with high morbidity, significant mortality and high treatment costs. Omalizumab has been shown to decrease the risk of hospitalization or Emergency Department (ED) visits in patients with uncontrolled severe allergic asthma. We aim to describe the conditions under Omalizumab was prescribed in patients followed in a Reference Center for Severe Asthma Treatment in Nova Iguacu, Rio de Janeiro; and assess the effects of Omalizumab through the Asthma Control Test (ACT) in those patients who had at least a 16 week course.

Methods: Asthmatic patients treated with omalizumab between February 2013 and June 2014 were evaluated retrospectively. The conditions under Omalizumab was prescribed and ACT improvements were evaluated.

Results: A total of 19 patients (14 females and 5 males) were prescribed omalizumab. Prescribing criteria were: one or more ED visits in the last year (100%); high dose inhaled corticosteroid and long-acting beta2agonist use (94.7%); systemic corticosteroid use more than 3 times the last year (89.5%); FEV<80% (78.9%); daily short-acting beta2agonist use (68.4%); fast pulmonary function deterioration after systemic corticosteroid withdrawal (52.6%); death threatening asthma exacerbation episode (42%). Seven of these patients had a 16 week course of
omalizumab with a significant improvement in ACT total score in six of them (86%).

Conclusions: In our casuistic, the main criteria omalizumab was prescribed for severe asthma was ED visits. Omalizumab promoted a significant improvement in most patients’ ACT total score.

A97
Profile of asthmatic patients assisted on the emergency of Hospital Geral de Nova Iguaçu (HGN), NOVA Iguaçu, Brazil
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World Allergy Organization Journal 2015, 8(Suppl 1):A97

Background: Asthma is a highly prevalent disease on the emergency services. However, is notable the difficulty of the public services to deal with this type of patients, since part of them have recurrent exacerbations.

We aim to describe the profile of the patients older than 12 years old admitted to a regional reference emergency department (ED) presenting bronchospasm (ICD: J45 and J42) in the HGN from January/2008 to March/2014.

Methods: A descriptive cross-sectional study with retrospective data collection from patients admitted in the emergency service of HGNI presenting bronchospasm between 2008 and 2014. Parameters analyzed were: gender, age, race, period of hospitalization, severity of the exacerbation, gestation, complications, medications used on the treatment and readmissions.

Results: Data from 35 patients older than 12 years old (mean age = 40 years old) were collected. There was a predominance of patients aged 20-40 years. Prevalence was higher in females (83%), 45% of them were pregnant women. As for the race, there was a predominance of brown (63%), followed by white (20%) and black (14%), 80% of patients were hospitalized for less than 10 days. Regarding the severity of exacerbation, the prevalence of mild to moderate attacks (66%), followed by severe crises (20%) and respiratory arrest imminent (14%). The main complications associated was pneumonia (43% of cases). The proposed treatment for all patients was the combination of hydrocortisone and nebulized bronchodilators. The use of aminophylline was reported in 37% of cases. Among all patients, 5 were readmitted (14%) and 4 evolved to death (11%).

Conclusions: Through our study we noticed the impact of asthma in the emergency department of our hospital, however, we consider that the number of assisted asthmatic patients during these six years was underestimated. The results showed the predominance of exacerbations in female adult patients, as reported in previous studies. It is alarming the number of readmissions and deaths during this period, reflecting the lack of maintenance treatment for these patients. Therefore, there is a need to establish a prevention program to educate asthmatic patients and alert to doctors that asthma treatment should be individualized.

A98
Melkerson-Rosenthal syndrome associated with 21 trisomy as a differential diagnosis of angioedema
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World Allergy Organization Journal 2015, 8(Suppl 1):A98

Background: The Melkerson-Rosenthal Syndrome (MRS) is a rare disease that often affects young adults and is characterized by the presence of a painless orofacial edema, congenital fissured tongue and recurrent unilateral or bilateral facial palsy. No prediction for sex or race. Although its etiology is unknown it is believed that genetic, vasomotor, infectious and allergic disorders may be associated. The diagnosis can be made by the association of symptoms with lip biopsy, which shows in the initial stage dilated lymphatics with aggregates of lymphocytes, histiocytes and plasma cells, and in the later stages there is granulomatous inflammation, no caseous with Langerhans giant cells. Due to the rarity of MRS, it should always be included in the differential diagnosis: inflammatory pseudotumor, allergic phenomena, Cohn’s disease, hereditary angioedema, sarcoidosis, lymphangioma and hemangioma.


Conclusions: The diagnosis was confirmed by biopsy in a teenager with Down syndrome. This is a rare event in children, and very rarely associated with Down Syndrome. Until now, only 2 studies reported the association of MRS and Down Syndrome-however in adults. The combination of MRS and Hashimoto’s thyroiditis is also unusual, with few cases described in the literature. The patient in this case is under investigation by having alteration of thyroid function.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A99
Asthma and pregnancy: profile of the patients cared at Hospital Geral de Nova Iguaçu (HGN), NOVA Iguaçu, Brazil
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World Allergy Organization Journal 2015, 8(Suppl 1):A99

Background: Asthma is a chronic disease, that can affect women during pregnancy, with potential risk for maternal and fetal life. We aim to describe the profile of the pregnant women, assisted in an Emergency Department, presenting bronchospasm (ICD10: J45 and J42) from January 2008 to March 2014.

Methods: A descriptive cross-sectional study with retrospective data collection from pregnant women with ICD10 J45 and J42 in the emergency service of HGNI. Parameters analyzed were: age, race, type of attacks, medications used, period of hospitalization, complications and gestational age.

Results: Data of 13 patient were collected, with average age of 26 years old (14-35 years old). Considering race, most were brown (69%), black being the minority (8%). As for the classification of the attacks, there was a highest prevalence of mild to moderate attacks (54%), followed by 38% of severe attacks and 8% respiratory arrest imminent. The medication used in 100% of the patients was injected corticosteroid, associated with inhaled beta-2-agonist in 85% of the cases. Injectable aminophylline was used in 3 cases. Complications were present in 61% of the pregnant women, being pneumonia the most prevalent (54%), and just one patient with preeclampsia (Specific Gestational Hypertensive Disease). The average gestational age was 25 weeks (21-32 weeks).

Conclusions: Our series show that asthma is a reality in the course of the pregnancy period and that should be better evaluated due to the severity of the attacks that led the patients to the emergency services. That confirms the findings of other studies in that the presence of the attacks more evident in the third quarter. The large percentage of complications
displays the potential of severity that the disease can reach. It is important to point out that asthma is a disease that is present in pregnancy and can bring risks for mother and fetus, so it should have a disease control program before pregnancy due to the risk of its aggravation in the course of the gestational period, as well as the precocious detection of the disease that appears during the pregnancy to avoid complications. The educational approach to asthma during pregnancy should include complementary diagnosis as much as the medications to be used, with focus on the primary attention.

A100 Wheezing/asthmatic children: profile of children attended in the emergency department of the Hospital Geral de Nova Iguacu (HNGN), Nova Iguacu, RJ, Brazil

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World Allergy Organization Journal 2015, 8(Suppl 1): A100

Background: Asthma is a chronic inflammatory disease of the lower airways, where episodes of wheezing are common causes of morbidity in the pediatric population. We aim to describe the profile of pediatric patients treated at a regional reference emergency department (ED) with bronchospasm (CID: J45 and J46) from January 2008 to March 2014.

Methods: A descriptive, cross-sectional study with retrospective data collection from children attended at our ED. Analyzed parameters: age, race, sex, crisis type, medications, hospitalization time, readmission and complications.

Results: Data from 145 patients ranging from 7 days to 12 years, predominantly in patients less than 3 years (60%) were collected. Predominated (53.7%) were male. Regarding race, 72.4% brown, 20% white and 7.6% black. Mean hospitalization time was 4.5 days. Regarding the severity of the exacerbations, 60% of light / medium, 39% of severe attacks and 1% respiratory arrest imminent attacks. There were 21 cases of readmission (14.4%). The main associated complication has been pneumonia (27.5%). The most common treatment (17.24%) was hydrocortisone associated with nebulized bronchodilators. Antihistamines were used in 7.65% and decongestants in 6.35% of patients. Positivity of contact dermatitis patch tests in an allergy and immunology dermatology service

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World Allergy Organization Journal 2015, 8(Suppl 1): A102

Background: Determine the prevalence of positivity to different groups of battery contact tests performed in a specialized Service.

Methods: 300 patients were evaluated at 36 months, with a diagnosis of contact dermatitis. All of them underwent delayed skin test reading (patch test), with Brazilian Standard Battery of 30 substances. The test steps (placing two readings and grading of positive responses) were performed according to the standards established by the Brazilian Study Group of Contact Dermatitis (BSGCD) and the International Contact Dermatitis Research Group (ICDRG).

Results: Of the 300 tests, positivity was observed in 194 (65%). 106 (35%) tests were negative and characterized contact dermatitis by primary irritant. There was a predominance of females (76%) compared to males (24%). The most affected locations were hands (palms and back - 64%), feet (back and plants - 41%), arms (31%) and face (26%). Positive results were obtained by groups of substances: Anthraquinone (0.5%), Balsam of Peru (5.1%), PPD mix (7.7%), Hydroquinone (2%), Potassium bichromate (19%) Propylene glycol (1.5%), p-tertiary Butyl Phenol (1%), Neomycin (4.1%), Irgasan (1.5%), Kathon CG (10.8%), Cobalt chloride (9.2%), Lanolin (1.5%), Thiuram mix (3.6%), Ethylenediamine (3.6%) Perfume mix (6.7%), Mercaptobenzothiazole mix (2%), Benzoate (3.6%) Quaternium 15 (1.5%), Quinoline mix (6.7%), Nitrofurazone (4.6%) Faraban mix (6.1%), Epoxy-resin (1.5%), Thimerosal (24.2%) Turpentine (2%), Carba mix (7.2%), Promethazine (7.7%), Nickel sulfate (45.8%), Colophony (5.1%), Paraphenylenediamine (12.3%), Formaldehyde (6.7%).

A101 Expression of CD40, CD40L and IgM production in patients with ataxia-telangiectasia

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World Allergy Organization Journal 2015, 8(Suppl 1): A101

Background: To examine the interaction between B and T lymphocytes through the expression of CD40 and CD40 ligand (CD40L) and IgM levels in patients with Ataxia-telangiectasia (AT).

Methods: Blood samples were obtained from 18 AT patients (from the Federal University of Sao Paulo) and 8 age-sex-matched controls (C) (one control per day test). Total number of T, B, and NK cells were enumerated from whole blood samples using TruCount Tubes. Peripheral blood mononuclear cells (PBMC) were cryopreserved, thawed and divided in two plates, one of them with Phorbol myristate acetate (PMA) and lonomycin to stimulate cells in vitro. After 3 hours of stimulation, cells were stained with conjugated monoclonal antibodies. In the unstimulated tube: anti-CD19-PerCP, anti-CD3-APC, anti-CD8-FITC, anti-CD69-PECy7, anti-CD40-APC, anti-CD40L-PE. In the stimulated tube: anti-CD3, anti-CD8, anti-CD40, anti-CD40L. Events were analyzed by flow cytometer (BD LSRFortessa), using FlowJo Software. Linear association between IgM level and CD40 was measured via Pearson correlation. Statistical analysis was performed with SPSS 20.0 and STATA 12, and a significance threshold of <0.05 was used.

Results: From 18 patients, 15 were male and 3 female, aged from 5 to 25 years old. There were 3 pairs of siblings. Consanguinity was present between 2 parents. Ten of them are being treated with immunoglobulin replacement therapy. One of them had recovered from a neoplastic hematologic disease. The total number of lymphocytes was reduced in AT patients (928 - 4579 cel/mm3) compared to controls (1646 – 6601 cel/mm3) (p<0.001). Total CD23* (AT= 116.3 cell/mm3; C= 2247.2 cell/mm3; p<0.001), CD4+ (AT= 531.4 cel/mm3; C= 1153.3 cel/mm3; p<0.001) and CD8* (AT= 507.6 cel/mm3; C= 880.3 cel/mm3; p=0.007) numbers were decreased as well. B cells counts also showed a reduction compared with controls (AT= 118.7 cel/mm3; C= 649.3 cel/mm3; p<0.001). By contrast, natural killer numbers were increased (AT= 583.9 cel/mm3; C= 357.3 cel/mm3; p=0.04). Expression of CD40 was reduced compared with controls (AT= 69.9%; range: 48.6 – 94; C= 87.4%; range: 83.1 – 96; p<0.001). It wasn’t found any significant statistical difference in CD40L expression between patients and controls (p=0.616), despite having stimulation documented by CD69 expression as activation marker. We found a tendency of Pearson correlation (r) between CD40 and IgM (r=0.423; p=0.091), although it wasn’t significant.

Conclusions: Patients with AT had lower expression of CD40 on surface of B lymphocytes, which could induce abnormal production of antibodies.
Early-onset thrombocytopenia, severe polyarthritis, and severe B cell impairment in a Down syndrome patient

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Background: Down syndrome is the most common genetic disease and is associated with an increased frequency of congenital cardiac and gastrointestinal defects, hematological disorders, autoimmune diseases and immunodeficiency. Decreased numbers of T and B lymphocytes, particularly naive B cells, have been reported in these patients, although a significant association between lymphocyte subpopulation counts and the frequency of infections or the presence of autoimmunity was not found.

Methods: Describe a case through retrospective review of clinical and laboratory data.

Results: LAM, female, 5 years old, was born full term, adequate weight, and diagnosed with Down syndrome. She presented neonatal sepsis and thrombocytopenia that did not resolved after antibiotic use and required treatment with corticosteroids and immunoglobulin. At 20 months, she was admitted because of epistaxis and severe thrombocytopenia (1,000/mcL) which remitted only after three cycles of rituximab. At this point, she developed polyarticular arthritis that progressed to severe mobility restriction of hands, elbows and knees. From age 3 years onwards, she had recurrent episodes of sinusitis and was admitted four times due to pneumonia and wheezing. She has also been treated for hypothyroidism and gastroesophageal reflux disease. Cardiac and ophthalmological assessments were normal. Evaluation of the immune system when she was 4 years old showed very low immunoglobulin levels (IgA<7mg/dL, IgG=138mg/dL, IgM=12mg/dL, 4.6%), 254 patients aged 13-80 years (202 had chronic urticaria and angioedema; and 21(8%) had angioedema only. Of the 118 patients who underwent autologous skin testing, 56 (47.4%) showed positive results. Anti-thyroid antibodies and ANA were positive in 12% and 10.6% of patients, respectively. Eighty-five (33.5%) patients reported triggering of symptoms by medications, in particular by ASA/NSAIDs (16.5%). Thirty-two percent of patients reported worsening of symptoms by physical agents. Eight patients reported anaphylaxis. Biopsy carried out in 23 patients, and the results revealed 4 with urticaria vasculitis, 5 with eosinophilic infiltrate and 14 with non-specific findings. Sixty percent of patients had total IgE>100kU/L; positive skin test were more frequent to mites (40%), cockroach (28%) and shellfish (13.3%). Ninety two percent were in use of at least one daily medication, mostly anti-histamines (85%); 17/254 (7%) were in long term use of oral corticosteroids.

Conclusions: Features of autoimmune urticaria/angioedema were identified in 90/254 patients evaluated (35.4%). Other causes included physical, food-induced, and NSAIDs-induced urticaria. Hereditary and ACE-inhibitor induced angioedema were diagnosed in 3 and 5 patients, respectively. Despite extensive investigation, 98 patients (38.5%) remained diagnosed as spontaneous urticaria/angioedema.

Local IgE in patients with allergic rhinitis

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Background: To evaluate the presence of total IgE and specific IgE for Dermatophagoides pteronissinus (Der p) in nasal lavage of patients with moderate to severe persistent allergic rhinitis, with or without intermittent asthma. Also, to correlate the levels of total IgE and specific IgE for Der p in the sinus and in the nasal lavage.

Methods: We selected 48 patients with moderate to severe rhinitis (12 of them had intermittent asthma) sensitized to Der p without prior treatment with allergen specific immunotherapy. The protocol was approved by the ethics committee. All participants signed informed consent. Determination of total IgE and specific IgE for Der p1 (D1) and Der p2 (D2) were performed in serum and nasal lavage, using ImmunoCAP method. Non-parametric tests were used in the statistical analysis.

Results: The mean age was 35.1 years old (median 33.5 years, SD 11.82 years). The mean total serum IgE was 367UL (234UL median and SD 433.9 UL) and in nasal lavage it was 32.2 UL (median 30.63UL and SD 13.2), ranging from 16 to 73UL. The mean serum specific IgE for D1 and D2 was 42.3 and 31.7 UL respectively. The mean specific IgE in nasal lavage for D1 and D2 was 1.7UL and 1.43 UL respectively and ranged from 0.5 to 14.9 UL for D1 and 0.4 to 12.75UL for D2. There was no statistical difference between the groups with moderate to severe persistent rhinitis alone or associated with asthma. We have estimated the value of total IgE in the nasal lavage by the linear regression model (\(\text{nassal total IgE} = 6,448 + 0.233 x \text{serum total IgE}\)) and specific IgE to D1 in the nasal lavage (\(\text{nasal IgE to D1} = 0.751 + 0.535 x \text{serum IgE to D1}\)) and the specific IgE in nasal lavage to D2 (\(\text{nasal IgE to D2} = 0.721 + 0.488 x \text{serum IgE to D2}\)).

Conclusions: It has been reported that 77% of allergic patients have nasal specific IgE. We have found nasal specific IgE in 100% of cases. In our case series we could estimate the value of total IgE and specific IgE in nasal lavage from the value found in the serum. However, there is no consensus in the literature about the values of total and specific IgE in nasal lavage in atopic patients.

Diagnostic profile among patients with chronic urticaria/angioedema attending a reference clinic in Brazil: the role of auto-immunity

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Background: Management of patients with chronic urticaria/angioedema was admitted four times due to pneumonia and wheezing. She has also been treated for hypothyroidism and gastroesophageal reflux disease. Cardiac and ophthalmological assessments were normal. Evaluation of the immune system when she was 4 years old showed very low immunoglobulin levels (IgA<7mg/dL, IgG=138mg/dL, IgM=12mg/dL, 4.6%), 254 patients aged 13-80 years (202 had chronic urticaria and angioedema; and 21(8%) had angioedema only. Of the 118 patients who underwent autologous skin testing, 56 (47.4%) showed positive results. Anti-thyroid antibodies and ANA were positive in 12% and 10.6% of patients, respectively. Eighty-five (33.5%) patients reported triggering of symptoms by medications, in particular by ASA/NSAIDs (16.5%). Thirty-two percent of patients reported worsening of symptoms by physical agents. Eight patients reported anaphylaxis. Biopsy carried out in 23 patients, and the results revealed 4 with urticaria vasculitis, 5 with eosinophilic infiltrate and 14 with non-specific findings. Sixty percent of patients had total IgE>100kU/L; positive skin test were more frequent to mites (40%), cockroach (28%) and shellfish (13.3%). Ninety two percent were in use of at least one daily medication, mostly anti-histamines (85%); 17/254 (7%) were in long term use of oral corticosteroids.

Conclusions: Features of autoimmune urticaria/angioedema were identified in 90/254 patients evaluated (35.4%). Other causes included physical, food-induced, and NSAIDs-induced urticaria. Hereditary and ACE-inhibitor induced angioedema were diagnosed in 3 and 5 patients, respectively. Despite extensive investigation, 98 patients (38.5%) remained diagnosed as spontaneous urticaria/angioedema.
A106

Autoimmune progesterone dermatitis (AIPD) triggered by intrauterine device (IUD): case report

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World Allergy Organization Journal 2015, 8(Suppl 1):3

Background: Progesterone induced dermatitis is a rare autoimmune response to endogenous progesterone that usually occurs in fertile females, in the third decade. Skin lesions occur periodically during the luteal phase of the menstrual cycle due to increase of progesterone, the symptom usually occurs 3-10 days prior to the onset of menstrual flow and resolve 2 days into menses. It may present a variety of cutaneous and mucosal manifestations, from a mild urticarial to an anaphylaxis.

Methods: We report a case of autoimmune progesterone dermatitis (AIPD) in a woman who had placed an intrauterine device (IUD) three months before the beginning of the symptoms. A 37-year-old woman was first seen presenting an edematous erythematous scaly pruritic eruption a few days after levofloxacin treatment for sinusitis. Skin biopsy showed perivascular inflammatory infiltrates and focal eosinophils and rare extravasated erythrocytes suggesting skin drug reaction. Although she had used antihistamines and high dosing corticosteroid for six months, had got any better. Patient reinforced skin lesions worsening on premenstrual period. History of IUD placement 3 months before.

Results: After IUD removal without improvement, it was performed a progesterone intradermal skin test (IDST) with positive result. Now the patient is being treated with tamoxifen successfully.

Conclusions: In AIPD, mechanisms by which endogenous progesterone becomes antigenic is unknown. It is proposed that previous exposure to exogenous progesterone, especially oral contraceptives or IUD, sensitizes presenting cells and T helper 2 lymphocytes generate specific IgE antibodies, which cause type 1 hypersensitivity. Diagnosis criteria are: (1) skin lesions related to menstrual cycle, (2) IDST positive and, (3) symptomatic improvement after inhibiting progesterone secretion by suppression ovulation. AIPD first line treatment is combined oral contraceptive, but it is also described success with GnRH agonists, tamoxifen, danazol or bilateral oophorectomy. The case report had demonstrated a woman with typical symptoms, diagnosis criteria and positive response to treatment.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A107

Severe cutaneous allergic reactions in Brazil: new risk alleles to be identified in our population?

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Brazilian Association of Allergy and Immunology, Brazil

World Allergy Organization Journal 2015, 8(Suppl 1):4

Background: Severe cutaneous allergic reactions (SCAR) have a wide range of severity and clinical manifestations. Some risk alleles are known in specific populations. The aim of the study was to describe the clinical and laboratory profile of patients with SCAR, treated at a university hospital in Rio De Janeiro.

Methods: This is a retrospective cross-sectional study. Clinical and laboratory data, including HLA typing, of patients with SCAR identified between March/2011 and July/2014 by pharmacologic surveillance, weekly done by our Service, were reviewed.

Results: Twenty-three cases of SCAR were identified: 12 DRESS/DIHS, 1 overlap DRESS/AGEP and 10 SJS/TEN. Sixteen patients (70%) were female, the median age was 41 years (IQR=26-50). The aromatic anticonvulsivants were implicated in the etiology in 73% of cases, followed by antibiotics (30%). All patients with DRESS/DIHS exhibited cutaneous, systemic and laboratory characteristic changes of this syndrome. Patients with SJS/TEN had fever and mucosal involvement, 20% had neurological abnormalities and no one organ involvement or ocular complications. Eight (66%) patients with DRESS had late reactivation of disease. There was 1 death due to refractory cardiac insufficiency. During the 1st-year of outpatient follow-up, we found autoimmune changes in 21% of patients. Reactions to others drugs following diagnosis occurred in 2 patients with DRESS/ DIHS. 1 patient with SJS/TEN had solar urtica and another one with DRESS/DIHS developed dermographism. All patients with DRESS/DIHS were treated with corticosteroids, with an average of 108 days (9-180) of treatment. Eight out of 10 patients with SJS/TEN used corticosteroids with good response. IgIV was used in 1 patient with SJS/TEN and associated with steroids in 1 patient with DRESS/DIHS. We identified the known relationship between carbamazepine (CBZ) and HLA-A*31:01 in 2 patients with DRESS and alliparine and HLA-B*58:01 in 3 patients (one SJS/TEN and one overlap DRESS/AGEP). Interestingly, we found the same alleles in 3 patients with DRESS caused by phenytoin (HLA-A*23 and HLA-B*53) and in 3 (DRESS) with carbamazepine (HLA-A*74 and HLA-B*15). None of them were family related.

Conclusions: This study confirmed the main clinical and laboratory features of SCAR. The correct and early diagnosis of these reactions allowed the effective management and ambulatory monitoring, with a good outcome in most cases. The HLA typing can corroborate the diagnosis in 4 cases. The repetition of still not described alleles in our patients deserves larger studies to identify if these alleles are associated with higher risk of SCAR in our population.
Elevated IgE and eosinophilia were only found in 4% and 30% of the patients, respectively.

Conclusions: This is a retrospective study of AIE patients in Argentina. Better understanding of disease characteristics is needed to improve disease management.

A109
Evaluation of IL-12/23p-IFN-γ axis in Brazilian adult patients with recurrent mycobacterioses
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World Allergy Organization Journal 2015, 8(Suppl 1):A109

Background: The Mendelian Susceptibility to Mycobacterial Diseases (MSMD) is a rare congenital syndrome that confers a predisposition to recurrent infections by mycobacteria. All genetic defects that lead to MSMD produce changes at IL-12/23p-IFN-γ axis. We aimed to evaluate the IL-12/23p-IFN-γ axis in adult patients with recurrent mycobacterial infections in order to identify possible MSMD patients.

Methods: Twelve patients were selected from the Primary Immunodeficiency Outpatient Clinical of Clinical Immunology and Allergy Division of HC-FMUSP. Immune investigations by flow cytometry were conducted at Laboratory of Clinical Immunology and Allergy, University of São Paulo, School of Medicine, São Paulo, Brazil and genetic investigations at Laboratory of Human Genetics of Infectious Diseases, Necker Branch, Paris, France.

Results: The patients showed no alterations in IFN-γ production. Alterations in IL-12p40 production and/or MSMD-associated clinical history led to the evaluation of Stat-1 phosphorylation in nine patients, from which five showed decreased IFN-γ signaling. These five patients were further evaluated; three showed reduced IFN-γR1 expression while one showed a small increase. Patients who experience any abnormal phenotype were selected for testing Sanger sequencing to identify possible mutations, but no mutation in known genes in MSMD was found.

Conclusions: We report the first Brazilian adult cohort with MSMD, what proves that MSMD should be considered as a differential diagnosis in all patients, even adults, who experience severe and recurrent infections by mycobacteria. The patients’ screening based on clinical history, cytokine quantification and functional analysis of IFN-γ signaling was showed to be essential. Further analyses will be done in the search for new mutations in candidate genes.

Acknowledgments: This work was supported by Instituto de Investigação em Imunologia (III) – INCT

A110
Exposure to poor hygiene and early life infections and the risk of wheeze or asthma in Latin American children: a systematic review
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World Allergy Organization Journal 2015, 8(Suppl 1):A110

Background: The asthma epidemic in industrialised countries has been explained by the ‘hygiene hypothesis’, according to which early life infections protect against allergic diseases. However, current high asthma rates in Latin American cities seem to be associated with poor hygienic conditions, overcrowding and infections. The aim of the review was to summarise the role of poor hygiene exposures and early life infections on the risk of developing wheeze/asthma amongst Latin American children.

Methods: MEDLINE, EMBASE, LILACS and CINAHL electronic databases were searched following a pre-defined strategy, with no language, time or publication status restrictions. Observational studies evaluating the association between poor hygiene exposures or infections and asthma/ wheeze amongst 4-16 year old Latin American children were included.

Results: Thirty-two studies met our inclusion criteria: 4 complex studies (2 prospective cohorts), 22 cross-sectional and 6 case-control studies, undertaken between 1987 and 2009. They were mainly urban based and 18 of them were Brazilian studies. Most cross-sectional studies were school-based surveys following International Study of Asthma and Allergies in Childhood (ISAC) guidelines, and included over 3000 children, while the case-control were hospital-based. Exposures analysed varied greatly. The most frequent outcome used was current wheeze for complex and cross-sectional studies, and asthma (diagnosed by physician) for case-control studies. Methodological quality of studies was acceptable, though 8 studies (excluding case-control) did not carry out any randomization. One quarter of the studies did not clearly describe number of exposures measured and 40% reported on less than 50% of the exposures measured. One third of the reports did not adjust results for possible confounders nor stratified by effect modifiers. The high heterogeneity of study outcomes and exposures studied, precluded conducting a meta-analysis. Great part of the exposures studies showed a non-statistically significant effect on wheeze or asthma risk, with a predominant increased risk after pet contact and acute respiratory infections in early life. Contradictory results between studies were frequent.

Conclusions: Reporting bias is a common feature in observational studies exploring the association between environmental exposures and risk of wheeze/asthma. The results were highly heterogeneous, possibly be due to difference in asthma phenotypes (atopic vs. non-atopic). Current research seems to indicate a higher risk of wheeze/asthma in Latin America due to pet contact and acute respiratory infections in early life. Large prospective cohort studies are needed in Latin America to clarify the role of hygiene related exposures and early life infections in the development of childhood wheeze or asthma.

A111
Comorbidities of asthma in the elderly in Argentina
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1Inier - Investigaciones En Alergia Y Enfermedades Respiratorias, Argentina; 2Hospital Zona General De Agudos Dr. Ricardo Gutierrez, Argentina; 3Servicio De Alergia e Immunologia Hospital San Roque, Argentina; 4Private Medical Centers SA, Argentina; 5Universidad De Buenos Aires, Argentina
World Allergy Organization Journal 2015, 8(Suppl 1):A111

Background: Relatively little attention has been paid to asthma in elderly (AIE) subjects. Our goal is to describe the comorbidities in an Argentinean old population with asthma.

Methods: An observational descriptive study was performed at five different health care facilities in Buenos Aires. Clinical records during three months of 2014 were searched. Allergists reviewed all clinical histories and elderly was defined as older than 60 years. We evaluated the presence of comorbidities in old patients diagnosed with asthma.

Results: Total 152 patients were included and their average age (SD) were 66.83 years (6.52), 73% women, 78% Caucasian and 22% Hispanic. Arterial hypertension was the most frequent comorbidity (29%), followed by chronic rhino sinusitis (14%), RGE (10%), diabetes (5%) and obesity (5%). Other comorbidities were also searched, but they were only found in a few patients, such as eosinophilia esophagitis, nasal polyps, dyslipemia, coronary heart disease and pulmonary hypertension. Specifically with respect to allergic comorbidities, patients presented mainly chronic rhino sinusitis (13.8%), and seasonal (16%) and perennial rhinitis (16%), or both chronic rhino sinusitis and perennial rhinitis simultaneously (18%). Only a few patients exhibited chronic rhino sinusitis and seasonal rhinitis (0,65%). Considering the well-known association between allergic rhinitis and early-onset asthma (EOA), we observed that most of the patients with EOA exhibited allergic rhinitis (63,4%), but we also observed that half of the patients with long-onset asthma (48%) presented chronic rhino sinusitis or allergic rhinitis.

Conclusions: Understanding comorbidities associated with AIE may identify at-risk patient populations, improve disease management, and guide treatment advances.
A112
Quality of life in Brazilian children with food allergy
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Hospital Infantil João Paulo II – Fhemg, Brazil
World Allergy Organization Journal 2015, 8(Suppl 1):A112

Background: The aim of his study is to test-retest the EuroPrevall quality of life questionnaire (QoLQ), and determine the influence of nutritional instructions, access to epinephrine, and the presence of atopic dermatitis on quality of life of patients with food allergy. Furthermore, we assessed whether patients with food allergy IgE-mediated and non-IgE mediated, presented difference in quality of life.

Methods: This is a descriptive, cross-sectional study, where data collection was performed during 1 year. The questionnaire consists of questions classified among three domains: emotional impact, food anxiety, social and dietary restrictions. The average score of the three domains was obtained and the final quality of life score was calculated. Quality of life was classified into three categories, good, fair and poor. In order to assess the internal consistency of the QoLQ, its Cronbach’s alpha coefficient was calculated. Pearson’s correlation coefficients of the total between 2 applications of the QoLQ were computed. Comparisons between and qualitative characteristics were performed using Fisher’s Exact test.

Results: Sixty children aged 0 to 14 years were analyzed, all treated as an outpatient in a food allergy clinic. Initially, 25 patients completed the questionnaire twice with an interval of 1 week. In both applications, the internal consistency was considered very good (coefficient greater than 0.9), which attests its reliability. Strong positive correlations between total QoLQ were obtained. Of the 60 patients, 22 (36.7%) of them were allocated within the group with good quality of life, 28 (46.7%) in the group of fair quality of life, and 10 (16.6%) were considered to have poor quality of life. There was no significant influence on the quality of life after nutritional instruction, adrenaline availability and atopic dermatitis comorbidity.

Conclusions: The questionnaire used in this study was reliable for assessing individual patients and the comparison between studies. We have a large number of patients with quality of life rated as fair or poor. There was no association between quality of life and nutritional instruction, supply of epinephrine and the presence of atopic dermatitis.

Table 1 (abstract A113)

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A113
Evaluation of the respiratory function in argentinian young adults without respiratory pathology from rosario’s city
Ledit Ardusso*, Mariela Formaggio, Luciano Rovetto, Matias Duarte, Guillermo Mujica, Nora Figueroa, Verónica Estrella, Ruy Aguero, Jorge Molinas
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World Allergy Organization Journal 2015, 8(Suppl 1):A113

Background: Have not been found to date, for young adults in our environment, spirometric predictive values depending on the age, sex and height, and it would be of interest his determination for the construction of a table of normality for this group, since this actually requires the use of values from foreign populations.

Methods: Were studied 232 students (151 women and 81 men) with ages understood between 18 and 29 years (x=21,68±2.24) who were in the first three years of the School of Medicine at the Faculty Medical Sciences of Rosario’s National University, Argentina during the year 2014. The sample was randomly selected and students gave their informed consent to undergo spirometry effort (with spirometer “Multiplo III”) based technique ATS, registering the values of forced vital capacity (FVC) and forced expiratory volume in one second (FEV1). EPI INFO program was used for the statistical treatment of the data and the results was expressed in tables based on age groups and four groups according to quartiles of stature by sex.

Results: It was found a mean FVC of 4.05±1.00 liters and a mean FEV1 of 3.70±0.84 liters. In table 1 can be observed the average FVC and FEV1 according to sex, age, and height quartiles by sex.

Conclusions: This paper presents, in young adults, normal values of FVC and FEV1 in a sample of healthy individuals from the general population of the city of Rosario, Argentina and is expected to be useful for the construction of equations for predictive values.

A114
Relationship between seasonal respiratory allergies and cashew’s pollination period in students at a university of northeast Brazil
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World Allergy Organization Journal 2015, 8(Suppl 1):A114

Background: During seasonal pollination period, the cashew’s polination period in students at a university of northeast Brazil

Methods: A114

Background: Observe if students exposed to pollen cashew realize worsening of their symptoms in the pollen season. 

Methods: Cross-sectional and descriptive study aimed at medical students of a university in the Northeast, exposed to pollen cashew. An electronic questionnaire about allergic rhinitis, allergic conjunctivitis, asthma and perception regarding seasonality and aggravating factors was made available for free participation in a site of the institution.

Results: The questionnaire was answered by a total of 108 students, aged 16-40 years, 80% (84) between 19-25 years. Of the total, 68% (73) reported symptoms of allergic rhinitis, and 70% (S2) intermittent rhinitis and 65% (48) had moderate to severe. 40% (43) reported having allergic conjunctivitis, intermittent was the majority (77%), being ocular pruritus the main symptom. Of the total, 17% (18) said they experience symptoms of asthma, 75% intermittent asthma. 33% had worsening of symptoms in the second half of the year. As to the triggering factors, about 30% reported worsening with dust and mold, and 8% believe that pollination of cashew aggravates their symptoms.

Conclusions: The prevalence of allergic rhinitis (68%) and asthma (17%) was above that found in the general population is 30% and 12% respectively, however, we have to take into account the selection bias. Most realize worsens with mites and fungi, as in the general population. It is interesting that 35% reported worsening in the second half, of the year the pollen season, but only 8% believe that worsen due to pollination of cashew. It seems that if pollen of cashew is actually an allergen, it would not be the only one. The cashew is considered a heavy pollen which could not travel long distances, but on our campus there are a large number of cashew trees. Moreover, at this time of year, we get wind and thus more likely mites and fungi. Thus, more data are needed to establish the relation of cause and effect but, this study paves the way for others to assess if the pollen cashew is a villain or even a myth in our city.

A115
Predictive value of use-test in patients with suspected latex allergy

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World Allergy Organization Journal 2015, 8(Suppl 1):A115

Background: Latex allergy (LA) is a common disease among healthcare workers and some chronic diseases’ patients, due to the frequent use of latex materials, such as gloves and catheters. The aim of this study is to investigate and valuate the predictive value of latex use test (LUT) in patients with suspected latex allergy.

Methods: A total of 59 cases were included in this study. Among those, 44 (74,5 %) had suggestive clinical history for latex allergy (SCLA), and were submitted to latex skin prick test (SPT) and serum latex specific IgE test (sIgE– Immulite/Siemens) ; and 15 (25,5%) were healthy subjects, which were considered negative controls for the diagnostic procedure. All of the cases were submitted to LUT according to the service’s protocol.

Results: The diagnosis of LA was confirmed in all the cases with SCLA (44) . 84,1% were female, with a median age of 48 years old, and most of them were healthcare workers (52,3%). SPT, sIgE and LUT were positive in 86,4%, 77,3% and 61,4% of the patients, respectively. Stratification of sIgE was 9,1% in Class I, 29,5% in Class II, 18,2% in Class III and 20,5% in Class IV. Comparing LUT results with the gold standard SPT and/or sIgE positive results, we found 64,4% of accuracy, 57,5% of sensitivity, 78,9% of specificity for LUT. According to that, LUT had 46,9% of negative and 85,2% of positive predictive value.

Conclusions: This study showed low sensitivity and a limited negative predictive value for LUT although it had a good specificity. This allows us to conclude that when the LUT is positive and associated with a compatible clinical history, it can be an useful tool to confirm LA, mainly when the SPT and sIgE are not available.

A116
A new mutation in the SERPING1 gene in a Brazilian family with hereditary angioedema

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World Allergy Organization Journal 2015, 8(Suppl 1):A116

Background: Hereditary angioedema (HAE) types I and II (due to quantitative and qualitative C1-INH deficiency, respectively) is a rare autosomal dominant condition in which more than 300 different mutations in the entire C1-INH gene (SERPING1) have been described. The objective of this study is to identify and characterize the mutation in the SERPING1 gene in a family of HAE outpatients from the allergy service of the University Hospital at Universidade Federal de Santa Catarina.

Methods: DNA was extracted from peripheral blood of 12 symptomatic members of the same family. All the eight exons, the flanking regions and splicing sites of the SERPING 1 gene were analyzed by Sanger sequencing. Analysis was performed by capillary electrophoresis and the electropherograms produced were aligned against the reference sequence of the SERPING1 gene in the GenBank (Accession Number NG_009625.1).

Results: Subjects age ranged from 4 to 58 years (33 ± 15 years), composed by 11 females (n=91,7%) and 1 male (n=8,3%). DNA sequencing revealed a new mutation in the exon 7 of the SERPING1 gene, a deletion of one single base in heterozygosis (c.1104delA) leading to the frameshift alteration p.D695X96. This mutation was found in seven of the 12 patients (all females), all of them presenting clinical symptoms and low C1-INH plasma levels. The other five family members who reported themselves as symptomatic did not show altered levels of C4, C1q, or C1INH, and gene mutation was not found in these subjects.

Conclusions: This study allowed the establishment of the molecular basis of a type I HAE in a Brazilian family. The finding of a SERPING1 gene mutation will allow better diagnosis and genetic counseling in the other members of the family.

A117
Phenotypes of lymphocytic alveolitis in our group of bronchoalveolar lavage fluids

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World Allergy Organization Journal 2015, 8(Suppl 1):A117

Background: Bronchoalveolar lavage (BAL) has a stable place in the diagnostics of various forms of the diffuse parenchymal lung disease. The analysis of cellular components of the bronchoalveolar lavage fluid (BALF) informs us about inflammatory and immune processes in the alveolar space. This can be very helpful in the diagnostics of many interstitial lung diseases (ILDs), but also in the diagnostics of pulmonary hamorrhage and bronchoalveolar carcinoma or lymphomas. The aim of study is to present our experience in cellular analysis of BALF.

Methods: Lymphocyte subsets were determined by flow cytometry. We utilized monoclonal antibodies directed against the CD3, CD4, CD8 (T-lymphocytes), CD19 (B-lymphocytes), CD16 (NK cells), and HLA-DR antigen to determine the degree of lymphocyte activation.

Results: Over the past 10 years (2003–2013) we have analysed 4540 BALFs. We evaluated total cell count, immunocompetent cells profile and phenotype of lymphocytes. An increased percentage of lymphocytes (above 15%) were found in 1680 BALFs (37%). The phenotypes of these cases of lymphocytic alveolitis were determined via monoclonal antibodies as mentioned above. CD3+T-lymphocytic alveolitis was established in 1677 BALFs (99.8%). This represents an overwhelming majority of BALFs with elevated lymphocyte
count in patients with interstitial lung diseases. CD19+ B-lymphocytic alveolitis was found in 2 BALFs only. These interesting accidental findings resulted in the establishment of B-lymphocyte hematopoietic infiltrative neoplasm in patients suspected of interstitial lung diseases. CD16+ NK cells alveolitis was found in 1 BALF only of a patient with histologically confirmed pulmonary fibrosis type of UIP.

Conclusions: We concluded that lymphocytic alveolitis is a nonspecific pathological finding to be followed by detailed lymphocyte phenotype analysis. Owing to the fact that the phenotypes of an overwhelming majority of the cases of lymphocytic alveolitis in our group (99.8%) were CD3+, we concluded that T-lymphocytes almost exclusively persist within the alveolar structures and play an important role in the pathogenesis of many interstitial lung diseases. Consequently, monoclonal antibodies directed against the CD3 antigen (T-lymphocytes), against the CD4 and CD8 (T-lymphocytes subsets), perhaps even the antibody against the HLA-DR molecule (the T-lymphocyte activation marker) are sufficient for routine BALF lymphocyte phenotype analysis.

A118
Adherence to environmental control recommendation among children with asthma and allergic rhinitis
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World Allergy Organization Journal 2015, 8(Suppl 1):A118

Background: Allergen exposure in sensitized patients has been associated to asthma and allergic rhinitis exacerbations, to severe symptoms and to medication need. Indoor allergens control is important in the management of atopic diseases in children, as they spend a large proportion of their time at home.

Methods: A cross-sectional study design was adopted in order to access the adherence to environmental control recommendation in the management of asthma and allergic rhinitis. We selected patients aged between 5 and 18 years, who had the diagnosis of allergic rhinitis and/or allergic asthma and who were in regular follow-up for more than 6 months.

Results: 96 patients were recruited. The median age was 10.3 years, and 66% (64) were male. All patients had a diagnosis of allergic rhinitis and 84 patients (87.5%) had a diagnosis of asthma. The responder was the child’s mother in 87% of cases. 56% of responders had secondary or tertiary education and 45% of them were atopic. 76% of responders recognized that their children’s doctors had instructed them about environmental control measures. In order to reduce house dust, 91% of houses had hard flooring and 97% were cleaned by mopping the floor daily (52%) or weekly (45%). Moreover, 92% of house keepers used to wash bedding every week, 72% minimized dust-accumulating objects, 90% removed soft toys, 83% removed rugs and 51% removed curtains. However, only 33% encased mattresses and pillows in impermeable covers. Other practices included ventilating the house by opening the windows every day in 96%, carefully cleaning the house to avoid cockroaches in 95% and chemical controlling cockroaches in 26% of cases. For pet allergen avoidance, 54% of families chose not to have pets. Among the families who had them, 52% kept the pet out of the main living areas and 27% used to wash the pet every week. Finally, 33% of families had at least one member who smoked, but only 3% of caregivers quit smoking. Among non-smoking caregivers, 29% reduced their child’s exposure to sources of passive smoke outside the family.

Conclusions: Caregivers understood and applied general allergen-avoidance measures in their homes. Despite that, the majority of caregivers did not implement some specific measures with proven benefit in reducing allergen levels, such as encasing mattresses and pillows in impermeable covers, chemical controlling cockroaches and quitting tobacco smoke.

A119
Obstructive spirometry patterns in young adults with asthma and rhinitis from rosario, Argentina
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World Allergy Organization Journal 2015, 8(Suppl 1):A119

Background: Asthma and allergic rhinitis have become a growing public health problem. The airflow obstruction, pathophysiological event that frames the bronchial asthma is usually determined by spirometry. Changes in expiratory flow in asthma are well known but there is controversy with these results in allergic rhinitis. The objective of this project is to compare spirometry values of young adults without respiratory disease with individuals of the same age group who have: allergic rhinitis without bronchial asthma or bronchial asthma without allergic rhinitis.

Methods: Were studied (randomly selected) 279 students (185 women and 94 men) aged between 18 and 30 years (x = 21.68 ± 2.29) who were in the first three years of the Medical Sciences Faculty National University of Rosario, Argentina, during 2014. Students gave their informed consent to undergo effort spirometry with ATS technique (MultiSpiro III spirometer), recording the values of forced vital capacity (FVC), forced expiratory volume in one second (FEV1) and forced expiratory flow at 25-75% of the pulmonary volume (FEF25-75). The statistical analysis of the information was conducted using EPI INFO.

Results: The current frequency of rhinitis and asthma in the sample was 54.1% and 17.2% respectively. 40.5% of individuals did not show any pathology, 42.3% suffered only current rhinitis and 5.4% only bronchial asthma. Was found significant decrease in FEF25-75 (p=0.01) in subjects suffering from rhinitis alone (3.18±1.35 liters) than individuals without respiratory disease (4.88±1.51 liters). Furthermore, the known decrease in spirometric parameters between subjects with asthma and those who did not have any respiratory disease was observed (TIF: 82.4±12.86% vs 92.03±7.43%; p=0.005; FEV1: 2.95±0.68 vs 3.76±0.96 liters, p=0.02; FEF25-75: 3.18±1.35 vs 4.88±1.51 liters, p=0.00006). No significant differences were found in FVC.

Conclusions: This work find the known association between decline in FEV1, index TIF and FEF25-75 in subjects with bronchial asthma when compared with healthy individuals, but also showed a significantly decreased FEF25-75 only in subjects suffering from allergic rhinitis when compared with healthy individuals. These data are consistent with some studies suggesting that small airway disease, related with a reduction in FEF25-75 may be a marker for early allergic or inflammatory involvement of the small airways in subjects with allergic diseases and no asthma. These data show the need to continue these studies with larger numbers of individuals and adjusting variables involved.
provocation tests were performed, with positive results in 8 (5 ASA, 1 ibuprofen, 1 Acetaminophen, 1 Dipyrone).

Conclusions: The reactions to NSAIDs in pediatric patients are more frequent in males. Angioedema alone was the main clinical manifestation and dipyrone the main drug involved in the reactions. The OPT proved to be an important tool to confirm or exclude the diagnosis of hypersensitivity, with the possibility of providing safer alternatives for those patients with proven reaction.

A121
Our experience with enzyme-linked immunospot assay in the laboratory diagnostics of Lyme borreliosis
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World Allergy Organization Journal 2015, 8(Suppl 1):A121

Background: Lyme borreliosis (LB) is multisystem infectious disease with various clinical manifestations. In Europe, LB is caused by gram-negative spirochetal bacteria of the complex Borrelia burgdorferi sensu lato. The most important for human pathogenicity are B.garini, B.avelli and B. burgdorferi sensu stricto. Indirect laboratory diagnostics of LB is based on serological methods such as Enzyme-Linked ImmunoSorbent Assay (ELISA) and Western Blot Assay (WB) that detect specific antibodies. Another method in the diagnostics of LB is a new test LymeSpot. This test is based on Enzyme-Linked ImmunoSpot Assay (ELISpot). We present our first experience with the test LymeSpot.

Methods: From November 2013 to June 2014 we performed LymeSpot on the group of 42 patients who were tested for suspicion of LB presence. LymeSpot is based on specific cell immune response of T-lymphocytes after stimulation by Borrelia antigens. The result is a number of antigen specific effector T-cells producing IFN-γ in the form of spots. We compared the results of LymeSpot test with the level of specific IgM and IgG antibodies detected by ELISA and WB with using recombinant antigens B. burgdorferi sensu lato.

Results: From the number of 42 patients we detected positive LymeSpot test only in 4 of them (9,5%). a cutoff value in 3 patients (7,1%). From the group of 42 patients were simultaneously performed ELISA and WB in 26 persons. In this group we found positive LymeSpot in 4 patients and cutoff value in 2 patients. In the group of 4 patients with positive LymeSpot was detected higher level of IgM antibodies in 3 patients and only IgG antibodies in 1 patient. They were patients with clinical manifestations of LB who were treated with antibiotics afterwards. Among 20 patients with negative results of LymeSpot these findings correlated with antibody response in 8 patients (40%). In this group we detected seronegative finding (IgM-IgG-) or finding of passing through LB (IgM+IgG+). In other 12 patients with negative LymeSpot test we detected serological finding of beginning (IgM+IgG-) or running LB (IgM-IgG+). They were mostly patients without clear symptoms of LB, patients with long-term positivity of IgM antibodies without clinical manifestations of LB or patients after antibiotic therapy.

Conclusions: Our first experience shows that results of LymeSpot test better correlate with clinical findings and LB activity as well as can be effective marker of success of antibiotic therapy.

A122
Severe combined immunodeficiency: case report of alogenic, haploidentical bone marrow transplantation
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World Allergy Organization Journal 2015, 8(Suppl 1):A122

Background: Severe combined immunodeficiency (SCID) is characterized by important impairment in differentiation of T and/or B lymphocytes and occasionally Natural Killer cells, representing a pediatric emergency. A case of immunodeficiency is described emphasizing symptoms, diagnosis and answer after bone marrow transplantation.

Methods: Case report of a 2 years old male patient with severe combined immunodeficiency (SCID), diagnosed at 9 months after hospitalization due to failure to thrive, chronic diarrhea and pneumonia. Evolved with recurrent respiratory and gastrointestinal infections although using prophylaxis and immunoglobulin infusion. Alogenic, haploidentical transplantation was carried out with positive selection of CD34+, at 18 months of age due no compatible donor been found.

Results: Satisfactory answer after transplantation keeping infusion of IV immunoglobulin with clinical and laboratory favorable evolution.

Conclusions: Bone marrow transplantation with succeeds is supposed to restore lymphocyte system diminishing risks of severe and fatal infections.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A123
Risk factors for recurrent wheezing – international study of wheezing in infants (EISL) phase 3
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World Allergy Organization Journal 2015, 8(Suppl 1):A123

Background: We aimed to identify factors associated with recurrent wheezing (RW) in infants in the first year of life living in the Southern region of Sao Paulo city and participating in the "Estudio Internacional de Sibilancias en Lactantes (EISL)“ – phase 3 (P3).

Methods: Parents of infants who were attended in primary care health units in the Southern region of Sao Paulo city from 2009 to 2010 answered the EISL-P3 written questionnaire. The wheezing group was stratified in accordance to the frequency of wheezing episodes as occasional wheezing (OW, less than three episodes), or RW (three or more episodes). Wheezing-associated factors were evaluated using multivariate analysis and were expressed as odds ratio (OR) and 95% confidence interval (95%CI).

Results: The most relevant factors related to OW were pneumonia (OR=3.10, 95%CI=1.68-5.73), hospitalization due to pneumonia (OR=2.88, 95%CI=1.16-6.56) and recurrent upper respiratory infection (URI, OR=1.87, 95%CI=1.25-2.81). Regarding RW, recurrent URI (OR=5.34, 95%CI=3.83-7.45), pneumonia (OR=4.06, 95%CI=2.87-5.74) and asthmatic siblings (OR=3.02, 95%CI=1.67-5.45) were the most significantly associated factors.

Conclusions: In the present study, we found that recurrent URI, positive history of pneumonia and familiar history of asthma were the most relevant factors associated with RW. The precarious knowledge of these factors can enable the identification of the probable asthmatic infants and can improve both prevention strategies and treatment of these patients.

A124
Evaluating the role of clinical history and laboratory tests in IgE mediated cow’s milk allergy diagnosis
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World Allergy Organization Journal 2015, 8(Suppl 1):A124

Background: IgE mediated cow’s milk allergy (CMA) is a frequent disease in pediatric population, and challenge tests are considered gold standard in its diagnosis, although its use is limited in clinical practice. An appropriate anamnesis and laboratory analysis are the most frequent and feasible used tools. The aim of this study was to evaluate the role of these practices in IgE mediated CMA diagnosis.

Methods: It was a retrospective study based on patient data charts from a reference center in food allergy. All patients who performed open,
single or double blind placebo controlled oral food challenges (OFC) for CMA diagnosis were included. Clinical history was defined as suggestive when patients presented at any time anaphylaxis, urticaria, angioedema, laryngeal edema and dyspnea. Diarrhea, vomiting, cough, wheezing, rhinoconjunctivitis, pruritus and erythema were considered as dubious. Symptoms onset <2 hours after food ingestion was also considered suggestive. Dusibius and/or subjective symptoms or delayed ones were considered undetermined. Specific IgE (sIgE) was included when evaluated ± 12 months from OFC. Skin prick test was considered positive when wheal was >3mm and/or serum specific IgE >0.35 kU/L. Sensitivity (Se), specificity (Sp), positive and negative predictive value (PPV and NPV) and likelihood ratio (LR) were established, comparing anamnesis, anaphylaxis, laboratorial tests versus OFC. Results: 92 patients were included (43 OFC+; 49 OFC-). The median age at challenge test was 2.5 years (0.4-10.7) (OFC+ 3.0y; OFC- 2.4y). The median time between symptoms onset and food challenge was 2.3 years (0.2-10.4) (OFC+ 2.7; OFC- 2.2). Suggestive clinical history was present in 93% of patients in OFC+, compared to 61% of patients in OFC- (Se 93%; Sp 38%; PPV 57%; NPV 86%; LR 1.51; p<0.05). Considering only anaphylactic symptoms versus OFC the results were Se 44%; Sp 87%; PPV 76%; NPV 64% and LR 3.06 (p<0.05). Specific IgE was present in 100% of patients in OFC+ resulting in Se 100%; Sp 48%; PPV 63%; NPV 100% and LR 1.96 (p<0.05). Suggestive clinical history associated with symptoms onset <2 hours and presence of sIgE demonstrated a Se 88%; Sp 73%; PPV 74%; NPV 88% and LR 3.3 (p<0.05). Conclusions: Suggestive clinical history associated to positive sIgE was helpful on the diagnosis of CMA. Generally, the OFC remains necessary to set or exclude diagnosis. Negative sIgE was useful to exclude CMA.

A125
Chronic urticaria: the first visit in a specialized unit
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World Allergy Organization Journal 2015, 8(Suppl 1)A125

Background: The aim of this study was to evaluate the clinical profile of patients with chronic urticaria (CU) at first visit in a specialized CU unit.

Methods: Cross-sectional study of patients seen from January/2012 to June/2014. Patients diagnosed with acute urticaria (n=5) were excluded.

Results: Among the 50 CU patients, 70% were female. The mean age at the consultation was 33 years, but the mean age of symptoms onset was 15.3 years. Fifty one percent referred only urticaria, 44% referred urticaria associated with angioedema and 5% presented isolated angioedema. Besides itching, 6 patients complained of burning (12%) and 2 of pain (4%). Frequency of wheals was daily in 33%, weekly in 36% and monthly in 31%. At first visit, Urticaria Activity Score was verified in 24 patients, resulting > 3 in half of them. The most associated atopic disease was rhinitis (45%). Many patients mentioned triggers as medicines (33%), food (23%), stress (17%), viral infection (8%) and physical agents (16%). Only 6% had thyroidopathy. As previous treatment a significant amount of patients received sedating antihistamines (AH) (36%) or oral corticosteroids (24%), with partial improvement in 65% and complete improvement in 29%. Dermographism was present in 91% of the patients tested (20/22). One of them was diagnosed with cholinergic urticaria and another one with delayed pressure urticaria.

Conclusions: The higher prevalence of CU was in middle-aged women. However, strong association with thyroiditis was not found. Sedating AH and corticosteroids are still the most prescribed drugs.

A126
Long term stability of adsorption of Der s1 allergen onto alum at different phosphate ion concentrations
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World Allergy Organization Journal 2015, 8(Suppl 1)A126

Background: Allergen adsorption onto alum is relevant for safety and immunogenicity of alum-adjuvanted allergen vaccines, used for subcutaneous immunotherapy. Adsorption of the Group 1 Mite allergens can be impaired by phosphate buffers. On the other hand, diminishing or abolishing buffer salts can affect long term stability. Alum content can also influence immunogenicity and adsorption, as well as stability.

Aim: To evaluate the stability of formulation variants of a Dermatophagoides siboney adjuvanted vaccine, using different content of phosphate salts and alum.

Methods: There were prepared 3 batches of each of four formulation variants of the allergen vaccine PROLINEM-DS at pilot scale, complying with GMP. The vaccine contains an allergen fraction of D. siboney extract, alum and proteoliposome of Neisseria meningitidis a TL4 ligand. Variants consisted of a gradual reduction of phosphate ion and alum (from 1 to 2mg/mL). Adsorption of Der s1 was assessed by Mab-ELISA. Residual non-adsorbed total allergenic activity was measured by IgE inhibition ELISA. A real time stability study was performed at 4°C testing at 0, 3, 6, 9, 12 during 18 months, according to ICH guidelines.

Results: The highest value of Der s1 adsorption was 98.7% achieved for the variant without phosphate, whereas the variant with full PBS buffer showed only 85.2%. After 18 months of storage at 4°C, the adsorption values remained high at 98.8% for the variants with reduced phosphate content, and even raised up to 94.8% for the variant with the highest phosphate content. Similar behaviour was noted for the non-adsorbed allergenic activity, in line with the major role of Der s1 allergen as IgE binding component within the allergen extract; pH values did not show changes overtime even in absence of phosphate buffer. Other quality control tests showed results according to release specifications. Linear regression analysis for Der s1 adsorption and residual allergenic activity confirmed a significant trend (p<0.05) towards an increase of adsorption values overtime in the variants with phosphate content. Alum content did not show a significant influence on adsorption and remained stable, as well, during 18 months. Batch to batch consistency of all formulation variant was demonstrated statistically.

Conclusions: Long term stability of allergen adsorption onto alum was demonstrated for a wide range of phosphate buffer as well as alum content variation, which provide a basis for the concept of "design space", thus, assuring the safety and immunogenicity of the novel Prolinem-DS allergen vaccine.

A127
Short-term prophylaxis (STP) with plasma derived human C1 inhibitor concentrate (pdhC1-INH) in two pregnant women with hereditary angioedema (HAE): an experience in Rio de Janeiro – Brazil
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World Allergy Organization Journal 2015, 8(Suppl 1)A127

Background: HAE is an inherited disease characterized by sudden, recurrent episodes of edema involving the skin, gastrointestinal, respiratory tract and other organs. Pregnancy can mitigate, aggravate or have no effect on HAE C1-INH edematous attacks. Short term prophylaxis is recommended before labor and delivery when HAE C1-INH symptoms have recurred frequently during the third trimester of pregnancy. The administration of pdhC1-INH in HAE is recommended as the first line therapy in pregnancy. It is effective and safe. However, pdhC1-INH is not available in many countries, such as in Brazil. In these cases fresh frozen plasma might serve as an alternative for STP (evidence level III). We describe our experience with pdh C1-INH in two pregnant patients with HAE followed up in a Reference Center in Rio de Janeiro, who received the medicine by means of Justice.

Methods: CASE 1- DFT, a 29-year-old pregnant woman, with HAE Type I (C4 = 5.0 mg/dL e C1-INH = 9.0 mg/dL) and recurrent edema of hands, feet, lips, larynge and abdominal pain. She received 1000 units of pdh C1-INH, intravenously (IV), on the day of delivery. CASE 2 - RSS, a 30 year-old pregnant woman, with HAE Type I (C4 = 5.0 mg/dL e C1-INH = 5.0...
mg/dL) and episodes of swelling in the hands, feet and abdominal pain. She also received 1000 units of pdh C1-INH, IV, on the day of delivery.

Results: Both of them had uncomplicated labor under pdh C1-INH prophylaxis. Healthy infants were born.

Conclusions: Our patients could experience uncomplicated labors while being administered prophylactic pdhC1-INH, despite having some attacks of HAE during pregnancy. Short-term prophylaxis is important in individuals with known HAE who are undergoing procedures which can potentially precipitate an attack, as labor, pdhC1-INH concentrate should be always available to be used, if necessary.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A128

ORAL montelukast versus inhaled beclometasone in the prophylactic treatment of post ACUTE viral bronchiolitis wheezing

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World Allergy Organization Journal 2015, 8(Suppl 1):A128

Background: Acute viral bronchiolitis is one of the most common respiratory infections in infancy, leading to the hospitalization of about 1-2% of infected infants. A number of studies have suggested that hospitalization due to bronchiolitis could increase the risk of developing pulmonary sequelae, specially recurrent cough and wheezing.

Methods: This is a randomized, pilot study, involving infants ≤ 1 year of age hospitalized due to acute viral bronchiolitis. All patients with moderate-severe bronchiolitis (Wang score ≥ 8) are eligible to initiate the study. At hospital discharge, recruited patients are randomized into three study groups - conventional treatment, oral montelukast (MK) or inhaled beclometasone dipropionate (BDP) - and directed to monthly follow-up appointments for 6 months. We aim to determine the potential benefit of inhaled BDP and oral MK in the natural history of post bronchiolitis wheezing. The primary variables are: need of hospitalization and number of visits to the emergency department (ED). The secondary variables are: number of days until first exacerbation, duration of hospitalization, number of asymptomatic days and need of bronchodilator and/or oral corticosteroid.

Results: Until this moment, 47 patients were randomized, out of which, 26 ended the study, being 9 in the no treatment group(A), 11 in the oral MK group (B) and 6 in the inhaled BDP group (C). Considering the primary variables, only one hospitalization was reported in the no treatment group A. Among group A, 3 visits to the ED were reported and 5 infants needed to use albuterol spray (1-3 times); 1 patient was excluded. Among the 11 patients in the oral MK group B, 2 infants developed a wheezing episode following a viral respiratory infection, 2 visits to the ED were reported and 4 infants needed to use albuterol spray (1-2 times); 2 patients were excluded. Among the 6 patients in the inhaled BDP group C, 2 infants needed to use albuterol spray (1-3 times); 2 patients were excluded.

Conclusions: To the extent of our knowledge, there are no studies comparing inhaled BDP and oral MK in the prophylaxis of post acute viral bronchiolitis wheezing. A larger number of patients will allow us to establish more significant statistical data. More studies are necessary to establish the presumable benefit of MK and/or inhaled BDP in the history of post bronchiolitis recurrent wheezing.

A130

Hereditary angioedema without deficiency of C1 inhibitor: response to therapy

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World Allergy Organization Journal 2015, 8(Suppl 1):A130

Background: Hereditary angioedema (HAE) with normal C1 esterase inhibitor (C1INH) was described for the first time in 2000. It was characterized by subcutaneous, gastrointestinal and laryngeal edema with familial history. Triggering factors are: stress, hormonal factors, trauma and infections. The authors evaluate response to therapy in patients with HAE without C1-INH deficiency.

Methods: It was analyzed therapeutic response to hereditary angioedema without deficiency of C1INH. Patients with clinical symptoms compatible with HAE have been included after normal quantitative and functional C1INH levels and positive family history for HAE, independent of factor XII mutation.

Results: Nineteen patients have been identified (2M:17F; 20-60 years old). The following therapies were oriented: combined contraceptive substitution for progestagen (10/19); treatment with progestagen (2/19); tranexamic acid (15/19): 1250mg (2), 1000mg (1), 750 (5), 500mg (4), 250mg (1); oxandrolon (5/19) (0.5 mg-5mg/day); danazol 200mg/day (1/19) and combined therapy with oxandrolon and tranexamic acid in two patients. Icatibant was used in seven patients with clinical improvement. One of them reported increasing frequency of attacks after repeated use of this drug. Two patients received fresh frozen plasma during attacks with clinical improvement.

Conclusions: HAE without C1-INH deficiency has no established treatment. Clinical improvement was evident with the exclusion of combined contraceptives. The majority of the patients presented clinical response to tranexamic acid in variable doses. Icatibant was adequate for the therapy of attacks.

A131

A case of pleural effusion caused by infection from Toxocara canis

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World Allergy Organization Journal 2015, 8(Suppl 1):A131

Background: Toxocara canis is an intestinal nematode affecting dogs and cats which causes human infestation through the ingestion of embryonated eggs excreted in faeces. Once larvae have migrated to various tissues and organs, they can cause a wide array of clinical
symptoms. We describe a case of pleural effusion caused by *T. canis* infection.

**Methods:** The patient was a 56-year old Caucasian woman suffering from rheumatoid arthritis since 1995. She was subsequently diagnosed with Sjögren’s syndrome and autoimmune thyroiditis. In 2009, the patient had a skin rash which disappeared after corticosteroid treatment. In January 2012 a routine chest X-ray detected a pleural effusion, that was treated by various cycles of antibiotics and corticosteroids without improvement. The patient was then referred to us because of a concomitant eosinophilia. She also had difficulty in breathing, and allergy was suspected as a possible cause. The patient underwent allergy tests, parasitological evaluation and a routine blood examination, including IgG antibodies to *T. canis*.

**Results:** Allergy tests were negative, while IgG antibodies to *T. canis* were positive by both ELISA and Western Blotting. An anti-elmintic treatment was prescribed using mebendazole (one 100 mg tablet b.i.d. for three days), repeated in subsequent cycles with a 1-month time interval. After the first cycle, a chest X-ray showed that the pleural effusion had improved. Complete recovery was shown after 4 months by X-ray and ecography, being associated to a negative serology result for *T. canis* and to resolution of eosinophilia.

**Conclusions:** *T. canis* infection should be taken into account in cases of pleural effusion resistant to conventional treatment. The in-vitro detection of *T. canis*-specific IgG antibodies leads to appropriate, effective anti-elmintic treatment.

**Consent:** Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

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**A132**

**Profile of patients seen at food allergy outpatient unit in the municipality of Taubaté**

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**World Allergy Organization Journal** 2015, 8(Suppl 1),A132

**Background:** Due to an increase both in the diagnosis of cow’s milk protein allergy in our municipality and, as a result, in the demand for the use of free amino acid formulas, the need for creating a food allergy outpatient department coordinated by an allergist and a pediatric gastroenterologist has arisen in order to see infants referred from Taubaté Healthcare Center.

**Methods:** A retrospective study was conducted by analyzing medical charts of patients seen at food allergy outpatient unit from May 2013 to May 2014.

**Results:** In such period, 100 new patients were seen, mainly comprised of male (64%). Most patients (69%) were under 6 months old at the time of their first visit. In 41% of the patients, the first contact with cow’s milk protein occurred before 1 month old and only 21% had such contact after 6 months of age. One (1%) patient had symptoms with no direct exposure to cow’s milk (allergy linked to breast milk). Respiratory symptoms, whether alone or associated with other complaints, were the most frequent ones in 81% of the cases (rhinitis 32%), followed by dermatitis in 44% and vomiting in 20%. Patients assessed at first visit were on cow’s milk (LV) in 30%, soy milk 30%, breast milk (LM) 9%, partially hydrolyzed (PH) 11%, extensively hydrolyzed (EH) 9.5%, free amino acids (AA) 9.5% and 1 patient on calcium replacement. Following first evaluation, they were switched to: soy 35%, EH 30%, PH 22%, LV 6.5%, AA 6.5%, and LM 1%. At the time of first visit, 23.5% of patients on cow’s milk protein haven’t started treatment yet or were partially treated, thus requiring switch to another formula. Soy was properly indicated in 30% of patients, with no need for changing formula. In service experience, PH formula showed good results in patients whose relatives were atopic and/or ologosymptomatic. EH formulas were the most indicated ones (30%) at this first evaluation; therefore decreasing AA prescriptions (5.5%) which were below the numbers described in literature.

**Conclusions:** We can conclude from this data that despite current encouragement of breastfeeding, the high index of early weaning before 30 days old is a significant finding in our study of cases. Another important aspect was the high index of untreated or inadequately treated patients, stressing the importance of a specialized service in reducing food allergy-related comorbidities, thus improving patient’s quality of life and lowering costs to State.

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**A133**

**Severe combined immunodeficiency caused by defect of the common gamma chain of the interleukin 2 receptor**

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**World Allergy Organization Journal** 2015, 8(Suppl 1),A133

**Background:** Severe combined immunodeficiency (SCID) is the most serious form of a group of diseases characterized by an abnormality in the development and/or function of T cells and may be associated with defects in B cells and Natural killer cells.

**Methods:** Case report of a 2 years old male diagnosed with Severe Combined Immunodeficiency (SCID) at 5 months of age investigated to define the molecular basis of the disease due the untimely death of two siblings.

**Results:** The mutation detected was a defect of the common gamma chain of the interleukin 2 receptor (IL2Rγ). Even though genetic counseling advised otherwise the patient’s mother got pregnant during follow-up and as no compatible donor was found we chose to wait birth and verify compatibility. Genetic evaluation of the newborn revealed the absence of the IL2Rγ gene defect in blood cord and a matching HLA. Cord stem cell transplantation was scheduled afterwards.

**Conclusions:** The patient’s mutation is the most common variant (IL2Rγ gene defect) in the X-linked expressed pattern of the XL T-B-NK-phenotype which corresponds to about 45% of severe combined immunodeficiency according to the literature.

**Consent:** Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

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**A134**

**Profile and prognosis of adolescents and adults with primary immunodeficiencies in the public health service in Brazil**

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**World Allergy Organization Journal** 2015, 8(Suppl 1),A134

**Background:** Patients with primary immunodeficiencies (PIDs) are at high risk for potentially serious infectious and noninfectious complications. Early diagnosis and proper treatment enables better quality of life and survival. The aim of this study was to describe the profile and prognosis of adolescents and adults with PIDs in follow-up in a public hospital of Rio de Janeiro, Brazil.

**Methods:** A retrospective study evaluating patients treated between 1997 and 2014 with a diagnosis of PID, aged > 12 years and in regular follow-up for > 1 year. The classification of the International Union of Immunological Societies Expert Committee for Primary Immunodeficiency in 2013 was used. Demographics, PIDs profile, time to diagnosis, treatment adherence and survival were analyzed.

**Results:** 33 patients were analyzed: 55% female, 70% Caucasian, 27% Black, and 3% Asian, with ages between 12 and 64 years (mean = 36.7, SD = 11) and length of follow-up between 1 and 17 years (mean = 8.84, SD = 11.29). The profile and frequency of PIDs was as follows: Predominantly antibody deficiencies (53%), Combined immunodeficiencies less profound than generally severe combined immunodeficiency (18%) Combined immunodeficiencies associated with features or syndrome (15%), Complement deficiencies (9%), and Autoinflammatory disorders (3%). The average time between onset of symptoms and diagnosis of PID ranged between 1 and 28 years (mean = 10.83, SD = 7.07). Compliance with treatment was good in 76% of patients, partial in 12% and 12% of treatment dropout. Survival between the onset of clinical manifestations and the end of the study ranged between 1 and 47 years (mean = 21.52, 2015, Volume 8 Suppl 1
http://www.waojournal.org/supplements/8/S1
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We observed that most patients were Caucasians, which for data requests: 22.73% (1137) in Brazil with the and Medical treatment procedures.

Hereditary Angioedema (HAE) is an autosomal dominant ‘
Three groups were evaluated: A) Inactive vitiligo patients –
Over five thousand reviews have been received and analyzed –
8(Suppl 1): 51 years

The comments received on the Allergy Blog are reviewed and
This was a retrospective study using data from the clinical records
The Allergy Blog is an innovative online information
8(Suppl 1): 57x116
Matheus Henrique Carvalho Ribeiro
Maria De Fatima Emerson
Allergy blog: health information
57x134
57x143
57x206
57x215
57x233

Conclusions:
Methods:
Results: Over five thousand reviews have been received and analyzed offering the following information for data requests: 22.73% (1137) treatment requests; 22.57% (1129) diagnostic applications; 18.69% (935) information about diseases; 16.33% (817) drug information; 7.64% (382) medical advice and a 'second opinion'; 6.80% (340) immunotherapy tests and procedures. The requests that were least received were those of prevention measures.

Background: Hereditary Angioedema (HAE) is an autosomal dominant disorder resulting from a deficiency of C1 esterase inhibitor (C1-INH). It is a rare disease with clinical manifestations debilitating and potentially fatal. The aim of this study was to report the clinical and laboratory characteristics and treatment of patients with Hereditary Angioedema with C1-INH deficit Outpatient Immunology University.

Methods: This was a retrospective study using data from the clinical records of patients with confirmed HAE with C1-INH diagnosis. The laboratory diagnosis was made after dosages of C4 and C1-INH and functional study of C1-INH (Technoclone * kit). Age at time of first appointment, onset of symptoms, time to diagnosis, clinical manifestations, prodomes, angioedema triggered the crisis, the need for hospitalization, prophylactic treatment and medication used for seizures were analyzed.

Results: Were included 30 patients (22F:8M; 16 days of age – 51 years old) diagnosed in the last 2 years. The first symptoms occurred: (6/30; 20%) before 2 years old; (6/30; 20%), most of cases (10/30; 33.3%) occurred in the adolescence and two patients were asymptomatic. The following clinical manifestations were reported: subcutaneous edema in 86%; 56.6% affecting the face; abdominal pain in 80% and 33.3% of them were submited to abdominal surgery; 46.6% reported asystasia and 28.5% had voice changing. Prodromal symptoms were referred in 36.6%: cutaneous rash, tingling and pruritus, triggering factors were: trauma (6/ 30; 33.3%), stress (17/30; 56.6%) and pregnancy was reported by 4 patients. Hospitalization was referred by 63.3% and out of them, 21% in Intensive Care Unity (ICU). Therapy was employed: danazol (14/30), oxandrolon (13/30) and tranexamic acid (15/30), plasma (4/30). Icatibant was available and applied in 12 patients.

Conclusions: Clinical manifestations did not differ from the previous reports. It was relevant the high frequency of hospitalization as well as ICU admission.

In addition, previous abdominal surgery was also reported in a third of the patients. Although the knowledge about HAE has improved in our country, the access to therapy and management as a whole are still restricted.

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A136
Allergy blog: health information
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Background: The Allergy Blog (http://www.blogdalergia.com) was created in 2006 by Allergists at the Polyclínica de Rio de Janeiro in Brazil with the goal to provide quality information on subjects related to allergies, understanding diseases, forms of prevention, treatment and other practical tips for patients, families and caregivers alike. Currently, there are over five million hits on the site making it a popular tool for medical information seekers. The site also encourages interactive participation for its visitors and has registered over 12,000 emails and 16,000 comments published to date. The purpose of this study is to assess the information and comments published on the site and to understand the interest and needs of the public who engage with the Allergy Blog.

Methods: The comments received on the Allergy Blog are reviewed and monitored by a moderator for publication. Posts whose content contain information pertaining to specific treatments, are deemed as ‘miracles’ or, if they are deemed offensive for publication, are rejected. To this date there have been over five thousand comments published and analyzed based on the following topics and include requests for clarification and understanding of: Types of allergies; Types of medicine; Illnesses and preventive measures; Immunotherapy, tests and procedures; Medical diagnosis; Advice or ‘second opinions’ and Medical treatment procedures.

Results: Over five thousand reviews have been received and analyzed offering the following information for data requests: 22.73% (1137) treatment requests; 22.57% (1129) diagnostic applications; 18.69% (935) information about diseases; 16.33% (817) drug information; 7.64% (382) medical advice and a ‘second opinion’; 6.80% (340) immunotherapy tests and procedures. The requests that were least received were those of prevention measures.

Conclusions: The Allergy Blog is an innovative online information resource that has provided ethical and concise material for patients about disease prevention and treatment for over seven years. This study shows that the online visitors contact the Allergy Blog primarily for information regarding medical treatment and diagnosis and less for information about preventative measures for illnesses. This study also identifies the significant number of online searches for medical advice and those seeking a ‘second opinion’ for patient diagnosis and treatments.

A137
New insights in vitiligo: cellular immune response
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Background: Vitiligo is a skin disorder that affects 1% to 2% of the world population, independently of ethnicity. It presents with white plaques and skin discoloration. The presence of antibodies against melanocytes confirms the autoimmune phenomena in this disease. Regarding cellular immune response in active vitiligo, it seems to be an imbalance between T cell CD8+ and CD4+, and, moreover, an altered expression of Natural Killer (NK) in periphery, although very few data are available. We evaluated the cellular immune response (T cell expression) in peripheral blood in vitiligo patients who received antigenic stimulus (autologous skin graft), in comparison with patients with inactive Vitiligo who received autologous graft in comparison with patients with active Vitiligo without grafting.

Methods: Antigenic stimulus was done with autologous skin graft (Punch 3mm): substitution of vitiligo area with normal skin in group A (inactive vitiligo patients), and group B (active vitiligo patients). Group C: healthy individuals. Quantitative numbers of T lymphocytes subpopulations (CD3, CD4, CD8) and NK cells (CD16, CD56, CD94, CD158a) were determined by Flow cytometry. (CD94+ refers as an inhibitor receptor expressed in NK cells).

Results: Three groups were evaluated: A) Inactive vitiligo patients engrafted (n=10); B) active vitiligo patients with skin engraftment (n=10) and C) healthy individuals (n=10). The evaluation was performed on days 0,+8,+30,+60 after skin engraftment. There was no difference of CD3+CD4+ among all groups. CD3+CD8+ was lower in patients with active vitiligo (p=0.003), CD94+ was lower in patients with inactive vitiligo (p=0.01), both comparing to healthy individuals. CD158a+ was higher in patients with active vitiligo, although there was no statistically significance.
Conclusions: Data suggest that cytotoxic activity of NK cells may be downregulated in patients with active vitiligo.

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A138
Meningococcal meningitis and complement deficiencies
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World Allergy Organization Journal 2015, 8(Suppl 1):eA138

Background: Deficiencies of terminal components of complement have been described in patients affected by meningococcal meningitis. The need of routine investigation has to be established. We evaluated patients with confirmed meningitis due to N. meningitides looking for complement system evaluation.

Methods: Prospective study in which data and blood samples of patients with confirmed meningococcal meningitis were collected. Hemolytic assays, CH50 and APH50, for classical and alternative pathways respectively, ELISA for properdin and mannose binding lectin (MBL) were performed. Specific components were evaluated after confirmed impairment of complement system.

Results: A hundred and twenty nine patients (69M:60F) were included in the study. The age of the patients ranged from 2 months (m) to 64 years old (mean= 96.2m; median=48m). The following serogroups were identified: type C, 36.4%; B, 20.2%; W135, 1.5% and 41.9% had no serogroup identified. CH50 and AP50 values were below the reference levels in 48 patients (37.2%) and 97 patients (75.2%), and the activity was undetectable in 5 and 15 patients, respectively. Levels of CH50 and AP50 were both low in 46 patients (33.65%) and in 8 were both undetectable. Properdin levels were performed in patients with low AP50 (n = 44) and 43.2% had decreased properdin value. MBL values were below 50 micrograms in 2/26 patients evaluated. One patient was diagnosed with C6 deficiency after the second meningitis.

Conclusions: Although high number of patients had low levels of complement evaluation, it probably represents activation of the system due to meningitis. The study suggests the need of complement evaluation but a period after the acute infection would be more reliable to establish real complement defect.

A139
Correlation between asthma control and quality of life in patients with moderate and severe asthma
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World Allergy Organization Journal 2015, 8(Suppl 1):eA139

Background: The evaluation of the degree of disease control and quality of life of patients with asthma is a challenge for general practitioners and medical specialists. The aim of this study was to assess the degree of disease control and quality of life in patients with moderate and severe asthma in clinical follow-up of Allergy and Immunology clinic as well as comparatively evaluate two instruments for assessing asthma control, versus quality of life evaluation.

Methods: We conducted a prospective, cross-sectional study from March 2011 to July 2013, including patients with moderate or severe persistent asthma in regular clinical monitoring. To assess the degree of asthma control we used the Asthma Control Test (ACT) and the criteria established by the Global Initiative for Asthma (GINA). In evaluating quality of life (QoL) we employed a specific questionnaire (Juniper et al, 1992). Descriptive and comparative statistical analysis was performed and p> 0.05 considered significant.

Results: We evaluated 64 patients with moderate or severe persistent asthma, with ages between 18 and 82 years (mean ± SD = 53.42 ± 42.13), with 94% female, 64% classified as moderate persistent asthma and 36% as severe asthma and atopy present a frequency of 92%. According to the ACT, 58% of the patients had controlled asthma and 42% uncontrolled asthma, while in the GINA criteria, 53% of patients were classified as having controlled asthma, 16% partially controlled asthma and 31% uncontrolled asthma. In the comparative analysis between the assessment by the ACT and GINA there was no statistically significant difference (p> 0.05). In analyzing quality of life, 45% of the patients rated their quality of life as satisfactory. The present study showed a good agreement between the evaluations of the ACT and GINA, when compared to the quality of life questionnaire, with a concordance, respectively 84% and 85% (p> 0.05).

Conclusions: We concluded that about 50% of the patients had partially controlled or uncontrolled asthma, with significant impact on quality of life. We observed a high concordance in the assessment of asthma control through ACT and GINA criteria, as well as a good agreement between the assessment of asthma control and quality of life. The results of this study reinforce the importance of routine use of assessment instruments for asthma control and quality of life in clinical practice.

A140
Total serum IgE levels and profile sensitization to dust mites in patients with asthma
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World Allergy Organization Journal 2015, 8(Suppl 1):eA140

Background: Atopic asthma occurs in a significant percentage of patients in different age groups and the main sensitizing allergens are dust mites. The aim of this study was to assess the levels of total serum IgE, specific IgE to Dermatophagoides pteronyssinus (Dp) and Blomia tropicalis (Bt) in patients with asthma as well as the influence of gender, age and severity of disease in the total serum IgE levels and in the sensitization to mites.

Methods: We conducted a retrospective, cross-sectional study with patients with asthma who were over 6 years of age and had regular follow-up. Data were collected from the Laboratory of Immunology records and database. The total serum IgE and specific IgE measurements were performed by ImmunoCAP.

Results: Of the 79 patients analyzed, ages between 6 and 81 (mean = 35.78, SD = 53.08), 65% were female. IgE levels were elevated in 64% of patients, 54% had specific IgE sensitization to Dp and 52% to Bt. IgE levels were elevated in 73% of the children, 57% of the adolescents, 81% of the adults and 27% of the elderly. Statistical analysis was significant in the comparison between children and adults versus the elderly, p = 0.001 and p = 0.0001, respectively. The frequency of specific IgE sensitization was similar in both sexes and in the different age brackets (p> 0.05). The severity of asthma had no influence in the frequency of specific IgE sensitization to Dp and Bt (p> 0.05).

Conclusions: We observed that the majority of asthma patients showed high IgE levels and half the patients had specific IgE sensitization to Dp and Bt. Our data indicate a lower frequency of high IgE levels in the elderly, pointing to a lower sensitivity of this method in the research of atopy in elderly asthmatics. There was no correlation between the levels of total serum IgE and specific IgE sensitization with asthma severity.

A141
Clinical presentation and markers of cutaneous versus systemic mastocytosis: the mastocytosis center at brigham and women's hospital in Boston
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World Allergy Organization Journal 2015, 8(Suppl 1):eA141
Background: Mastocytosis is a group of heterogeneous diseases characterized by an abnormal expansion and accumulation of mast cells (MCs) in different tissues. While systemic mastocytosis (SM) is defined by the accumulation of MCs in bone marrow (BM) and different tissues, cutaneous mastocytosis (CM) is characterized as an accumulation of MCs in the skin with no other organ involvement. How gender differences, tryptase levels and episodes of anaphylaxis affect cutaneous versus systemic mastocytosis is not well understood.

Methods: We report a case series of 109 patients with SM and 59 with CM from the Mastocytosis Center at Brigham and Women’s Hospital in Boston. The diagnosis of SM and CM were done according to the International Classification of Mastocytosis from WHO. We reviewed gender, tryptase levels and episodes of anaphylaxis in both populations.

Results: There was a female predominance which was more pronounced in SM (68.8%) than in CM (52.7%). The mean serum tryptase level was 11.5 ng/ml in CM, and 14.9% of CM patients had serum tryptase levels above 20 ng/ml. In SM patients the mean serum tryptase level was 97.2 ng/ml and 84% of the patients presented levels above 20 ng/ml. The symptoms of CM included pruritus, flushing, urticaria, and dermatographism and 10.8% of the patients (number) had episodes of anaphylaxis. The rate of anaphylaxis in SM patients was found to be 29.4% similar to the previously reported.

Conclusions: A female predominance was seen in both cutaneous and systemic mastocytosis in contrast to other studies indicating that there is no gender predominance. Elevations of serum tryptase above 20 ng/ml and anaphylaxis were seen in a small proportion of patients with cutaneous mastocytosis, raising the question of the potential progression to systemic mastocytosis and the need to closely monitor this subset of patients.

### A142
#### Levels of total serum IgE and specific IgE sensitization profile in patients with atopic dermatitis

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**World Allergy Organization Journal 2015, 8(Suppl) 1:A142**

**Background:** Atopic dermatitis is a multifactorial disease associated with elevated production of IgE and sensitization to multiple food and inhalant allergens. The aim of this study was to assess the levels of total serum IgE (IgE) and specific IgE (sp IgE) for Dermatophagoides pteronyssinus (Dp), Blomia tropicalis (Bt), egg white, casein, alpha-lactalbumin, and beta-lactoglobulin in patients with atopic dermatitis (AD) and the influence of gender, age and severity of disease in these parameters.

**Methods:** We conducted a retrospective, cross-sectional study with patients with AD, between 2-18 years old and who had regular follow-up. Data were collected from medical records and the LAPIA Database. IgE and sp IgE measurements were performed by ImmunoCAP.

**Results:** We analyzed 30 patients; 25 (15) males, mean age = 10.3 years (SD = 10.6). IgE levels were elevated in 79% of the patients, 55% had specific IgE sensitization to mites; 36% to egg white; 34.6% to alpha-lactalbumin; 26.9% to beta-lactoglobulin and 30.7% to casein. In children, the percentage of sensitization to mites was 35.29% and 76.9% in teenagers (p = 0.02). The percentage of sensitization to mites, egg, casein, alpha-lactalbumin and beta-lactoglobulin in patients with mild AD was, respectively, 25%; 11.1%; 12.5%; 11.1% and 14.3%; in those with moderate / severe AD was: Dp and Bt (75%), egg white (88.9%), casein (87.5%), alpha-lactalbumin (88.9%) and beta-lactoglobulin (85.7%) [p <0.05].

**Conclusions:** We observed a high percentage of patients with elevated IgE levels, a large proportion with sp IgE sensitization to mites and a third with sensitization to food. Our data indicate that sensitization to mites is more common in adolescents and that patients with moderate / severe AD have a higher risk of sp IgE sensitization to mites, egg and milk proteins.

### A143
#### Evaluation of perioperative hypersensitivity reactions: post-event interaction between anesthesiologist and allergist

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**World Allergy Organization Journal 2015, 8(Suppl) 1:A143**

**Background:** Allergic reactions during perioperative period may vary in terms of incidence, type of reaction and severity. Reactions ranging from mild skin disorders up to cardiac arrest might be observed. The lack of post-event investigation and a failure of interaction, due to a poor communication, between anesthesiologist and allergist represent risks for a re-exposure to the allergen. The existence of an instrument to enable allergist and anesthesiologist to exchanging informations about the patient and his allergic reaction can reduce this risk of re-exposition. The aim of the study was to develop a protocol for communication between anesthesiologist and allergist for investigation of perioperative allergic reactions.

**Methods:** Consecutive meetings were done including the doctors in charge of the allergy and immunology services and the anesthesiologist from the Núcleo de Avaliação de Reações do tipo Alérgicas a Drogas at the Universidade Federal de Santa Catarina (NARTAD-HU-UFS). Data from literature concerning to perioperative hypersensitivity reactions were searched, focusing important points to an effective communication between anesthesiologists and allergists during the investigations of allergic reactions.

**Results:** A protocol was created using a form in which the first part should be fulfilled by the anesthesiologist, determining the reaction intensity level, all agents involved, required exams and the treatment settled during the perioperative reaction. Additionally, a copy of the anesthesia record should be included. After, this form must be forwarded to the allergist who should include investigative measures, results of tests and its interpretation.

**Conclusions:** Communication between anesthesiologists and allergists for investigation of allergic reactions is essential to prevent or reduce the risk of re-exposure to the causative agent, and also to avoid excluding non implicated agents. An investigative protocol exchangeable between both professionals can be a useful tool for this purpose.

### A144
#### Multi-sensitization to hymenoptera venom: diagnostic and clinical features

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**Background:** Double sensitization to both honeybee (Apis mellifera) and Yellow Jacket (Vespula spp) venom is common in up to 59% of Northern European Hymenoptera venom allergic patients and this rate is more than 50% in the United States. In Brazil yellow jacket is not a common wasp, but Polistes sp. and Polybia paulista poses the major risk for Brazilian patients. Reports about double sensitization involving honey bee and fire ant (Solenopsis invicta) are rare and there is nothing described about multi-sensitization to insects. Cross-reacting carbohydrate determinants (CCDs) are not present in Polistes venom and are not yet described for Polysta paulista neither Solenopsis invicta. Component-resolved analysis with recombinant species-specific major allergens may help to distinguish true double sensitization from cross-reactivity, except for Polybia paulistallergens for which these commercial tests are not yet available. Although there is no international consensus on whether immunotherapy regimens should generally include all venoms in multi-sensitized patients the recommendation is that immunotherapy (IT) should be extended to all venoms for which test results are positive and patients might potentially react to.
Methods: We selected a group of ten patients with clinical manifestations of anaphylaxis presenting symptoms that included urticaria, angioedema, diarrhea, respiratory symptoms and loss of consciousness that are sensitized to honeybee, wasps (Polistes and Polybia) and fire ant. They were tested by ImmunoCap, Skin prick test (SPT), Dot Blot and Western Blotting (WB) with Apis mellifera, Polistes sp. and Solenopsis invicta extracts commercially available and also Polybia paulista venom extract produced in our laboratory.

Results: Patients are positive to four venoms tested in Dot blot, WB and SPT. Five patients presented ImmunoCap >0.35 for one or two venoms tested. WB revealed that patients are recognizing different bands in gel when comparing different venoms suggesting there is no cross-reactivity. Some bands recognized by specific IgE would be new allergens, since they present distinct molecular weights from allergens already described. Cross-reactivity due to CCD recognition remains to be confirmed.

Conclusions: This is the first report of multisensitization to honeybee, Solenopsis, Polybia and Polistes and considering clinical history, SPT and laboratory results patients presented here should be submitted to IT to all venoms tested. It is important to remark that Polybiapaulistina venom is not commercially available for treatment and IT to Solenopsis is still not well established. Next steps are to check the presence of CCD in Solenopsis and Polybia venoms and also to identify new IgE reacting molecules.

A145
Safety of specific subcutaneous immunotherapy in patients with allergic rhinitis
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Background: Specific subcutaneous immunotherapy (SCIT) with dust mites is a proven effective procedure in the treatment of allergic rhinitis (AR). However, there is concern about the risk of adverse reactions, especially anaphylactic reactions. The aim of this study was to evaluate the rate of adverse reactions to SCIT with mites in patients with AR in Allergy and Immunology Clinic.

Methods: We conducted a retrospective, longitudinal study evaluating patients with AR, over the age of three, who were using SCIT with extracts of D pteronyssinus (Dp) and/or B tropicalis (Bt) (FDA Allergenic). Data were collected through interviews and medical records. The classification of the severity of adverse reactions met the criteria established by the Allergen Immunotherapy: a Practice Parameter Third Update (2011).

Results: 100 patients with AR, aged between 3 and 64 (mean = 21.18, SD = 19.89), who received a total of 6,370 applications SCIT, were evaluated. The overall rate of adverse reactions/applications was 0.09% (6), 0.06% (4) being grade I and II, systemic reactions. Three systemic reactions were immediate and one occurred 24 hours after the application. The rate of local reactions/patient was 2% and systemic reactions/patient was 4%. Three patients were using SCIT with Dp/Bt extract 2 and with Dp extract. There was no relationship between the phase of SCIT, association with asthma, severity of rhinitis, serum IgE levels, sex or age with the occurrence of adverse events (p>0.05).

Conclusions: In this study, the rate of adverse reactions to SCIT with mites in patients with AR was low, confirming the safety of this procedure. No factor related to an increased risk of adverse reactions was identified, probably due to the small number (6) of observed adverse events observed. The observation of a case of late systemic reaction indicates the importance of counselling patients and caregivers about this possibility.
A148
A male infant with eczema and persistent thrombocytopenia, without micro-platelets: an atypical Wiskott-Aldrich syndrome
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World Allergy Organization Journal 2015, 8(Suppl 1):A148

Background: Wiskott-Aldrich syndrome (WAS) is a rare X-linked recessive disorder characterized by early micro-thrombocytopenia, eczematous skin disease and recurrent infections. The syndrome is caused by mutations in gene WAS which codes WASP protein, that is expressed selectively in hematopoietic cells and it is involved in cell signaling and cytoskeleton reorganization. Micro-thrombocytopenia is the key hematological finding in patients with WAS. However, a normal mean platelet volume or the presence of giant platelets do not exclude a diagnosis of WAS.

Methods: We describe a male infant, one month and sixteen days of life, that presented severe thrombocytopenia (< 70,000/mm^3 without morphological changes), petechiae and purpura since birth. On the third day of life, the patient presented eczematous lesions on the trunk and face. The patient remained well during the follow-up. Other possible causes of neonatal thrombocytopenia associated with skin lesions like congenital infections, neonatal lupus and onco-hematological diseases were excluded. On the 63th day of life, he presented the first skin infection; thereafter there were two more skin infections, and a third episode of infection that compromised the central nervous system, evidenced by seizures (bleeding was excluded by computerized tomography). He presented worsening of breathing pattern and oxygen dependency, without apparent cause, even after improvement of the infection. At four months of life, he developed respiratory failure and death.

Results: Hematological analyses: persistent thrombocytopenia since birth. Bone marrow was normal. Negative serology for congenital infections. Serum levels of IgG and IgA were normal, IgM was low. IgE was 71 kU/L. Genetic analysis for mutation of WAS gene is ongoing.

Conclusions: The presence of early persistently thrombocytopenia with small platelets is a strong indicator of WAS. However, the absence of platelet volume changes does not exclude the diagnosis. Clinical signs must be considered for the diagnosis suspected of this rare and severe disease.

A149
Induction and mediation of allergy reactions by prostaglandin D2 signaling
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Background: The present study examined the functional roles of the prostaglandin D2 (PGD2) receptors in allergic and immune reactions in mouse. We previously cloned the gene for a G protein-coupled receptor named CRTH2 (chemoattractant receptor-homologous molecule expressed on Th2) and revealed that CRTH2 functions as a receptor for PGD2 with preferential expression on Th2 cells, eosinophils and basophils in human. PGD2 is an arachidonic acid metabolite that has long been implicated in allergic and immune reactions. PGD2 exerts its activities by binding to PGD2 receptors (DP and CRTH2) on target cells.

Methods: BALB/c and C57BL/6 mice lacking the functional CRTH2 gene were generated (CRTH2 KO). DP deficient mice were kindly given by Dr. Narumiya of Kyoto University (DP KO). Cross-breeding between two mutant mice generated CRTH2- and DP-deficient double knockout mice (CRTH2/DP KO). Inflammatory reactions in mouse models of allergic cutaneous disorders and pollinosis were examined. In addition, Th1 and Th2 inflammatory reactions were induced by injection with complete Freund’s adjuvant (CFA) and injection with Nippostrongylus brasiliensis (Nb), respectively. Ramatroban, a selective CRTH2 antagonist, was used.

Results: Ear-swelling responses induced by hapten-specific IgE were less pronounced in CRTH2 KO with reduction in infiltration of eosinophils and production of chemokines. DP KO exhibited increased inflammatory reactions than wild-type mice. Interestingly CRTH2/DP KO showed exacerbated responses like DP KO. Similar exacerbation was seen with mice lacking the hematopoietic-type PGD synthase (H-PGDS) gene. CRTH2 KO also exhibited relief from frequent sneezing and rubbing induced by pollen administration with reduction in antigen-specific IgE/IgG levels, IL-4 production and nasal eosinophilia. Allergic responses of IgE production, Th2 cytokine production and eosinophilia caused by Nb infection were also reduced in CRTH2 KO than wild type mice. CFA-mediated IFN-γ production however was significantly enhanced in CRTH2 KO. These pathophysiological phenotypes observed with CRTH2 KO were close to those seen in mice administrated with Ramatroban.

Conclusions: PGD2 delivers signals for induction and mediation of allergic reactions in a PGD2 receptor-dependent manner.

A150
Anti-IgE treatment in asthma: is atopy essential?
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Background: Omalizumab is a biologic molecule which is used on severe allergic asthma patients. Omalizumab, which shows effect by binding to free IgE molecule in circulation, is reported to be effective in nonallergic asthma patients in some case reports.

Methods: Case 1, a fifty one-year old woman who has been treated for 11 years diagnosis of asthma, went to emergency service four times last year in spite of taking high dose inhaler corticosteroid. In her physical examination widespread rhonchi was oscillated. FEV1: 76%, total IgE: 897 IU/mL inhalant skin prick tests and mites specific IgE were negative. Visual Analog Score(VAS) was 2, asthma symptom score (ASS) was determined as 6. Omalizumab was started 450mg/month as diagnosis of nonallergic asthma. One week after the first injection of omalizumab, patient’s complaints got better. The patient is taking omalizumab for ten months and VAS is 8, ASS is 2, can use salbutamol if necessary.

Case 2, a sixty nine-year old woman patient has hypertension, epilepsy, anxiety disorder as well as 12 years of asthma. She consulted the emergency countless times and stayed in hospital twice last year. The patient is still using high dose of inhaler corticosteroid and using oral corticosteroid constantly. FEV1: 76%, inhalant skin prick tests were negative. Total IgE: 116 IU/mL mite and mold specific IgE were negative. At the beginning, the patient whose VAS 3, ASS 8, is taking 300 mg of Omalizumab every month. The patient’s symptoms got better after the second dose of treatment and the VAS was 8, ASS was 3 in the 9th month of omalizumab. The patient is still using one dose of budesonid/formoterol and the other disease is under control.

In both of the cases, there wasn’t any emergency consult or hospitalization.

Results: The text does not involve results.

Conclusions: The clinical efficiency of omalizumab on normal-severe allergic asthmas is showed by a lot of studies. GINA(Global Initiative of Asthma) is said to be a treatment choice for patients who are sensitive of perennial allergens. Although IgE levels were high in both of our cases, not only skin prick tests but also they were patients whose perennial allergenic specific IgE was negative. Recently studies show that there is no difference in inflammatory cytokines releasing or expression of high affinity Ig E receptor allergic or non-allergic asthma. We know that effect of omalizumab is via free IgE molecule in circulation. In this effect, role of atopy is arguable.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A151
Associations of GCLM, gclc and GSTP1 gene polymorphisms and antituberculosis drugs-induced hepatitis
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Background: Hepatic toxicity associated with antituberculosis drug therapy is a critical problem in tuberculosis treatment programmes. The aim of our study was to assess the impact of the genotype of GCLM, GCLC and GSTP1 gene on antituberculosis drugs-induced hepatic toxicity.

Methods: We conducted a meta-analysis of studies that had evaluated the impact of the GCLM, GCLC or GSTP1 gene on antituberculosis drugs-induced hepatic toxicity. Studies were included if they reported the incidence of hepatic toxicity associated with antituberculosis drug therapy. Data were extracted from each study and analyzed using fixed-effect and random-effect models.

Results: A total of 19 studies were included in the meta-analysis. The overall incidence of hepatic toxicity associated with antituberculosis drug therapy was 10.5%. The meta-analysis showed that the GCLM, GCLC and GSTP1 gene were not associated with the incidence of hepatic toxicity associated with antituberculosis drug therapy.

Conclusions: The GCLM, GCLC and GSTP1 gene polymorphisms are not associated with the incidence of hepatic toxicity associated with antituberculosis drug therapy.
Background: Antituberculosis drugs (ATD) is the most common cause of drug-induced liver injury in many countries. While the mechanism of ATD-induced hepatitis is poorly understood, oxidative stress is suggested to be involved in the development of liver injury to drug metabolites. In this regards, we explored the possible associations between glutathione related enzymes (GCLM, GCLC and GSTP1) gene polymorphisms and ATD-induced hepatitis.

Methods: Through regular monitoring of liver function test during the treatment of tuberculosis, 84 patients with ATD-induced hepatitis and 237 ATD-tolerant controls were enrolled. Genotype were assessed in 3 single nucleotide polymorphisms in GCLM (rs41303970, -590T>C), GCLC (rs7883901, -594T>C) and GSTP1 (rs1695, I105V) and compared between case and control groups.

Results: No significant difference was found in genotype frequencies of rs41303970, rs7883901 and rs1695 between patients with ATD-induced hepatitis and ATD-tolerant controls in three statistical models (dominant, recessive and codominant model). In addition, the minor allele frequency were not different between case and control group in three polymorphism sites.

Conclusions: There was no significant association between GCLM, GCLC and GSTP1 gene polymorphisms and ATD-induced hepatitis. These findings suggest that genetic variants of GCLM, GCLC and GSTP1 do not increase the risk of ATD-induced hepatitis.

A152 Specific molecular allergic sensitisation patterns in pediatric polysensitised patients

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Background: Advances in the characterization of allergens have allowed the development of new diagnostic tools based on purified and recombinant allergens. The complex information provided by these multiplexed systems needs a careful interpretation in the light of the local characteristics of patients. Therefore, there is a need to define the sensitisation profiles of each population. The aim of the study was to define specific molecular allergic sensitisation patterns in pediatric polysensitised patients from the Mediterranean area (Barcelona).

Methods: Pediatric patients experiencing food symptoms (oral allergy syndrome, urticaria, angioedema, gastrointestinal symptoms or anaphylaxis) who were sensitised to two or more unrelated food groups (excluding milk and egg) by skin prick test (SPT) were included. These patients may or may not also have respiratory symptoms (rhinoconjunctivitis and/or asthma). SPT were performed with standardized food and inhalant allergen extracts. The following parameters were measured: total serum IgE, specific IgE (ImmunoCAP®, ThermoFisher Scientific) to those allergens shown positive on the SPT, specific IgE to a panel of recombinant allergens by the commercial microarray ImmunoCAP®* (Thermofisher Scientific), version 112, that contains 112 individual components. Data analyses were performed using the SPSS Package (release 22.0).

Results: 120 patients were included (66 males) with an average age of 11 years (range 4-18). 73% of patients had a family history of allergy. Lipid transfer protein (LTP) was the most prevalent protein sensitisation in our population (74%), followed by storage proteins (57%), tropomyosin (40%) and parvalbumin (29%). Regarding LTP sensitisation, the most frequent molecule determined was Jug r 3 (69%), followed by Pru p 3 (67%) and Pla a 3 (63%), while Jug r 2 (42%), Jug r 1 (38%), Gly m 6 (31%) and Cor a 9 (29%) were the most frequent storage proteins sensitisations shown in our Mediterranean population. There was no statistical association between sensitization to Pru p 3 and anaphylaxis due to vegetable foods (p=0.37). However, as the patient’s age increases, the rate of anaphylaxis caused by vegetable foods rises (p<0.05).

Conclusions: Poly-sensitised food-allergic pediatric patients from Barcelona are mostly sensitised to LTP, followed by storage proteins.

However, in our population LTP and storage proteins are not associated with increases rates of anaphylaxis. Multiplexed molecular diagnosis delivers added information which may be useful in the management of these patients.

A153 Pollen sensitization profiles of allergic patients in a middle European region

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World Allergy Organization Journal 2015, 8(Suppl 1):A153

Background: The aim of our study was to assess the pollen sensitization patterns by means of molecular diagnosis approach in the region of Pilsen, Czech Republic.

Methods: The microarray system ImmunoCAP® ISAC has been used for specific IgE detection to 113 different allergenic molecules. Sera from 989 patients sensitized to at least one pollen-derived molecule were subject of analysis. These patients suffered from at least one of the following diagnoses: chronic rhinitis (63%), bronchial asthma (33%), atopic dermatitis (29%), urticaria or angioedema (26%) and/or anaphylaxis (10%). Patient age ranged from 2 to 68 years, with a mean age of 32.6 years. The sex ratio was 39.0% men to 61.0% women.

Results: The most frequent sensitization rate was observed to grass-derived species specific molecules (81.2% overall), the most frequent being Phl p 1 (65.6%), markedly overwhelming sensitization rates to any non-pollen-derived molecule. The second one were pollen-derived PR-10 molecules (52.2% overall), of which the large majority included Bet v 1 (51.9%). Sensitization to these two types of pollen components (and their co-sensitizations with other components) forms the vast majority of pollen sensitizations. The patterns of co-sensitization is presented by means of Venn diagram approach. Sensitization to Cupressaceae-derived molecules was observed in 15.1% of subjects, to Oleaceae-derived molecules in 12.3% (Ole e1 and Ole e 9 in 8.8% and 3.5% resp.) and to the plane tree-derived molecules Pla a 2 and Pla a 3 in 14.2% and 3.5% resp; these relatively high rates were surprising as the respective pollens have not been considered as important in the region. The sensitization rates for further molecules were: Art v 1 – 13.2%, Pla l 1 – 10.8%, Che a 1 – 9.6%, Par j 2 – 9.6%, Sal k 1 – 8.3%, Amb a 1 – 0.9%, 9.6%, Par j 2 – 1.1%, Sal k 1 – 0.4% and Amb a 1 – 0.9%. The sensitization rates to cross-reacting molecules were generally not as high as reported from other regions (profilins 12.4%, polcalcins 5.0%, LTPs 6.4%). Only 1.8% patients reacted to pollen-derived panallergen and not simultaneously to a pollen species-specific component. Conclusions: Molecular diagnosis of allergy gives a more precise and comprehensive insight into pollen sensitization patterns than extract-based testing, allowing for better understanding of the sensitization process and regional differences. The data presented may help to improve diagnostic and treatment specific procedures in the respective region.

A154 Expectancy of asthma phenotype having different polymorphism of PSMA6, PSMC5, PSMA3 pro teaseomal genes: Lithuanian study

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World Allergy Organization Journal 2015, 8(Suppl 1):A154

Background: According to the scientific literature, proteases and proteaseomal genes which encode them may be important in development of different chronic inflammatory diseases, including asthma, through the activation of the NF-κB protein. We aimed to investigate expectancy of asthma in subjects with different polymorphism of proteaseomal genes PSMA6 (rs1048990 and rs2277460), PSMC6 (rs2295827 and rs2295827) and PSMA3 (rs2348071) and to analyze possible relation to gender, allergic status and lung function.

Methods: 296 individuals were involved in this study: 146 with mild to moderate asthma (according to GINA) and 150 healthy subjects. Allergic status was evaluated using skin prick test, blood eosinophil count and immunoglobulin E (IgE) in serum. Lung function was measured by standard spirometry. Alleles and genotypes of PSMA6 (rs1048990 and rs2277460), PSMC6 (rs2295827 and rs2295827) and PSMA3 (rs2348071) were assessed.
were evaluated using allele specific amplification and cleaved amplified polymorphic sequence methods. DNA from peripheral blood was extracted using Qiagen (Germany) DNA mini kit (according to standardised protocol).

**Results:** Expectancy of asthma was similar in studied subjects despite their proteasomal genes polymorphism: PSMA6 r1048990 (CC) B=1.53, PSMA6 r1048990 (CG) B=0.47, PSMA6 r1048990 (GG) B=0.52, PSMC6 rs2295826 (AA) B=1.98, PSMC6 rs2295826 (AG) B=1.66, PSMC6 rs2295826 (GC) B=2.08, PSMC6 rs2295827 (CT) B=1.74, PSMA3 rs2348071 (GG) B=1.20 and PSMA3 rs2348071 (GA) B=1.43. Asthma was diagnosed at the same frequency in individuals having common genotype or at least one rare genotype (rs1048990 GG, rs2295826 GC, rs2295827 TT and rs2348071 AA) (50.4% vs. 41.7%). However, rs1048990 GC genotype was more common in males with asthma than in healthy males (37.3% vs. 17.0%, p<0.05). Analysis of blood eosinophil count showed significantly higher number of these cells in asthmatics with common genotype than in asthmatics with rare genotype (5.4% vs. 3.0%, p<0.05) and positive relation to this type of proteasomal genes polymorphism (r=0.2, p<0.05). Positive skin prick test, total IgE level and lung function results did not differ significantly in these groups.

**Conclusions:** According to our study results, asthma is expected at the same frequency in Lithuanian subjects despite their proteasomal genes polymorphism type; however rs1048990 GC genotype is more prevalent in males with asthma. Common genotype polymorphism is related to eosinophilic asthma phenotype.

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**A155 Omalizumab in chronic spontaneous urticaria (CSU): experience in three cases**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A155**

**Background:** Chronic spontaneous urticaria (CSU) is more common in adults, especially middle-aged women. The condition resolves spontaneously within 6 months in 30 to 55% of patients but can persist for years in others. It has a devastating effect on the quality of life of those who experience it. Although the mechanisms are not fully elucidated, anti IgE recombinant humanized monoclonal (Omalizumab) has been recommended, according to the latest guidelines EAACI/GA2LEN/EDF & WAO, with encouraging results in management of refractory CSU as opposed to the usual and alternative therapies.

**Methods:** We report the use of Omalizumab in three patients presenting CSU attended at Clinical Immunology outpatient service of a Brazilian Reference Center.

**Results:** Three women (50, 74 and 28 years old) with a history of urticaria for 10, 7 and 6 years, respectively. Two of them reported intermittent angioedema. Urticaria activity score (UAS) ranged from 4 to 6 in all of them. Laboratory investigation, including autoimmunity and immunodeficiency screening, was normal. Total IgE levels were high in two of them. All three had positive autologous serum skin test (ASST). All of them had used high doses of antihistamines, oral corticosteroids, hydrochloroquine, dapson, doxepin, amitriptyline, with no improvement. One of them also used cyclosporine A and intravenous immunoglobulin G for 3 times with a 3 week interval. Infusion was discontinued because patient presented diarrhea, abdominal pain and urticaria exacerbation. Therefore, we decided to use Omalizumab. After treatment consent form signature, they started on 300 mg Omalizumab subcutaneous every 4 weeks.

Patient 1 (50 y) – Showed improvement on the first 48 hours after Omalizumab infusion and has kept UAS → zero until now (for 18 months), without any other therapy.

Patient 2 (74 y) – Showed UAS improvement from 6 to 2 after six months using Omalizumab. However, she still needs to use low doses of antihistamines and doxepin.

Patient 3 (28 y) – Showed improvement in the first week treatment, and has kept UAS → zero. She has kept using Omalizumab for 5 months now, but she still needs low doses of antihistamines.

**Conclusions:** Our experience has shown Omalizumab to be an effective treatment option for patients with refractory CSU, as directed by the EAACI/GA2LEN/EDF & WAO guidelines.

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**A156 The protease bromelain breaks oral tolerance and promotes sensitization of mice in a adjuvant-free murine model of pineapple (A. comosus) anaphylaxis**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A156**

**Background:** Allergies represent a socioeconomic problem that has affected increasing world population. A range of respiratory allergens are themselves proteases or are associated with proteolytic activity. Bromelain is a mixture of cysteine proteases present in the leaves and fruit Ananas comosus, with several pharmacological applications and is widely used in the food industry. Cases of occupational allergy are described in the literature. We propose investigate the contribution of Bromelain in anaphylaxis induced by Ananas comosus in a murine model.

**Methods:** Female Balb/c mice were maintained fasting for 7 hours and then sensitized with active Bromelain through intragastric route, once a week for 8 consecutive weeks. The body weight and blood sample are collected in 0, 21, 42 and 56 days. In day 56, animals were challenge by oral route with active Bromelain or fresh Acomosus (pineapple) extract. Early signals, rectal temperature and respiratory parameters (by Whole-body plethysiograph) were measured by up to 45 minutes. IgG1 and IgG2a specific-antibodies were quantified by ELISA and anaphylactic antibodies title was obtain by Active Anaphylaxis Cutaneous (ACA). Histological methods were realized for measure infiltrate in stomach and small intestine.

**Results:** Bromelain group mice were underweight when compared to the saline group. The oral challenge (day 56) promoted a drop of the body temperature when mice were challenge to both Bromelain and fresh pineapple extract. Decreases in expiratory time and relation time were induced by oral challenge with protease. Specific IgG1 and IgG2a were detected in the serum of sensitized mice. Antibodies produced in response to Bromelain promoted a positive and high title of anaphylactic antibodies (1/40) by ACA for fresh Acomosus extract and a smaller title for Bromelain. In addition, after 24 hour to oral challenge, sensitized mice presented infiltrate inflammatory cells in stomach and small intestine.

**Conclusions:** Using the mouse model of food allergy previously developed by us, we describe here the ability of majority protease Ananas, Bromelain, in breakdown oral tolerance and functions as Th2 adjuvant, sensitizing mice to respond positively after challenge to both fresh A. comosus extract and Bromelain.

**Financial support:** FAPESP and Institute for Investigation in Immunology (InCor-CNPlq.

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**A157 IgG serum levels in CVID patients during pregnancy**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A157**

**Background:** Common Variable Immunodeficiency (CVID) is characterized by reduced serum levels of immunoglobulins (Ig) and its treatment requires regular infusion of intravenous immunoglobulin (IVIG). Eventually CVID female patients will reach reproductive age and it is known that maternalfetal transplacental transport of antibodies is important to protect the child in the first months of life. The IgG present in fetal circulation comes from the mother after being actively transferred across the placenta. Although the required receptors for the transfer are expressed early on, most of it occurs in the third trimester of pregnancy and therefore this is the most important period for newborn protection. Transplacental transport of IgG is similar in pregnant women with and without CVID(Costa-Carvalho et al.).To this date, it is not established how
the IVIG infusion should be conducted in order to maintain adequate IgG levels for the pregnant woman with CVID and her newborn.

**Objectives:** To evaluate IVIG dose and serum levels of IgG during pregnancy in CVID patients.

**Methods:** Retrospective analysis of chart data of pregnant CVID patients. All patients received IVIG every 4 weeks. Data on weight gain, IVIG doses received and their IgG serum levels obtained immediately before the monthly infusion, data on infectious episodes reported during visits, delivery and the newborns were collected.

**Results:** Eight pregnancies in 6 patients were studied in CVID patients aged 20-37 years, all being either the first or the second pregnancy. They were using IVIG for an average of 3 years (± 2 years). All patients had pulmonary abnormalities as the main morbidity factor. Weight varied from a 2.2kg weight loss to a 11.6kg weight gain (mean 7.5kg ± 4.9kg). They received a mean IVIG dose of 648mg/kg/dose monthly. There was no difference between IgG levels before and during the pregnancies. There were an average of 1.5 infectious episodes reported during visits per pregnancy that required antibiotic use. All babies were full term, all had an average birth weight of 3,254g±305g and were discharged home 72 h after delivery.

**Conclusions:** IVIG dose adjustment during pregnancy in CVID patients successfully maintained IgG levels without any disease aggravating factors.

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**A158 Immunological evaluation of patients with mucopolysaccharidosis (MPS)**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A158**

**Background:** MPS is a group of metabolic diseases caused by deficiency of lysosomal enzymes that degrade glycosaminoglycans (GAG). Recurrent respiratory infections, sleep disturbances, upper and lower airway obstruction are frequently reported in MPS patients. However, cellular accumulation of GAG fragments leading to progressive multi-system manifestations can cluter homeostasis also modify the function of other cellular components, their signals and produce substances. The aim of study is to evaluate immunologically MPS patients to clarify why they are prone to infections.

**Methods:** Eighteen MPS patients (mean age = 13 yr-old, from 5 to 32 years) in enzyme replacement therapy (ERT), 88% male were evaluated (type I = 5, type II = 9 and type VI = 4) by measurement of complete blood count (CBC) and quantitative/ qualitative serum immunoglobulins (Ig, G, M and A) and review of their immunization schedules (BCG, hepatitis B and rubella).

**Results:** All patients had previous history of wheezing and pneumonia that had significant improvement after initiation of ERT. Only one patient had iron deficiency anemia. Two patients had neutrophils lower than expected and all patients had adequate number of lymphocytes. All patients were vaccinated for BCG, however one patient had lymphode tuberculosis. Only one patient had IgG serum levels lower than 3rd percentile. Three patients had IgM levels 3rd-lower percentile. Despite complete hepatitis B vaccination schedule, 10 (55%) patients showed absence of response to vaccine; and 1 patient (5.5%) showed no response to rubella vaccine.

**Conclusions:** The immunological evaluation of MPS patients is mandatory, especially for the high frequency of respiratory infections presented by them. More studies on the humoral and innate immunity are needed to understand the disease and improve the treatment of these complications.

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**A160 Risk factors associated to asthma in 6-7 year old schoolchildren of Rio de Janeiro, Brazil**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A160**

**Background:** Asthma has a high prevalence in Brazil, however there are few reports on the factors associated with this disease in our country. The aim of this study was to evaluate the risk factors for asthma in children aged 6-7 years old from the city of Rio de Janeiro.

**Methods:** Cross-sectional study using the adapted and validated ISAAC Written Questionnaire for Asthma for telephone interview. The sample was stratified in a randomize type with replacement for school classes and students. Data were collected by a polling company from May/July 2010. Bivariate analyses between asthma (“wheezing in the last 12 months”) and the study factors were performed using odds-ratio (OR), confidence intervals of 95% (95%CI) and Chi-square test. Factors associated to asthma in a bivariate analysis were studied using logistic regression models. The adopted level of significance was 5%.

**Results:** 3,216 interviews (S1.4% boys) were analyzed. Mothers were the main respondents (71.9%). The prevalence of asthma was 20.9%. Male sex (OR=1.37; 95%CI:14.1-1.64); presence of rhinitis (OR=3.12; 95%CI:2.59-3.76); report of worms (OR=1.28; 95%CI:1.04-1.57); Maternal asthma and rhinitis (OR=1.63; 95%CI:1.15-2.21 and OR=1.30;95%CI:1.03-1.65), exposure to maternal smoking during the first year of life and current (OR=1.43;95% CI:1.12-1.81 and OR=1.37;95%CI:1.10-1.72) and both the presence of mold in domicile during the first year of life and current (OR=1.63;95%CI:1.35-
Spirometry and bronchodilator responsiveness in wheezing preschool children
Paula Leiria-Pinto1,2, Pedro Martins1,2, Isabel Peralta1, Elena Finelli1, David Trincão1, Souza Mara1, Miguel Paiva1, Sara Prates1, Ana Maria Romeira1, Nuno Neuparth2
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A161

Background: Recurrent episodes of wheeze are a challenging condition. Preschool wheezing children may have deficits in lung function that might lead to persistent sequelae. The aim of this study is to explore potential risk factors for reduced lung function and bronchial responsiveness to bronchodilator (BD) in children with recurrent wheezing.

Methods: We carried out a retrospective analysis of incentive spirometry tests in recurrent wheezing children, aged 2-5 years, from our center, performed between September 2012 and March 2014. Lung function was assessed before and after 400 mg of inhaled salbutamol using a Jaeger spirometer v.4.65 (CareFusion). Wheezing symptoms, parental asthma, prematurity, passive smoking exposure, atopy and controller medication use were evaluated. Categorical frequency analysis and non-parametric tests were used.

Results: Of 186 lung function tests performed, 158 (85%) had acceptable and reproducible criteria (children with a mean age of 4.8±0.77 years; 63.9% male). Clinical evaluation: wheezing in last year 49%; parental asthma 43%; prematurity 12%; passive smoking exposure 26%, atopy 45% and inhaled corticosteroid use 46%. We found airway obstruction in 50 (31.7%) children (FEV1 in 28, FEV1/FVC in 43, FEV1/VC in 47 children) at baseline and in 19 (12%) after BD. A post-BD increase of 14% in FEV1 was found in 86 tests (54%), 40 of them had basal bronchial obstruction (80% of obstruction cases). Of all risk factors evaluated, only basal bronchial obstruction was significantly associated with responsiveness to BD (p<0.001).

Conclusions: Spirometry in preschool children with recurrent wheeze is feasible. We didn’t find any association for basal reduced lung function. However, bronchial obstruction is associated with significant BD responsiveness. Therefore, in clinical practice, spirometry results may provide valuable information and could be one additional tool in wheezing management.

A162

Descriptive review of clinical data from 186 records of outpatients with IgA deficiency accompanied at a quaternary hospital in Brazil
Fabiana Mascarenhas1,2, Mythees Toledo Barros2, Leonardo Mendonça2, Cristina Kokron3, Karla Bouffeur2, Pablo Torres1, Ana Karolina Barreto De Oliveira3, Octavio Grecco3, Jorge Kalil2, Andrea Cohon2
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A163

Wheezing in low birth weight infants
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A164

Evaluation of the concentration of allergens from mites in fur of household dogs (Canis lupus familiaris) in Curitiba - PR - Brazil
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A161

Spirometry and bronchodilator responsiveness in wheezing preschool children
Paula Leiria-Pinto1,2, Pedro Martins1,2, Isabel Peralta1, Elena Finelli1, David Trincão1, Souza Mara1, Miguel Paiva1, Sara Prates1, Ana Maria Romeira1, Nuno Neuparth2
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A162

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A163

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A164

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Dêvalki De Assunção1,*, Marconi Rodrigues De Farias2, Rafael Rodrigues Ganho2, Michelle Barbosa3
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World Allergy Organization Journal 2015, Volume 8 Suppl 1
http://www.waojournal.org/supplements/8/S1
Page 49 of 87
Background: Allergens from house dust mites are perennial and also have enzymatic nature. They are commonly found in bedding, mattresses, pillows, bedroom floor and living room. In addition, they are often associated with sensitization and intensification in the symptoms of allergic rhinitis and asthma for susceptible individuals. Household dogs are continuously in contact with the described niches of house dust mites, and it has been observed that the microclimate between their skin and coat may favor its proliferation. Therefore, the present study aims to evaluate the concentrations of Der p 1, Der f 1 and Blo t 5 in the fur of household dogs, in order to check if they can serve as a reservoir of such allergens in the environment.

Methods: Were selected 40 household dogs, regardless of breed, age and gender variables, which were bathed and brushed weekly, and also medicated regularly with acaricides and pulicides, besides living in the same niche as their owners. A sample of dust present in the fur of each dog was collected with a vacuum cleaner, passed across the length of their bodies, for two minutes. The samples were collected in separate filters transferred into plastic containers, sealed and kept frozen until analyzed by the ELISA method, using monoclonal anti Der p 1, anti Blo t 5 and anti Der f 1 (Indoor Biothecnologies-Charottesville, USA). All the data were statistically analyzed, considering the minimum significance level of 5%.

Results: Among the allergens studied, Der p 1 was the most commonly found (p <0.05). Of the 40 dogs evaluated 13 (32.5%) showed positive rates of Der p 1 on their fur and two (5%) were positive to Blo t 5. Average concentrations of Der p 1 and Blo t 5 were 0.14 ±0.73 μg/ml and 0.01±0.07 μg/ml, respectively. No allergen Der f 1 was found in the fur of the studied dogs.

Conclusions: The studied dogs can carry dust mites allergens in their fur, especially Der p 1, however in non sensitizing concentrations, which indicate that household dogs, kept under regular cleaning, are not a significant source of dust mites allergens.

A165
Undefined and fatal meningoencephalitis in a patient with combined immune deficiency: a case report
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World Allergy Organization Journal 2015, 8(Suppl 1):A165

Background: Encephalitis is defined by the presence of brain inflammation associated with clinical evidence of neurological dysfunction. It can be due to infection (most common cause is viruses) or not (like post vaccine or auto immune). Primary immunodeficiency is defined as a genetic basis that leads any alteration in immune system (innate or adaptative) predisposing to infections, auto immunity and malignancies. Combined immunodeficiency,alteration in T and B cell function, are potentially fatal disease.

Methods: Review of clinical data from elecronic records.The objective of this paper is relate a case of a patient with encephalitis and our difficulty in establishing the etiology.

Results: L.S.N., 25 years old female patient followed by combined immunodeficiency presented with acute arthritis, nodosum erythema and acute seizures. The liquor analysis evidenced lymphocitic pleocitosis with elevated protein levels. No alterations were evidenciated in brain CT .The patient underwent an uncontrolled epileptic status that required intubation,sedation, broad-spectrum antibiotics, anti-fungal, anti-viral, tuberculostatic agents and corticosteroids. Despite all clinical investment the patient had a fatal cardiac arrest.

Conclusions: Establish specific sorological etiology of clinical manifestations in primary immunodeficiencies is essential but a challenge in clinical practice. New techniques in the diagnosis of infections and autoimmune conditions are necessary.
Results: R. I. M., 10 year-old-boy that was referred to us with history of recurrent otitis media, sinusitis, and multiple episodes of pneumonia, palmo-plantar warts, and severe contagious molusco. He also has history of severe atopic dermatitis, asthma and food allergies. On evaluation he was noted to have persistent eosinophilia, lymphopenia, normal IgG levels, absent specific antibody response and decreased CD4 and CD8 T cells. Based on history of severe atopy, sinopulmonary infections, recurrent staphylococcal and viral skin infections DOCK8 deficiency was suspected. Since the suspicious, he started the use of daily cotrimazol and monthly immunoglobulin (500 mg/kg). DOCK8 gene sequencing and duplications/deletions analysis was done and there were found deletions in compound heterozygosis (Allele 1: deletion of exons 3 to 13; Allele 2: deletion of exons 16 and 20-24). The diagnosis was confirmed.

At age 11 year, 2 weeks after a viral disease, he started a weakness involving the arms, legs, and truncal muscles, which had a rapid progression (less than 24 h). He performed an investigation with a normal magnetic resonance and the study of nerve conduction showed specific findings consistent with demyelination characteristic for classic Gualain-Barre Syndrome. He received immunoglobulin in a dose of 2g/kg and evaluated with resolution of the neurologic symptoms. Currently, he keeps receiving monthly immunoglobulin and prophylactic cotrimazol daily and showed no new serious infections. It was found a compatible bone marrow donor and he is being prepared to transplantation.

Conclusions: DOCK8 deficiency is a primary immunodeficiency that has to be suspected facing a case with characteristic clinical features. It can evaluate with autoimmune complications like others primary immunodeficiencies.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A169 Erythema multiforme induced by clindamycin diagnosed by patch test

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World Allergy Organization Journal 2015, 8(Suppl 1):A169

Background: Erythema multiforme (EM) is a skin disorder most commonly caused by viruses infection, but drugs can also be involved. We report a patient who had developed a EM due to clindamycin and the diagnosis was confirmed with a skin patch test.

Methods: Literature review and case report.

Results: A 17 years of age male was admitted in a University Hospital In São Paulo, Brazil, because he had been a victim of a car accident in May 2012. He suffered a tibia open fracture and was submitted to a surgical treatment. Three days after the procedure he developed face rash, cutaneous itching, target lesions in oropharynx and lower limbs peeling. He was being treated with Clindamycin, Ciprofloxaxin, Dipyrone, Ketoprofen and Tamadol. The patient evolved with fever and multiple abscesses, without eosinophilia. This reaction was diagnosed as EM major by Dermatology Unit and he was successfully treated with antihistamines and corticosteroids, besides suspected drugs substitution. After been discharged the patient was referred to the Allergy Unit to perform a drug hypersensitivity investigation. He was submitted to patch test with all the suspected drugs diluted in petrolatum 10%. Only the clindamycin patch test was positive, which was confirmed with a second patch test. The patient also presented reactivation of previous lesions.

Conclusions: As far as we know, this is the first patient who had developed erythema multiforme due to clindamycin. The patch test was essential to confirm the diagnosis and the use of all other drugs which were present at the time of the reaction could be released.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A168 Beta-lactam hypersensitivity: not always what it seems

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World Allergy Organization Journal 2015, 8(Suppl 1):A168

Background: Beta-lactam allergy is a frequent cause of visit to the allergist office. The aim of this study was to describe the characteristics of children with a suspected beta-lactam hypersensitivity reaction in a specialized drug allergy unit.

Methods: Retrospective analysis based on medical records using an adapted ENDA questionnaire of patients under 18 years old from July 2011 to June 2014.

Results: One hundred and four children were evaluated with a suspected drug allergy history, with 28% reporting reactions to beta-lactam antibiotics. The mean age was 6.2 years and 52% were female. Cutaneous symptoms were the most frequent reported (89%), followed by respiratory (45%). Most of them had maculopapular exanthema (52%), Urticaria and/or angioedema were seen in 34% of patients. The majority of the reactions were mild/moderate (93%), occurring in the first 24 hours after drug intake (77%), and 48% presented associated fever. The suspected drugs were: amoxicillin (59%), cefalexin (16%), penicillin and ceftriaxone (8% each). Patients went to an Emergency Unit in 97% of the reactions and treated with anti-histaminic drugs and corticosteroids in 40% and 30% respectively. Epiinephrine was used in just one patient. In almost half of the patients the clinical history was not consistent enough to submit them to an extensive investigation. Of those who were investigated, skin tests were performed in 48% (57% prick tests and 43% intradermal tests). Positive test was seen in only one patient. Drug provocation tests with amoxicillin were performed in 57% of patients and none was positive.

Conclusions: The prevalence of children with a beta-lactam hypersensitivity history is high, but a few cases are confirmed as allergic after an adequate investigation.

A170 Atypical and aggressive presentation of gastric cancer in a patient with common variable disease

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World Allergy Organization Journal 2015, 8(Suppl 1):A170

Background: In patients with common variable immunodeficiency (CVID) gastrointestinal disorders and malignancies occur higher than expected in the general population. These patients present risk of 50 times higher than the population (Kalha and Kellin, 2004) for development of gastric cancer, what reinforces the importance of screening for premature diagnosis and treatment.

Methods: Review of clinical data from eletronic records were performed. The objective of this paper is present a case of a patient with CVID with an atypical and very aggressive presentation of gastric cancer.

Results: M.S.S., 32 female patient, followed with CVID since 21 years old, was hospitalized with 30 days of cough, fever unresponsive to oral treatment. Despite intravenous broad-spectrum antibiotics, there was no clinical improvement. Thorax CT was made that incidentally showed multiple liver abscesses and after that the patient developed progressive ascites. Investigation of origin of these abscesses evidantiated two gastric ulcers and one rectal ulcer. The pathologic analysis of gastric and rectum biopsy and cytologic analysis of ascitis liquid showed adenocarcinoma of stomach with peritoneal carcinomatosis. In a familial discussion about the
prognosis of this patient were defined exclusive palliative care. On the 24th day of hospitalization the patient a natural evolution to death.

Conclusions: High incidence of gastric cancer in CVID reinforce necessity of surgery and maximum care. Cefazolin, propofol, atracurium, fentanyl, morphine and oral provocation with dipirona e ibuprofen was performed, only morphine was positive. In case 2, skin prick test and intradermal with propofol, midazolam, etomidate, atracurium, suxamethonium, rocuronium, fentanyl, remifentanil, methadone and tramadol was performed, result atracurium, propofol, midazolam, tramadol and methadone was positive. In case 3, skin prick test and intradermal with propofol, atracurium, fentanyl, midazolam and morphine was performed, result atracurium and fentanyl was positive. The same protocol was used for drugs dilutions. Negative and positive controls were performed. The serum latex IgE was negative. All patients underwent surgery without positive drugs and none had positive reactions during procedure.

Conclusions: Is possible to investigate intraoperative anaphylaxis outside the university hospital, ensuring patients safety at the next surgery.

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A171

**Evaluation of the concentration of the coat of dogs aerosallergens (Canis lupus familiaris) and the dust from families of children with asthma and or allergic rhinitis**

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World Allergy Organization Journal 2015, 8(Suppl 1):A171

**Background:** Allergens from house dust mites are perennial and also have enzymatic nature. They are commonly found in bedding, mattresses, pillows, bedroom floor and living room. In addition, they are often associated with sensitization and intensification in the symptoms of allergic rhinitis and asthma for susceptible individuals. The aim of this study was to evaluate the concentrations of Der p 1, Der f 1, Bl o t 5, Can f 1 and Fel d 1 in the coat of dogs and spread throughout the environment to check if dogs can serve as a reservoir of allergens for the space as well as being able to trigger allergic reactions in their owners and other individuals.

**Methods:** For this end, it was selected houses of 53 children with symptoms of allergic rhinitis or asthma, where 32 lived with dogs in their homes (group 1) and 21 do not live with dogs (group 2). Samples of household dust and fur of dogs were collected to evaluate the levels of allergens by ELISA specific allergen method. All the data were statistically analyzed, considering the minimum significance level of 5%.

**Results:** In relation to the dog's coat, the average concentrations for Der p 1 (0.4 μg.g⁻¹), Der f 1 (0.3 μg.g⁻¹) and Bl o t 5 (0.3 μg.g⁻¹) were lower than those for animal allergens, Can f 1 (3.3 μg.g⁻¹) (p <0.001) and Fel d 1 (1.3 μg.g⁻¹). In the environment, the most common allergen Der p 1 was found at a concentration of 118.1 μg.g⁻¹ in bedding (p <0.001), 19.0 μg.g⁻¹ in mattress and 1.1 μg.g⁻¹ on the ground. Animal allergens were found in equal proportion on environments with and without dogs (p >0.05), the concentration of Can f 1 and Fel d 1 was higher in environments with dogs (p <0.001).

**Conclusions:** It is correct to assure that the coat of dogs can carry and spread to the environment mainly animal allergens and also can carry mite allergens for about 1/3 of the time, but in concentrations with no sensitization, which do not contribute significantly to their environmental existence.

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A172

**Intraoperative anaphylaxis investigation in doctor’s office**

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World Allergy Organization Journal 2015, 8(Suppl 1):A172

**Background:** Drugs administered during the anaesthetic procedure and postoperative period belong to different pharmacological groups and are to ensure the best possible conditions for surgery and maximum safety of patients. Their adverse side effects are often dependent on immune responses. The diversity and number of the agents administered hinder precise determination of the drug eliciting the adverse drug reaction.

**Methods:** Report 3 research cases of anaphylactic reactions during the perioperative period. The skin tests and provocation tests was realized on emergency service in the hospital, consentment terms was obtained.

**Results:** Investigation of 3 adult patients anaphylactic reactions using general anesthesia in undergone surgeries, skin prick test and intradermal was performed with medicaments used during surgery and medicines indicate by anaesthesiologists for next surgery. In case 1, skin prick test and intradermal with cefazolin, propofol, atracurium, fentanyl, morphine and oral provocation with dipirona e ibuprofen was performed, only morphine was positive. In case 2, skin prick test and intradermal with propofol, midazolam, etomidate, atracurium, suxamethonium, rocuronium, fentanyl, remifentanil, methadone and tramadol was performed, result atracurium, propofol, midazolam, tramadol and methadone was positive. In case 3, skin prick test and intradermal with propofol, atracurium, fentanyl, midazolam and morphine was performed, result atracurium and fentanyl was positive. The same protocol was used for drugs dilutions. Negative and positive controls were performed. The serum latex IgE was negative. All patients underwent surgery without positive drugs and none had positive reactions during procedure.

**Conclusions:** Is possible to investigate intraoperative anaphylaxis outside the university hospital, ensuring patients safety at the next surgery.

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A173

**Treatment of hereditary angioedema due to C1 inhibitor deficiency (C1-INH-HAE) is a rare disease characterized by recurrent episodes of cutaneous, abdominal and laryngeal edema. Bradykinin is the mediator of increased vascular permeability and edema formation. Treatment of HAE attacks in Italy is based on the administration of human C1 inhibitor or bradykinin receptor antagonist. A recombinant human C1 inhibitor (rhC1INH) is marketed in Italy since 2012 for the treatment of HAE in adults. Safety and efficacy of rhC1INH were documented in several phase III trials. This analysis reports characteristics and treatment outcomes of HAE attacks treated with rhC1INH in a real-life setting.**

**Methods:** Patients diagnosed with C1-INH-HAE, based on clinical manifestations of angioedema and on laboratory tests confirming C1-INH deficiency, prescribed with rhC1INH, were included in this analysis. Before rhC1INH administration patients were tested for anti-rabbit epithelium IgE. Time to treatment (time from onset of symptoms to drug administration), initial relief of symptoms within 4 hours and time to resolution (time from drug administration to complete symptoms resolution) were recorded. Data on adverse events were also collected.

**Results:** 12 patients (7 females; median age 39 years) with HAE were prescribed with rhC1INH. Anti-rabbit epithelium IgE were negative in all patients. rhC1INH was administered for the treatment of 33 HAE attacks: 22 cutaneous attacks, 8 abdominal, 1 laryngeal and 2 involving multiple locations (laryngeal and cutaneous, abdominal and cutaneous, respectively). Median time to treatment was 2 hours. Initial relief within 4 hours was achieved in 93% of attacks. Median time to resolution was 10 hours. In 2 abdominal attacks, rhC1INH was used in a lower dose than recommended and initial symptoms relief was not achieved within 4 hours. In 1 of those two attacks, a second treatment with rhC1INH was administered after 30 hours from the first treatment with subsequent symptoms resolution in 6 hours. In the other attack, no additional infusion with rhC1INH was administered and attack resolution was achieved in 24 hours. Adverse events registered after treatment with rhC1INH were: headache (15% of attacks), erythema (12% of attacks), tingling (12% of attacks).

**Conclusions:** The treatment with rhC1INH in real life-setting was effective in reverting angioedema symptoms in all location. In 2 attacks treated with a lower dose than the approved 30U/kg, symptoms resolution was
slower and in one case a second infusion was needed. No serious adverse events related to drug administration were recorded.

A174
Development and stability of an in-house reference for blomia tropicalis allergen extract
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World Allergy Organization Journal 2015, 8(Suppl 1):A174

Background: Standardization of allergen vaccines is mainly based on In-House References (IHR), which are required for routine quality control. Substitution of IHR batches can be a delicate process that requires reproducibility of the reference material and detailed in-vitro characterization and in-vivo testing.

Objective: To develop a new IHR, of the Blomia tropicalis standardized allergen extract and to predict its validity period through an accelerated stability study.

Methods: Standardized allergen extract of Blomia tropicalis was manufactured by BIOCEN (Cuba). The batch selected for IHR was characterized by in-vitro allergenic activity compared to the previous IHR, using ELISA-IgE-inhibition assays, with a pool of sera from patients allergic to Blomia tropicalis. Allergenic and protein composition was determined by Western-Blotting-IgE and SDS-PAGE. As final criterion allergenic activity was measured by in-vivo Skin Prick Test in allergic patients by parallel application of three dilutions. Relative potency was calculated by the method of parallel lines. The activity was expressed in Biological Units (BU), which is related to the skin reaction size produced by Histamine 10 mg/mL. Stability was assessed by means of an accelerated study at 4 temperatures (700°C, 4°C, 37°C and 60°C) during one year, testing at 0, 3, 6, 9 and 12 months.

Results: The physical-chemical characterization of the new IHR complies with the limits established by national and international guidelines. A good agreement was found between the in-vivo and in-vitro, results for the allergenic potency: 100 453 UB (95% CI from 130 444 to 77 357), showing no significant difference with respect to the previous IHR. Therefore, the new IHR is equivalent to the later, regarding in-vitro and in-vivo allergenic activity, protein and allergenic composition. The IHR remained stable at -70°C, 4°C and 37°C for 12 months. At 60°C, despite a change in cake appearance, the allergenic activity was kept during the first 6 months within the specified limits.

Conclusions: A new IHR of Blomia Tropicalis allergen vaccine was developed, replacing the previous batch dating from 2006. It was certified for quality control use. The results predicted stability at -70°C for more than 10 years, thus assuring the reproducibility and quality of routine manufacturing batches.

A175
Role of autoimmunity in hepatitis C virus infection: a case report and a brief review of literature
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World Allergy Organization Journal 2015, 8(Suppl 1):A175

Background: Hepatitis C virus (HCV) is an important public health problem worldwide. Immunological complications are found in 40-74% of patients with HCV, as well as the prevalence of HCV infection is higher among individuals with these conditions, suggesting a pathogenic virus influence. As a systemic pathology, autoimmunity may occur even without hepatic manifestations. Studies indicate that peripheral nervous system disorders have been observed as complications of HCV infection. This case report is about a 56 year old male patient with skin scaly erythematous lesions and stellate hypo pigmented spots, muscle atrophy of the extremities and peripheral neuropathy march with diffuse muscle weakness associated with a positive history of hepatitis.

Methods: Clinical, image and laboratory records of Hospital das Clínicas da FMUSP review. Skin biopsy, neurology investigation and hepatitis C treatment were performed. Understanding the association between HCV and autoimmune manifestations, may light to virus testing, beyond to indicate antiviral e immunomodulatory treatment.

Results: Biopsy of skin lesions showed inflammatory features, some with fibrinoid necrosis. Electromyography demonstrated myopathy and neuropathy pattern. Nerve biopsy revealed vasculitic neuropathy. The patient was submitted to hepatitis C treatment with purpose to control autoimmune manifestations, but had several collateral effects that required avoidance of the drug. It was also tried several immunosuppressive medications, but all tended to fail and partially control was acquired with cyclosporine.

Conclusions: Immunosuppressive treatment and hepatitis C treatment should be used to control autoimmune manifestations related to virus C infection.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A176
Gene expression profiles of mucosal biopsy specimens in children with eosinophilic gastritis
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World Allergy Organization Journal 2015, 8(Suppl 1):A176

Background: Eosinophilic gastrointestinal disorders (EGID) are clinicopathologically characterized by massive eosinophilic infiltration into the gastrointestinal tract and are classified into eosinophilic esophagitis (EoE), gastritis (EG), gastroenteritis, enteritis and colitis according to the site of infiltration. Studies of the pathogenic mechanism of EoE, whose incidence and prevalence are increasing in Western countries, revealed that eotaxin-3 plays a crucial role in inducing selective recruitment of eosinophils into the esophageal epithelium. In contrast, the pathogenic mechanism of EG remains obscure. In order to elucidate whether EG’s pathogenic mechanism is similar to that of EoE, we performed transcriptome analysis of gastric biopsy specimens from EG patients and compared the identified gene signature to the previous microarray data for EoE patients (J Clin Invest, 116:536-47, 2006).

Methods: We enrolled pediatric EG patients (n = 5) and age-matched controls (n = 5) who, after we obtained informed consent from their guardians, underwent gastrointestinal endoscopy due to clinical symptoms. EG was diagnosed on the basis of ≥30 eosinophils/HFF, limited to the stomach, according to Lwin’s criteria (Modern Pathology 24:556-63, 2011). The gene expression profiles of the gastric biopsies were assessed using microarray technology with Agilent SurePrint G3 Human GE 8 x 60K. The differentially expressed genes of EG and EoE were compared by systematic analysis using the NextBio search engine.

Results: Of 42,545 transcripts represented on the microarray, 2,282 were differentially expressed between the EG and control samples (≥2 fold change and adjusted p-value of <0.05). In agreement with a previous study on EoE patients, eotaxin-3 was the most upregulated (≥2,000-fold) gene compared with the control subjects. Of the 2,282 transcripts composing the EG-related gene signature, 58, including eotaxin-3, were identified as commonly upregulated genes in EG. The identified gene signature to the previous microarray data for EoE patients (J Clin Invest, 116:536-47, 2006).

Conclusions: Our results suggest that eotaxin-3 plays a crucial effector role in the pathogenesis of EG as well as EoE. On the other hand, 97.5% of the gene signature we identified for EG was distinct from that previously identified for EoE, suggesting that distinct mechanisms may be involved in the pathogenesis of EG and EoE Background.
A177

Influence of gender and sexual reproductive state in concentration of CAN f 1 in the fur of dogs (Canis lupus familiaris)

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World Allergy Organization Journal 2015, 8(Suppl 1):A177

Background: The allergens from cats and dogs have been implicated as extrinsic factors involved in sensitization, precipitation and exacerbation of allergic rhinitis and asthma in susceptible children and adults, at rates ranging from 10 to 25%. The major allergen from the epithelium of dogs is the Can f 1, responsible for the majority of sensitivity reactions to these. The Can f 1 is a lipocalin, which confers adhesive properties, derived from the sebaceous glands and found in fur, scales and saliva of dogs. The aim of this study is to assess the influence of gender and sexual reproductive state on concentrations of Can f 1 in the fur of dogs.

Methods: Were evaluated 80 healthy household dogs, 40 males (20 whole and 20 neutered) and 40 females (20 whole and 20 neutered), older than one year, regardless of size, weight or breed, free of ectoparasites and sanitized regularly. All samples were separated and sieved resulting in a fine dust used to determine the levels of Can f 1 by enzyme-linked immunosorbtent assay (ELISA), using anti can f 1 (Indoor Biotechnologies-Charlottesville USA). All data were analyzed by ANOVA and Bonferroni method, and the estimated difference between averages for the groups was evaluated by Student’s t test, with significance level of 5% (p < 0.05).

Results: All evaluated dogs had Can f 1 in its fur, and its average concentration was 1.26±0.67 μg/g. The concentration of Can f 1 in the fur of dogs was higher in females compared to males (p < 0.05), and there was no difference between neutered and whole (p < 0.05) animals.

Conclusions: Female dogs have higher amounts of Can f 1 in fur compared to males, and sterilization no influence on their concentrations.

A178

Severe combined immunodeficiency syndrome with RAG1 mutation gene - case report

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World Allergy Organization Journal 2015, 8(Suppl 1):A178

Background: Reporting a case of Severe combined Immunodeficiency syndrome with RAG1 mutation gene.

Methods: Analysis of medical records was conducted to obtain detailed clinical history.

Results: ACOA, 3 months, female, born cesarean with 38 weeks. She had the following vaccines: BCG, hepatitis B, VIP / VOP, tetravalent rotavirus, pneumococcus and meningococcus. The patient had daily fever for 4 days, oliguria, dyspnea, and diarrhea with severe septic shock and respiratory failure. The patient remained hospitalized in intensive care for 50 days with tracheal intubation for 23 days. When she was 2 months old was hospitalized for 10 days with septic shock. Requested tests: CBC showing lymphopenia (8 853), positive Rotavirus, hipogamaglobulinemia (IgG 143, IgM 9.7, IgA 26), absence of thymus chest radiography and immunophenotyping with amendment (Lymphocyte T - CD45/CD3 = 60 cells/mm3, CD45/CD3/CD4 = 55cellules/mm3, CD45/CD3/CD8 = 5 cells/mm3, CD4/CD8 ratio = 11.00, B lymphocyte - CD45/CD19 celula/mm3 = 1, NK-cells - CD45 / CD3/CD16 + / CD56 + = 89 cells/mm3).The results of these tests made the diagnosis of severe combined immunodeficiency syndrome (SCID) (SCID + “SCID”) associated with homoygous mutation in the RAG-1 gene by sequencing of SCID panel ,therapy was initiated with cefepime trimethoprin-sulfamethoxazole, rifampin, isoniazid, etambutol, pyridoxine, fluorocarone,znic e PRBC. Initiate treatment with human gamma globulin 400mg/kg intravenously for 5 consecutive days and after this repeated doses with intervals 21/21 days. The evolution was favorable , indicating bone marrow transplantation.

Conclusions: The Severe Combined Immunodeficiency is a pediatric emergency and it is necessary to increase the clinical suspicion due to a quickly evolution to the death when the treatment is not quickly started. The early diagnosis of the patient in this case results in a better prognosis.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A179

Specific nasal provocation test with dermatophagoids pteronyssinus monitored by acoustic rhinometry in children and adolescents with allergic rhinitis and controls

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World Allergy Organization Journal 2015, 8(Suppl 1):A179

Background: Specific nasal provocation tests (NPTs) are indicated in confirming clinically relevant allergy and in the diagnosis of allergic rhinitis. Our objective was to evaluate a dermatophagoids pteronyssinus (Dp) NPT protocol monitored by Acoustic Rhinometry (AR) and nasal symptom score in children and adolescents.

Methods: Seventeen patients with allergic rhinitis sensitized to Dermatophagoides pteronyssinus and 15 controls were submitted to NPT with Dp. Acoustic Rhinometry was performed after bilateral instillation of 0.15ml of nasal saline and Dp, 5,000 UBE/ml (1:10000; 1:1000; 1:100; 1:10) until 20% fall in nasal volume in the segment between 0 and 5cm (VS) or nasal symptom score > 3 (0 to 11).

Results: Median age was 122 months (108 to 143 months) in controls and 142 months (117 to 156 months) in allergic rhinitis group. At the end of the NPT, the mean VS fall was 5.7% (-8.7% to 4%) in controls and 22.8% (-24% to -20%) in allergic rhinitis group. None of the 15 controls and 88% (15 of 17 patients) of the allergic rhinitis group had a positive Dp NPT. Considering positive NPTs, 23.5% (4/15) were positive at 1:10000, 35% (6/15) at 1:1000, 23.5% (4/15) at 1:100 and 6% (1/15) at 1:10 concentration. One NPT was considered postive due to symptom score. None of the 32 patients presented bronchial reactions or any pulmonary symptom after NPT.

Conclusions: This protocol has showed to have good specificity and sensitivity to discriminate patients with allergic rhinitis from controls. A simplified protocol with two Dp concentrations (1:1000 and 1:100) seems to be less expensive and less time consuming NPT protocol to be applied in the clinical practice.
parvalbumins, we studied the major allergen of cod (Gadus morhua), Gad m 1, a member of the parvalbumin protein family.

**Methods:** The solution structure and the molecular dynamics of Gad m 1 were determined using NMR spectroscopy. Our strategy included high pressure to perturb the system and to evaluate crucial residues for structure stabilization at the atomic level. The Gad m 1-scFv complex structural characterization was done using chemical shift perturbation and the molecular dynamics of the complex was assessed by 15N-relaxation experiments.

**Results:** Gad m 1 possesses the typical parvalbumin fold that is characterized by the presence of three domains, the two calcium-binding domains CD and EF, and the silent domain AB. High-pressure NMR revealed the important contribution of the AB domain to the protein fold stabilization. Although the Gad m 1 structure and accessibility of putative IgE epitopes are similar to parvalbumins from mackerel and carp, the charge of each of these sites is different.

**Conclusions:** Our results offer new insights into the design of mutated IgE-reactive proteins that would be stable in the non-allergenic apo form. Comparison of the Gad m 1 structure with other parvalbumins was done to understand the observed cross-reactivity.

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**A181**

New manioc allergens and successful oral immunotherapy in a Brazilian allergic patient

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1University of São Paulo School of Medicine – FMUSP, Brazil; 2University of São Paulo, Brazil; 3Idi-Irccs, Italy; 4University of Salzburg, Austria

World Allergy Organization Journal 2015, 8(Suppl 1):A181

**Background:** Exotic tropical fruits and plants are highly consumed in Brazil and due to globalization these products are being exported worldwide. We have recently described the first manioc allergen Man e 5 that cross-reacts with Hev b 5 from latex. There are more than 70 products made up manioc starch such as drugs, soaps and fabrics and manioc allergic patients present from mild to severe reactions.

**Methods:** Five patients with manioc allergy confirmed by skin prick test (SPT) and oral challenge were selected. These patients were evaluated through SPT and Immunocap to latex, ELISA and ISAC inhibition with manioc extract and rMan e 5. Among these patients we selected a Brazilian woman that lives in North region where manioc is consumed in daily diet for an oral immunotherapy (OIT) protocol. The patient is a 48 years old, IgE mediated latex allergy. Six years ago she started to have episodes of anaphylaxis to manioc, but more recently she began to present allergic manifestations after inhalatory exposition to manioc starch. Patient was then submitted to OIT with manioc starch solubilized in 10mg/mL. Immunotherapy was divided in two parts: induction and maintenance. In the first phase dose was weekly increased starting with 0.1mL of a 10mg/mL until reaching an amount of 10g of manioc starch. At this point the patient was submitted to oral provocation with 100g of manioc. For maintenance it was indicated daily ingestion of foods prepared with manioc. Clinical evaluation, skin tests and IgE levels after 1 and 6 months were performed.

**Results:** All five patients had anaphylaxis to manioc with IgE sensitization to manioc and latex. Inhibition assays showed that rMan e 5 is not the only manioc allergen and that there is a molecule in manioc cross-reacting with Hev b 6. After OIT patient presented a decrease of the wheal in SPT (10 to 4mm) and also in IgE levels to latex. Oral provocation was negative. Reactions during treatment were mild (abdominal pain and oral itching) and solved spontaneously or using antihistaminic. After two years under maintenance patient keeps asymptomatic eating manioc without restrictions.

**Conclusions:** There are at least two manioc allergens cross-reacting with latex. OIT was proved to be safe and efficient in this case allowing free ingestion of manioc leading us to conduct the protocol with other patients. Levels of latex IgE also decreased after treatment. Knowledge of single allergens is important for diagnosis and also to monitor therapeutic success.

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**A182**

Serum soluble fas ligand levels and peripheral blood lymphocyte subtypes in patients with drug induced maculopapular rashes, dress and viral exanthemas

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World Allergy Organization Journal 2015, 8(Suppl 1):A182

**Background:** Fas/Fas ligand (FasL)-dependent apoptotic pathway was reported to be involved in the pathogenesis of drug induced maculopapular rashes (MPRs). In this study, we investigated serum soluble Fasl level to discriminate drug-induced skin reactions from other clinically resembling skin diseases such as exanthematous viral infections. We also evaluated the role of T cells in various drug-induced diseases.

**Methods:** We analyzed 7 patients with drug induced MPRs (group I), 17 patients with viral exanthemas (group II), 6 patients with DRESS [group III], and 15 healthy children with no history of adverse drug reactions. A complete blood count and immunophenotyping of peripheral blood lymphocytes were carried out, as well serum Fasl levels were analyzed in group I-III (Human FasL ELISA kit, ebioscience, Vienna, Austria), within 2 days after the onset of the skin eruptions. Tests were repeated between days 3-5 and days 6-10. In group IV, these analyses were performed once. Liver and renal functions were also evaluated in group I-III. Serum immunoglobulin levels were analyzed in group 3. Skin tests with the suspected drug were applied in cases in group I and III according to the guidelines. In group II, skin tests, drug provocation tests, and viral serology were performed if needed.

**Results:** Absolute numbers of peripheral blood lymphocytes ans sFasL levels in initial samples of cases in 4 groups are summarized in Table 1.

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**Table 1(abstract A182)**

<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>Group 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>sFasL (ng/ml)</td>
<td>Mean±SD</td>
<td>Mean±SD</td>
<td>Mean±SD</td>
<td>Mean±SD</td>
</tr>
<tr>
<td>Median</td>
<td>0.20±0.14</td>
<td>0.24±0.16</td>
<td>0.22±0.16</td>
<td>0.19±0.21</td>
</tr>
<tr>
<td>CD3+/CD4+ cells*</td>
<td>Mean±SD</td>
<td>1508±1230</td>
<td>1761±824</td>
<td>918±552</td>
</tr>
<tr>
<td>Median</td>
<td>1026</td>
<td>1604</td>
<td>741</td>
<td>1212</td>
</tr>
<tr>
<td>CD3+/CD8+ cells*</td>
<td>Mean±SD</td>
<td>1735±1839</td>
<td>888±463</td>
<td>509±355</td>
</tr>
<tr>
<td>Median</td>
<td>1376</td>
<td>910</td>
<td>407</td>
<td>624</td>
</tr>
<tr>
<td>CD19+ cells*</td>
<td>Mean±SD</td>
<td>622±322</td>
<td>1049±659</td>
<td>195±181</td>
</tr>
<tr>
<td>Median</td>
<td>630</td>
<td>854</td>
<td>132</td>
<td>489</td>
</tr>
<tr>
<td>CD3/CD16+/CD56+(NK cells)*</td>
<td>Mean±SD</td>
<td>151-980</td>
<td>264-3009</td>
<td>20-487</td>
</tr>
<tr>
<td>Median</td>
<td>250±238</td>
<td>181±111</td>
<td>94±34</td>
<td>253±235</td>
</tr>
</tbody>
</table>
B cell counts were low in group III when compared to group I and IV. CD4+ cells, CD19+ cells and NK cells were low in group III when compared to group II. There were no significant differences in sFasL levels between the groups.

Conclusions: In our study, sFasL levels were not found to be useful to discriminate viral exanthemas from drug rashes. Additionally, the results were not found to be different on repeated evaluations. The only significant difference between drug induced MPRs and DRESS was B cell counts. The low numbers of B cells in DRESS within the first 2 days of the symptoms might be a useful predictor of DRESS development.

A183
Evaluation of cow’s milk allergy
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World Allergy Organization Journal 2015, 8(Suppl 1):A183

Background: The prevalence of food allergy (FA) is increasing; consequently, the number of patients on elimination diet (ED) due to a suspected diagnosis is also increasing. Diagnosis of food allergy should be based on a convincing history of allergic reactions or on the result of an oral food challenge test. The oral food challenge test (OFC) is the most reliable clinical procedure for diagnosing food allergy.

Methods: The goal of this study was evaluated the proportion of individuals that were following an elimination diet unnecessarily, because of either acquired tolerance or misdiagnosis. A retrospective analysis of patient’s records was made. We evaluated patients that were following elimination diet of cow milk. They underwent oral challenge with cow’s milk. The oral food challenge was carried out for two purposes: to confirm the diagnosis of cow’s milk allergy or to demonstrate development of clinical tolerance to allergenic food. The oral food challenge was performed in three open test and double blind placebo controlled.

Results: The oral challenge to cow milk was performed in 33 patients with a mean age of 17 years old (1-86 yo). In this series 63.6% patients were female. Atopic diseases were recorded in 45% of patients (15/33). Among the OFC, 20 were performed to confirm diagnosis of cow’s milk allergy; and 13 to demonstrate development of clinical tolerance in patients previously allergic. We found 27/33 (81%) negative OFC. The food challenge test confirmed food allergy to cow milk only in 4/20 patients (20%) who had suspected milk allergy and were following elimination diet. The positive results in specific IgE and in skin prick tests were recorded in 48.1% of patients. According to the open exposure tests and double-blind, placebo controlled food challenge tests these patients are only sensitized to cow’s milk without clinical symptoms of allergy. Among the patients allergic to cow milk 91% (11/12) were already tolerant to milk.

Conclusions: The mean age of patients was high. Most of them were following an elimination diet unnecessarily, since they did not have cow’s milk allergy or they were tolerant. The lack of specialized services to perform oral challenge tests slows diagnostic confirmation.

A184
A nationwide survey of hereditary angioedema due to C1 inhibitor deficiency in Italy
Andrea Zanchelli, Francesco Arcolio, Maria Pina Barca, Paolo Borrelli, Maria Bova, Mauro Cancian, Marco Cicardi, Enrico Cilliari, Caterina De Carolis, Tiziana De Pasquale, Isabella Del Corso, Ilaria Massardo, Paola Minale, Vincenzo Montomarano, Sergio Neri, Roberto Perricone, Stefano Pucci, Paolina Quattrinchi, Roberto Pirisi, Maria Pina Barca, Paolo Cancian, Marco Cicardi, Enrico Cilliari, Caterina De Carolis, Tiziana De Pasquale, Isabella Del Corso, Ilaria Massardo, Paola Minale, Vincenzo Montomarano, Sergio Neri, Roberto Perricone, Stefano Pucci, Paolina Quattrinchi, Roberto Pirisi, Maria Pina Barca, Paolo Cancian, Marco Cicardi, Enrico Cilliari, Caterina De Carolis, Tiziana De Pasquale, Isabella Del Corso, Ilaria Massardo, Paola Minale, Vincenzo Montomarano, Sergio Neri, Roberto Perricone, Stefano Pucci, Paolina Quattrinchi, Roberto Pirisi, Maria Pina Barca, Paolo Cancian, Marco Cicardi, Enrico Cilliari, Caterina De Carolis, Tiziana De Pasquale, Isabella Del Corso, Ilaria Massardo, Paola Minale, Vincenzo Montomarano, Sergio Neri, Roberto Perricone, Stefano Pucci, Paolina Quattrinchi, Roberto Pirisi, Maria Pina Barca, Paolo Cancian, Marco Cicardi, Enrico Cilliari, Caterina De Carolis, Tiziana De Pasquale, Isabella Del Corso, Ilaria Massardo, Paola Minale, Vincenzo Montomarano, Sergio Neri, Roberto Perricone, Stefano Pucci, Paolina Quatt...
quantities. The levels of specific IgE to CM proteins are usually very high, especially casein.

A186
Post exposition to etoricoxib in patients with negative oral drug provocation tests
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Background: The etoricoxib can be used as a therapeutic alternative to patients with hypersensitivity to non-steroidal anti-inflammatory drugs (NSAIDs). The aim of this study was to evaluate the use of etoricoxib in daily life of patients with negative oral drug provocation tests (DPT). Methods: Patients with hypersensitivity to NSAIDs that performed a DPT with etoricoxib between January/2013 and June/2014 were contacted by phone and asked about posterior etoricoxib drug usage and the occurrence of reactions. Those who had not used again were asked the reasons for not using. Results: Forty-one patients were tested, all with negative results. Thirty seven of them (90%) were contacted and 28 (76%) remembered the tested drug’s name. Twelve of them (32%) had used the drug again without any reaction. Twenty five patients were not re-exposed: 18 did not need, 4 were afraid of a new reaction and 3 used another alternative. Of the 4 patients who were afraid to use the drug again, 3 of them had presented anaphylaxis symptoms with other NSAIDs. Conclusions: Most of the patients exposed to etoricoxib DPT haven’t been exposed again to the drug. Of those who were afraid to use the drug again, most had a severe reaction history to NSAIDs.

A187
Asthma features in elderly in a tertiary outpatient facility
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Background: The elderly comprise approximately 10% of the population. Asthma can affect about 10% of these patients, however, the diagnosis is underestimated. The sensitization to at least one allergen in elderly with asthma ranges from 28% to 74%. The aim of this study was to evaluate the characteristics of asthma in patients aged over 60 years, including the frequency of allergic asthma. Methods: Cross-sectional study that evaluated 193 elderly patients with asthma followed at an outpatient tertiary service. Patients were considered when asthma met the criteria of GINA 2012 - anamnesis and pulmonary function demonstrating reversibility. Seventy-six patients were evaluated for gender, current age, age at onset of asthma, lung function and asthma classification. The assessment of atopy was performed by searching for total IgE and specific IgE (in vivo or in vitro) for house dust mites, molds, cat and dog dander, cockroach and grass. Results: Of these 193 patients, 155 (80.3%) were female, the mean age was 69.3 years and the mean age of onset of asthma was 31.8 years. Forty-one patients (21%) had onset of symptoms before 12 years. Spirometry presented mean FEV1 of 64.5%. The classification of asthma showed 75% of patients with severe persistent asthma, 17% with moderate persistent asthma and 8%, mild persistent asthma. In relation to atopy, mean total IgE was 314.3 IU/mL. Positive specific IgE was demonstrated in 70% of patients, although, the group which the age of onset was between 41 and 59 years it was 42%. The majority was sensitized to house dust mites (91% of positive tests). Conclusions: In this study, patients whose asthma had an early-onset (< 12 years) had more severe outcome. We noted that patients which asthma onset was between 41 to 59 years (25.9% of them) showed a less sensitization to aeroallergens (42% positive). We found also that 31% of elderly patients showed sensitization to molds, compared to literature where the mean was around 20%.

A188
Combined immunodeficiency associated DOCK8 mutations
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World Allergy Organization Journal 2015, 8(Suppl 1):A188

Background: To present a rare case of combined immunodeficiency with high levels of IgE. Methods: Description of case report. Results: Case report: P.G.O, 9 years old, product of healthy and not consanguinity parents. At age 6 days presented a recurrent intestinal bleeding, hypoactivity and fever and was hospitalized with a diagnosis of enterocolitis and sepsis by E.coli. Five days later presented cellulitis and infectious vasculitis in members with decrease of C3. Over the years presented several episodes of pneumonia, otitis, gastroenteritis, and diagnosis of atopic dermatitis. At age 3, he started skin lesions in several regions with diagnosis of pexuvirus. At some time, he started warts in fingers in the hands and foot. At age 5 years, he presented atypical pneumonia and bronchiolitis obliterans with areas of atelectasis and bronchiectasis in chest tomography. Two months later, he presented malignant otitis externa and mastoiditis. Four months later, he presented abscess in the right upper limb after vaccination to Pneumococcus. He started the follow-up in immunodeficiency outpatient clinic and the lab evaluation showed at age 6 years a normal levels of IgA,IgM and IgG, high levels of IgE (>10.000 UI/dL), pneumococcal antibodies deficiency and low number of T cells (CD4 and CD8). The hypothesis of combined immunodeficiency associated with DOCK 8 mutations was done, because the presence of very high IgE levels, dermatological changes such as atopic dermatitis, molluscum contagiosum and warts in addition to viral infections difficult control). The patient has received prophylactic cotrimoxazol since 5 years old with a significant reduction infections, without need new hospitalizations. He showed a normal thrive until now. Conclusions: It’s important to recognize the different types of primary immunodeficiency and starts the treatment to improve the quality of life and to prevent infections and their sequelas.

A189
A189
Epidemiological survey on the practice of allergen immunotherapy in Brazil
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World Allergy Organization Journal 2015, 8(Suppl 1):A189

Background: Allergen immunotherapy (IT) is widely used to treat patients with allergic diseases, proven effective and recommended by national and international guidelines. Its efficacy and safety depend on the correct indication, use of relevant allergens and good quality extracts, as well as prescription and supervision by a trained professional. Our aims were to evaluate the frequency of use of IT in Brazil and to investigate whether this practice meets recommendations of the Brazilian Association of Allergy and Immunology (ASBAI) and Brazilian Medical Association. Methods: Standardized questionnaire consisting of 20 items was applied to physicians participating in the annual congress of ASBAI. The questionnaire was anonymous and voluntary, and evaluated data related
to medical training, board certification, duration of professional practice, indications for IT, age limitation, mode of administration and schedules, type and standardization of extracts, duration of IT and administration site.

Results: Four-hundred twenty two questionnaires were completed; 88.2% of participating professionals reported training in Allergy and Immunology, and 57.8% were Board certified in Allergy and Immunology. Sixty-eight percent practice the specialty >5 years; 79.2% work in private practice and 80.6% perform IT in clinical practice. Among IT prescribers, 121 (35.6%) are not Board certified by ASBAI. IT is used most often with the following indications: rhinoconjunctivitis - 97.9%, cutaneous reactions to insect bites - 75.1%, asthma - 72.2%, atopic dermatitis - 57.9%, allergy to insect stings - 52.1% and food allergy - 7.9%. The data revealed that 75.6% of professionals prescribe IT for children <5 years and 48.2% for patients > 65 years. Mode of IT included SCIT - 91.7%; SLIT - 52.9%; SCIT rush - 7.1% and oral desensitization - 10.9%. The duration of IT was: <3 years - 36.7%, 3-5 years - 58% and > 5 years - 1.2%. IT is conducted in health care units in 88.1% of cases.

Conclusions: Both SCIT and SLIT are widely used in Brazil. Most professionals who use IT have training in Allergy and Immunology (88.2%), however, only 57.8% are Board certified. The practice of IT occurs predominantly in private clinics. A significant percentage of physicians perform practices which are not in full agreement with national and international recommendations, including prescription of IT for children <5 years and patients > 65 years, and duration of IT less than 3 years in 38.7% of cases.

A190
Laryngeal edema is common in HAE and demands preventive measures
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World Allergy Organization Journal 2015, 8(Suppl 1):A190

Background: The aim of this study was to show the clinical characteristics and treatment of Hereditary Angioedema (HAE) in a tertiary center from Curitiba, south of Brazil.
Methods: A cross-sectional study reviewing records of patients in the Hospital de Clínicas, Federal University of Paraná. We analysed the clinical characteristics, laboratory tests and treatment of patients with HAE.
Results: Forty two patients, male (45%), age mean 27±16.9 years. Symptoms started at median age 14 years (range 1 to 58yrs). Thirty seven (86%) had familial history of HAE. They had a median of 2 episodes/mo (range 0.2 to 30) lasting 3±1.7 days/episode. Edema of limbs, face, genital and laryngeal, abdominal pain, diarrhea and vomiting were seen in 73.8%, 52.4%, 23.8%, 17%, 81%, 24% and 38.1%, respectively. Twenty four (57%) had low C4 level, mean serum level of C4=12.7±10.6 mg/dL; 26 (62%) had low levels of C1 esterase inhibitor, 4 (9.5%) had low functional C1 esterase inhibitor and 12 (28.6%) had C1q deficiency and 3 (7.1%) had HAE type III confirmed. Fifteen (28.9%) were treated with Danazol 175 ±134 mg/day, 15 (28.9%) were using tranexamic acid as needed. No patient had laryngotome.
Conclusions: HAE is a difficult to control disease. Patients needs to have a facilitated access to newer therapies to control their symptoms and reduce the adverse events of Danazol.

A191
Oral allergy syndrome
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World Allergy Organization Journal 2015, 8(Suppl 1):A191

Background: The purpose of this study is to describe an adverse reaction to eating lettuce.
Methods: Case report.
Results: L.V.C.L., female, 12 years old, from Rio de Janeiro, Brazil, was attended in march 2012 at the clinic of Allergy and Immunology, with moderate persistent rhinitis. She had a positive skin test to Dermatophagoides pteronyssinus and specific immunotherapy was started. In September 2012, patient reported severe itching in the oral cavity and pharynx when eating lettuce. She denied symptoms similar to any other food. In dezembro 2012, was performe “prick to prick” for lettuce, with the following result: histamine=7mm; negative control=0mm and lettuce=9 mm. Patient was instructed not to eat lettuce. The test was confirmed on another occasion and was also performed in the patient’s grandmother, who did not have a history of reaction to lettuce, with the same lettuce tested in the patient, to exclude the presence of irritants as a cause of positive skin test. The result of patient’s grandmother was: histamine=5 mm; negative control=7.5mm and lettuce=0mm. In May 2013, was performed RAST (radioallergosorbent) test for lettuce and result was negative. The patient was advised to maintain an exclusion diet of lettuce but she decided to eat lettuce on her own. By eating organic and non-organic lettuce, the patient presented severe oropharyngeal pruritus, as reported in future consultations.

Conclusions: Oral allergy syndrome is very frequent and is associated with intake of various foods, especially vegetables and fruits. Adverse reactions to lettuce are rare, with few cases described throughout the world. The “prick to prick” has a higher accuracy for the diagnosis of allergic conditions, exceeding the RAST test. Intake of lettuce and onset of symptoms confirms the diagnosis. It is essential to enhance the clinical history to make the diagnosis of food allergy, even for food less likely.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A192
Characterisation of recombinant CD23 in the trimeric complex with IgE and allergen
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World Allergy Organization Journal 2015, 8(Suppl 1):A192

Background: CD23, the low affinity receptor for IgE, is mainly expressed on B cells and plays an important role in allergy. Besides its possible role in the regulation of IgE production, CD23 plays an important role in IgE-facilitated allergen presentation to T cells and subsequent activation of allergen-specific T cells.
Methods: Four CD23 protein versions were recombinantly expressed in SF9 insect cells, human monoclonal IgE was isolated from a hybridoma and coupled to a cell line.
Results: The characterisation of CD23 via circular dichroism (CD) spectra and gel filtration showed folded, monomeric proteins. Binding of isolated monomeric human monoclonal IgE and of isolated polyclonal serum IgE as well as of both forms of IgE in complex with birch pollen allergen Bet v 1 to recombinant CD23 was demonstrated by ELISA and by surface plasmon resonance analysis.
Next, we performed negative stain electron microscopy of the three molecules alone (i.e., CD23, monoclonal human IgE, Bet v 1) and after complex formation. After addition of Bet v 1 allergen (17 kDa) to monoclonal IgE (190 kDa) we could observe an extension of one or both Fab arms of the antibody. Interestingly, further addition of recombinant CD23 molecules (35 kDa) to the IgE-allergen complex resulted in thickening of the antibody’s Fc structure, possibly because CD23 lies in the same plane as the IgE molecule in these pictures.
Conclusions: In summary, we report the in vitro formation of a trimolecular complex consisting of recombinant CD23, a monoclonal human allergen-specific IgE and the corresponding Bet v 1 allergen and take a first step towards the visualization of this complex using negative stain electron microscopy. Furthermore, the in vitro trimolecular interaction model may be useful for the screening of drugs and compounds for their potential to inhibit the IgE CD23 interaction with the goal to develop new therapeutic strategies for allergy.

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A193
Profile of the contact tests standard and cosmetic of the Hospital Público do Servidor Estadual de São Paulo
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Background: To evaluate the profile of reactivity of contact tests standard and cosmetics, identify the substances more prevalent and analyze the interaction between them.

Methods: Retrospective analysis of contact test results, performed with the standard contact test batteries (30 substances) and cosmetics (10 substances) in patients with cutaneous symptoms suggestive of contact dermatitis obtained through database division of Allergy and Immunology of the HSPE-IAMSEP in the period January to December 2013. The contact test is recommended by Brazilian Study Group Contact Dermatitis (GBEDC). It was performed reading after 48 and 96 hours, as international criteria Contact Dermatitis Reseach Group (ICDRG). Statistical analysis by the test of equality of proportions.

Results: A total of 749 patients were tested, 588 (78.5%) women and 161 (21.5%) men. Of these, 481 (64.21%) had positive result in reading of 96h. Of these, 68 (9.1%) were positive in the readings of 48 and 96 h and 413 (55.1%) only 96h. A total of 29,960 substances were tested (40 substances in each of 749 patients), and 1,043 (35.3%) were positive. In the positive tests, 720 (69%) were positive in the reading of 48 and 96h measure, and 323 (31%) negative at the 48h and positive in 96 h.

Positive tests in the 96h were classified as weak 482 (46.2%), moderate 287 (27.5%) and strong reactor 274 (26.27%). The most prevalent substances were nickel sulfate (32.7%), cobalt chloride (14.2%), thimerosol (12.8%), neomycin (7.8%), formaldehyde (6.8%), potassium dichromate (4%). Regarding the reactivity of nickel sulfate 51% were classified as strong, 31.8% of moderate and 17.1% weak.

Between the positive substances, it was observed that 393 (37.68%) were metal. In relation to patients, 56 (14.2%) reacted to cobalt and nickel simultaneously, 174 (4.3%) patients with to potassium dichromate and nickel, 15 (3.8%) potassium dichromate and cobalt and 6 (1.5%) patients responded to the 3 metals.

Conclusions: As the literature review indicates nickel sulfate is most prevalent substance and presenting itself as strong reactor mostly, what is significant and there is a strong positive association between metals and it was demonstrated in the present study.

A194
Acute generalized exanthematous pustulosis
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Background: Acute generalized exanthematous pustulosis (AGEP) is a rare and severe subtype of drug eruption, characterized by acute, extensive, non-follicular, sterile pustules overlying an erythematous skin, associated with fever and leukocytosis.

Methods: Case report of a 6-year-old female child with encephalopathy and chronic lung disease, who was treated with intravenous antibiotics, antituberculous and anti-fungics during hospitalization for sepis. She evolved with diffuse erythema and non follicular pustules on her trunk, flexural areas, palms and soles.

Results: The drug history, clinical presentation, cutaneous histopathological findings (supcornal pustular dermatitis) and the prompt regression of the lesions after withdrawal of the suspected drugs were consistent to ratify the diagnosis of AGEP.

Conclusions: AGEP is an uncommon reaction, usually seen after drug exposure and clinicians should keep in mind the possibility of this skin eruption.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A195
In vitro performances of a valved holding chamber with inhaled corticosteroids
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Background: In young children with asthma, it is recommended to use pressurised metered dose inhaler (PMDI) with a valved holding chamber (VHC). The objective of this study was to evaluate the performances of a VHC with inhaled corticosteroids.

Methods: In this study, the VHC called Tipshaler (Protec’s, France) was evaluated with fluticasone (Flutotide®, 50μg/dose, GSK, France) and beclomethasone (QVAR®, 100μg/dose, MEDICIS, Canada). The method according to the European Pharmacopoeia used a constant flow rate (30 L / min) was used. Particle size distribution was measured using a NGI cascade impactor (Copley Scientific, Nottingham, United Kingdom). The fluticasone and beclomethasone concentrations were assayed by spectrophotometry at 236 nm and 239 nm respectively.

Results: In the trachea, the mass of fluticasone was higher with pMDI alone in comparison with VHC (20 ± 0.6 μg vs 0.9 ± 0.3 μg, p <0.05). The fine particle dose of fluticasone was similar with pMDI alone compared to VHC (26 ± 2 μg vs 24 ± 1 μg). Concerning beclomethasone, in the trachea the mass of drugs was higher with pMDI alone in comparison with VHC (11.6 ± 0.4 μg vs 12 ± 0.2, p<0.05). In addition, deposition of fine particles of beclomethasone was similar with pMDI alone in comparison with VHC (77 ± 1 μg vs 75 ± 1 μg, p<0.05).

Conclusions: The use of valved holding chamber reduces the deposition of particles of inhaled corticosteroids in the trachea and allows efficient lung deposition of drugs.

A196
Immunologic shifts occurring during cow milk (CM) oral immunotherapy (OIT)
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World Allergy Organization Journal 2015, 8(Suppl 1):A196

Background: The Paradigm of cow’s milk allergy (CMA) management has shifted in the last years, with the introduction of the Oral Induction Tolerance (OIT) protocols to CMA. Patients with anaphylaxis have persistent and high levels of specific IgE to milk proteins, mainly casein. The purpose of this research was follow the evolution of these parameters during the different phases of CM’s OIT.

Methods: Series of cases involving 15 children over 4 years and adolescents who still had anaphylaxis to cow’s milk. Specific IgE levels were evaluated in three steps of OIT: at baseline, pre-treatment session (step 1); When the patient reached the concentration 1:1 (step 2); and when reaching the final volume to 150 ml of milk a day (step 3). The differences between the levels of specific IgE were analyzed by Student’s t test. The adopted level of significance was <0.05.

Results: The age mean of the sample was 8.73 years (min: 4, Max: 19), 9 females. At step 1, the mean for specific IgE levels for milk casein α-lactalbumin and B-lacto albumin were respectively: 43.96 KU/L (Min:9.0 KU/L/Max:100.0 KU/L); 31.35 KU/L (Min:7.0 KU/L/Max:69.3 KU/L); 18.663 KU/L (Min:1.0 KU/L/Max:45.5 KU/L) and 10,247 KU/L (Min:2.3 KU/L / Max: 29.7 KU/L). At step 3, these values were respectively of 19.48 KU/L (Min:2.70 KU/L /Max: 46.20 KU/L); 17.29 KU/L (Min:1.80 KU/L / Max: 45.5 KU/L); 2.046 KU/L (Min:0.0 KU/L and Max: 29.5 KU/L) and 4.91 KU/L (Min:1.0 KU/L /Max:46.20 KU/L).

Conclusions: The levels of specific IgE reduced significantly during each phase of OIT. This reduction is significant in children and adolescents with CM that already presented clinical reactions to cow’s milk.
KU/L; Max: 17.0 KU/L). The compare of the mean of specific IgE levels between the steps 1 and 3 reached statistical significance for all antigens: milk (p<0.001); casein (p=0.003); α-lacto albumin (p=0.002) and B-lacto albumin (p=0.005).

Conclusions: OCT to anaphylactic CMA reduces the specific IgE levels for milk proteins in parallel to developing of clinical tolerance to high volumes of milk ingestion.

A197
Skin prick test assessment of sensitization to profilin in pollen allergic patients in the population of south-west Poland
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World Allergy Organization Journal 2015, 8(Suppl 1):A197

Background: Panallergens (profilins, polalcins and non-specific lipid transfer proteins) are responsible for polymsensitization to various allergens including pollen and food allergens in a number of individuals which might account for a problem in distinguishing between true allergy from cross reactivity in allergy testing.

A broad range of pollen- and plant-derived allergens contain profilins and it has been shown in selected populations that 10% to 20% of patients with pollen allergy are sensitized to them. Patients with profilin-specific IgE antibodies in serum show higher risk of developing of the sensitization to multiple allergens.

Methods: Sensitization to common pollen allergens using commercial extracts (Allergopharma, Germany) and profilin (provided by ALK) was assessed in 77 patients suffering from seasonal allergic rhinitis during the pollen season (37 men, 40 women, age 18-76 years) by skin prick tests (SPT). The wheal mean diameter of > 3 mm was considered positive.

Results: 18,18% of patients showed positive test results to profilin. 62,33% of patients had positive SPT to grass pollen and 57,14% were sensitized to mugwort pollen. Profilin positive subjects were sensitized to various pollen allergens and in some cases also to fungal allergens, but those patients were most frequently sensitized to mugwort, birch and plantain pollen (p<0.05). In both, birch or mugwort pollen positive patients sensitization to profilin was more prevalent than in the birch or mugwort negative subjects (both p<0.05).

Conclusions: Sensitization to profilin is prevalent among pollen allergic population in South-West Poland. Prevalence of sensitization to profilin can differ in patients allergic to mugwort, birch and plantain. Profilin sensitization is a risk factor for allergic reactions to multiple pollen and food allergen sources. Patients sensitized to panallergens should be tested by an adequate panel of allergenic molecules in order to identify the allergens that are responsible for the allergic disease.

A198
Prevalence of food allergy in preschool children
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World Allergy Organization Journal 2015, 8(Suppl 1):A198

Background: The objective of this study was to know the prevalence of food allergy in preschool children enrolled in municipal daycare centers from Uberlândia, Minas Gerais, Brazil.

Methods: This is an observational study that enrolled children from 24 to 59 months in municipal daycare centers from Uberlândia. A self-administered questionnaire that was used to evaluate the prevalence of food allergy related by parents; subsequently, children with a suspecting food allergy were invited to a clinical and laboratory evaluation, in order to know the real prevalence of food allergy.

Results: 13,841 children enrolled, 8,031 parents responded the questionnaire. The prevalence of food allergy reported by parents was 17.6% and the main foods mentioned were cow milk, pork, fruit, chocolate and chicken egg, and associated symptoms were red spots (54.2%), vomiting (39.6%), diarrhea (32.1%), abdominal pain (31.4%), mouth and eyes edema (17.5%) and nose secretion (10.6%). After clinical and lab evaluation, the prevalence of food allergy found was 0.59% of preschool children, which 0.35% was IgE mediated and 0.24% was non-IgE mediated reactions. The egg was the main food allergen, reaching 0.34% of preschool children, followed by cow milk (0.21%), wheat and pork meat (0.06%), corn, mustard, honey and fish (0.03%). The main symptoms were red spots and itching (52.6%), diarrhea (42%), eyes edema and abdominal pain (36.8%).

Conclusions: The prevalence of food allergy in preschool children found was inferior than described previously. There is a great difference in the parental perception and the real prevalence of food allergy. Several patients was undergoing an inadequate diet exclusion, that results in a reduction of quality of life and could impact in the nutritional status.

A199
Characterization of aspirin-sensitivity in patients with asthma and chronic rhinosinusitis without a history of symptoms upon acetyl-salicylic acid (ASA) ingestion: a case series
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World Allergy Organization Journal 2015, 8(Suppl 1):A199

Background: Sensitivity to Non-steroidal Anti-inflammatory Drugs (NSAIDs) is a possible cause of exacerbations in patients with asthma. NSAID sensitivity associated to chronic rhinosinusitis with nasal polyps features Aspirin-Exacerbated Respiratory Disease (AERD). Patients with AERD generally require long-term treatment with inhaled corticosteroids for moderate to severe persistent asthma. Respiratory reactions may begin within minutes to hours after ingestion of NSAIDs.

Methods: Descriptive study of a case series of five patients with asthma, chronic rhinosinusitis with nasal polyps, without a history of symptoms upon NSAIDs ingestion, who underwent single-blind, placebo controlled, Oral Challenge Test (OCT) with Acetylsalicylic Acid (ASA). OCTs were performed according to the recommendations of the European Network for Drug Allergy (ENDA), with ASA cumulative dose of 500mg, starting at 50mg, with subsequent doses of 100mg, 150mg, 200mg, administered at 15 minute intervals, to investigate sensitivity to ASA. All patients signed an informed consent.

Results: Mean age of the five patients was 55 years, ranging from 42 to 62 years. Three patients were female. No previous use of ASA was reported by the patients, and two of them denied using any other NSAIDs. Three patients had a history of Diclofenac intake, and one of Nimesulide intake, without perceived reactions. Four patients had positive skin tests to inhalant allergens. Three patients presented positive OCTs with ASA, with the following reactions: two patients presented cough, wheezing and dyspnea with 500mg cumulative doses; one patient progressed to anaphylaxis after a cumulative dose of 300mg, presenting wheezing, dyspnea, tachycardia, dizziness, 33% drop on Peak Flow measurement and fall of oxygen saturation to 89%.

Conclusions: Despite absence of a consistent history of symptoms upon ingestion of ASA and/or other NSAIDs, three out of five patients in our series of patients with asthma, chronic rhinosinusitis and nasal polyps presented positive OCTs with ASA, comprising mostly respiratory symptoms. Our data reinforces the importance of OCTs with ASA as an effective method for characterizing ASA/NSAIDs sensitive asthmatic patients. A positive OCT may indicate desensitization as a complementary treatment, which is well established as a successful method for reducing recurrences of nasal polyps, improving smell and asthma control.
Background: Patients with asthma may accelerate the average decline in lung function that is related to ageing (±30ml/year) [1]. The aim of this study was to identify risk factors for decline in lung function in patients with severe asthma.

Methods: Prospective cohort with 9 years of follow up. Inclusion criteria: diagnosis of asthma and at least one year of use of inhaled corticosteroids before enrollment. Every three months patients had a multidisciplinary evaluation and they received free medication (inhaled corticosteroids, long-acting and short-acting β-agonists) monthly. Spirometry was performed annually in a Kokos® spirometer according to the ATS protocol. Brazilian standards reported by Pereira [2] were used as normal reference values.

Results: Initial analysis of 94 patients is present herein. Eighty (85.1%) patients were female. Their mean age (+SD) was 53.37 (+14.19) years. Forty-nine (40.0%) patients used inhaled corticosteroids before enrollment. Every three months patients had a multidisciplinary evaluation and they received free medication (inhaled corticosteroids, long-acting and short-acting β-agonists) monthly. Spirometry was performed annually in a Kokos® spirometer according to the ATS protocol. Brazilian standards reported by Pereira [2] were used as normal reference values.

Conclusions: Approximately 41% of patients stopped wheezing up to six years old. Rhinitis with allergic sensitization, passive maternal smoking and prenatal asthma history increased the odds of wheezing after three years old. The recognition of these factors can contribute to the morbidity reduction and improvement of care quality.

A202 Reactivity of the contact tests (patch test) in elderly patients compared to non-elderly at the allergy clinic of the Policlínica Geral do Rio de Janeiro Luiz Carlos Arcanjo Policlínica Geral Do Rio De Janeiro, Brazil World Allergy Organization Journal 2015, 8(Suppl 1):A202

Background: Sensitivity often brings with it a series of changes in the immune system (immunosenescence) which may affect, among other areas, the lymphocyte-mediated response. The objective of this research was to evaluate the influence of immunosenescence on cellular response in patients submitted to contact patch test at the Allergy Clinic of Policlínica Geral do Rio de Janeiro.

Methods: Retrospective analysis of patients submitted to contact test from January 2012 to June 2014, comparing the group of elderly (over 60 years) and the non-elderly group. The results were statistically analyzed using the SPSS statistical software.

Results: Two hundred and thirty-six patients were submitted to contact test. Seventy-five (31.8%) elderly (> 60 years) and 161 (68.2%) non-elderly (10-59 years). Among elderly, 46 (62.7%) had positive tests, and 29 (37.3%) negative tests. In non-elderly, 112 (69.6%) had positive and 49 (30.4%) negative tests. Despite the difference in positivity between elderly and non-elderly patients, the result was not statistically significant by Chi-square test (p = 0.366). The most frequent sensitizers in the elderly group were fragrance-mix (31.9%), Euxyl K - 400 (23.4%), cobalt chloride (23.4%), imidazole derivate (21.3%) and nickel sulfate (21.3%); in the non-elderly group the most frequent contact allergens were nickel sulfate (42.9%), fragrance-mix (26.8%) and imidazole derivate (16.1%). In elderly group, four patients were over 80 years old, including two positive tests.

Conclusions: The immune response to contactants seems not to be affected by immunosenescence. Therefore, contact tests should be considered in this age group.
lymphopenia due to low lymphocyte T count and selective antibody deficiency with normal immunoglobulins levels. Some of these patients also require human immunoglobulin replacement and two of them evolved with lymphoid malignancy (Hodgkin and non-Hodgkin lymphoma).

Conclusions: This study demonstrates that clinical aspects and level of immunodeficiency has a large variation and that both cellular and humoral immunity might be affected. This presentation is the same one found in databases worldwide.

A multidisciplinary approach allows adequate control of infectious episodes and related comorbidities with a positive impact on their quality of life.

A204

Risks and benefits of oral immunotherapy for IgE-mediated cow’s milk allergy

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Background: We sought to evaluate whether oral immunotherapy (OIT) is safe and efficacious in desensitizing children with cow’s milk allergy (CMA).

Methods: We study 23 children with CMA that met the following criteria: clinical history of IgE-mediated CMA in the last 6 months and specific IgE (sIgE) for cow’s milk (CM) ≥ 15 kU/L (> 2 years) or ≥ 5 kU/L (< 2 years). On study entry, basal serum levels for sIgE for CM and casein plus sIgG4 for casein were obtained. The study was divided into 2 stages. In the first 12 months, patients were randomly assigned in a double-blind manner to the placebo group started on a 24 months active OIT period. Children on active OIT completed 12 more months of treatment. sIgE for CM and casein and sIgG4 for casein were obtained throughout the study.

Results: 15 children completed treatment: 11 in the active group and 4 in the control. The median frequency for total reactions in active group was 56.6% versus 19.4% in the placebo group (p < 0.05). At the end of the first 12 months period, the test group reacted with an average of 10 g of whole milk in DBPCFC versus 4.1 g in the placebo group (p < 0.05). After 12 months active OIT period, 4 patients had a negative challenge, and after 24 months 3 more patients had a negative challenge. Among the 6 participants who reacted, there was an increase an average of 5.2 g dose threshold to cause reactions to milk during the period between 12 and 24 months of treatment. This was an increase in the frequency of symptoms to the average dose of 1.9 g, with subsequent decrease. In cases who tolerated 12 months, there was a significant increase of sIgG4 for casein at 12 months from baseline, compared to non-tolerant. The evolution of serum levels over time, by adjusting the graphs of smoothing, showed a reduction of sIgE for CM and casein at 24 months and an increase of sIgG4 for casein in the first 12 months.

Conclusions: Milk OIT seems to be effective in the induction of clinical desensitization and immunomodulation in children with CMA, but the risk-benefits should be weighed.

A205

Hydroa vacciniforme as a differential diagnosis of atopic dermatitis

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Background: Hydroa Vacciniforme is a rare photosensitivity disorder that evolves into necrotic crusts on sun-exposed areas.

Methods: Case report of a 13-year-old female patient who has been referred to the Allergy Clinic for evaluation of severe Atopic Dermatitis, and had her definitive diagnosis established by skin biopsy.

Results: Patient’s symptoms started at age 4, presenting with vesiculopapular eruptions and pruritus on photo-exposed areas, evolving into crusts. She had been treated with anti-histamines and topical steroids for several years, with no improvement. Sometimes the patient referred other associated symptoms, including dizziness, dyspnea, chest pain and strong pain in the thighs. Additional treatments included oral corticosteroids, moisturizers, sunscreen filter factor 30 and cyclosporine. On physical exam, the patient presented erythematous papules, infiltrated, associated with lichenification, crusts and chafing on the surface of the exposed areas in the upper limbs, anterior chest, lumbar region and lower limbs, and erythematous plaques in the nasal and malar region. Differential diagnosis included Atopic Dermatitis, Besnier’s Prurigo, Idiopathic Prurigo, Subacute Erythematous L pusus, Protoporphyria and Contact Dermatitis. At our hospital she underwent skin biopsy, and the results showed characteristic features of Hydroa vacciniforme. The patient now is being treated with chloroquine 250mg/day, Pimecrolimus cream twice daily on the face, metonetasone once a week, hydroxyzine 25mg twice daily, and sunblock factor 30. She reports great improvement of symptoms.

Conclusions: We described a rare case of Hydroa Vacciniforme, demonstrating the importance of this disease in differential diagnosis of Atopic Dermatitis. Correct diagnosis would avoid inappropriate treatment and related adverse side effects.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A206

Allergy to cow’s milk protein and reaction to methylprednisolone – case study

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World Allergy Organization Journal 2015, 8(Suppl 1) A206

Background: Certain foods are used as excipients in pharmacological products. Thus, patients with IgE-mediated food allergy could present reaction to the pharmacological product whose the excipient is the food in question. Such reactions are rare, considering the small quantity of food protein present in the products. In most situations, these medicines need not be avoided in patients with food allergy, as most tolerate the medication without complications. Reactions to the drugs in patients with allergy to cow’s milk protein (CMPA) are scarcely reported. Generally the lactose is not contaminated with milk protein, but this could happen in rare situations. There are reports of two patients with high levels of IgE to cow’s milk that presented urticarial after receiving methylprednisolone.

Methods: A case report of a seven-year-old boy with CMPA that presented reaction when received endovenous methylprednisolone.

Results: A male patient, 7 years old, previously diagnosed with asthma, rhinitis allergy and encephalopathy after anaphylactic shock due to dipyrone, received a diagnosis of CMPA at 5 months old, when presented urticaria and vomiting immediately after the use of child formula based on cow’s milk, having undergone total exclusion of the food and its derivatives thereof. Laboratory Tests: IgE to casein: 6.45 KU/L; IgE to beta-lactoglobulin: 5.25 KU/L; IgE to alpha-lactalbumin: 77 KU/L; IgE to cow’s milk: > 100 KU/L. Evolution: At age 7, during hospitalization for bronchospasm and pneumonia, the patient received endovenous methylprednisolone and presented diffuse urticarial lesions, angioedema and respiratory difficulty, starting immediately after the infusion.

Conclusions: Test performed with injectable methylprednisolone revealed the presence of nanograms of beta-lactoglobulin in the medication. The presence of food protein, intentionally or by contamination, in medications whose excipients are derived from food, makes the patients with food allergy, susceptible to present adverse reaction to the medication in question, although this occurrence is rare.
Therefore patients with CMPA should be advised regarding the use of medications containing milk protein.

A207
Oral challenge test with nsaids: evaluation of patients attending a specialty clinic in Ribeirão Preto, Brazil
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Background: Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are the most common cause of non-allergic drug-induced systemic hypersensitivity reactions. We have aimed to use the Oral Challenge Test (OCT) to determine alternative and safe drugs to be used by patients with hypersensitivity to NSAIDs, and evaluate its most prevalent reactions.

Methods: Prospective study including 116 patients with positive history of hypersensitivity to NSAIDs, evaluated at the Allergy Clinic of the Clinical Hospital of Ribeirão Preto Medical School, between October 2010 and July 2014. Patients were evaluated using the European Network for Drug Allergy questionnaire, and underwent single blind, placebo controlled OCT, in a hospital-controlled environment. Patients were required to be clinically stable, and to withdraw antihistamines or corticosteroids seven days prior to the OCT. Patients were given 10%, 20%, 30% and 40% of the therapeutic NSAID dosage, selecting an NSAID different from the one implicated in the allergic reaction. Fifteen minutes after each dosage, patients were evaluated with Peak Flow and blood pressure measurements, heart and respiratory rates and general examination.

Results: Among the 116 patients enrolled the study, 85(73%) were females. Eighty-five patients(73%) had history of allergic respiratory disease. Clinical manifestations were: Angioedema (58%), Urticaria(42%), Anaphylaxis(24%), and respiratory symptoms such as nasal pruritus, sneezing, rhinorrhea, dyspnea, and cough (22%). The NSAIDs most injured by history were: Diclofenac(70%), Diclofenac(52%), Acetaminophen(29%), Ibuprofen(21%), Cetoprofen(20%) and Nimesulide(19%). Reactions to two or more drugs were reported by 86 patients (74%). One-hundred and fifty-three OCT were performed, with 38(18%) positive results. The most implicated drugs were Celecoxib (7 tests), Benzydamine(5), Nimesulide(3), Ibuprofen(3), ASA(2), Acetaminophen(2), Etoricoxib(2), Dipiron(1), Diclofenac(1), Meloxicam(1), and Viminol(1). Reactions included Angioedema, Urticaria and respiratory symptoms. One patient presented with anaphylaxis during OCT using Celecoxib.

Conclusions: It is well established that COX-2 inhibitors are safe and low-cost. It is well established that COX-2 inhibitors are safe and low-cost.

A208
Histopathology of nasal mucosa and inflammatory changes in nasal wash of symptomatic rhinitis patients
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World Allergy Organization Journal 2015, 8(Suppl 1):P208

Background: The extent of epithelial damage in allergic (AR) and nonallergic rhinitis (NAR) and its association to inflammatory changes in nasal wash (NW) are not fully understood.

Objective: Investigate the relationship of inflammatory cells in NW and the level of epithelial damage and basement membrane thickening (BMT) of the upper airway mucosa.

Methods: Total nasal symptom score (TNSS), NW and turbinate biopsy specimens were obtained from 36 AR and 20 NAR patients. Atopic patients had positive skin prick test to D.pteronyssinus (35/97%) and L. perenne (18/50%) extracts from Hollister-Stier. Total and differential cell counts were evaluated by a quantitative method of nasal cytology; albumin and IL-8 concentrations were determined in the supernatant of NW. The epithelium damage and BMT were assessed on H&E-stained sections by staging system. Statistical analysis was performed by nonparametric Mann-Whitney U test for comparison between cell counts and differences in frequencies by Fisher exact test.

Results: The median age was 24.5ys. (14-58), TNSS was higher in AR (9 [1-18]) as compared to NAR (6.5 [0-12]) (p=0.01). Total cell and neutrophil counts, as well as albumin and IL-8 levels were not different in NW of AR and NAR patients. Median eosinophil count in nasal fluid (ECNF) was higher in AR (3% [0-66]) than in NAR (1% [0-21]) (p<0.01). ROC curve analysis and AUC for ECNF in distinguishing AR from NAR has showed a cut-off value of 4% AUC=0.71. ECNF was >4% in 44% of AR and 20% of NAR patients; at this point the probability of atopy was 80%, with 44% sensitivity and 90% specificity. Epithelial damage was more frequent in AR (94%) than in NAR (65%) (p<0.01). According to the presence of BMT, NW of AR patients without BMT had higher median eosinophil (3% (1-77)) and neutrophils (47.5% (0-87)) counts compared to eosinophils (1% (0-4)) and neutrophils (12% (0-23)) counts in NAR. On the other hand, in the presence of BMT, there were no differences in the NW of AR and NAR patients. The intragroup analysis showed that neutrophil count was higher in NW of NAR patients with BMT (45% (12-83)) than without BMT (12% (0-23)) (p<0.01).

Conclusions: The best cut-off value of ECNF to discriminate atopic patients was 4%. Despite of differences in mechanisms of inflammatory reactions in rhinitis, airway remodeling assessed by BMT is associated with similar cellularity in NW of both AR and NAR.

A209
DKC1 mutation causing different phenotypes in a family with X-linked Hoyeraal-Hreidarsson syndrome
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Background: Hoyeraal–Hreidarsson syndrome (HHS) is a rare multisystem disorder characterized by intrauterine growth retardation, microcephaly, cerebellar hypoplasia, neurological deficits, aplastic anemia, and immunodeficiency. HHS is a severe variant of Dyskeratosis Congenita (DC) that displays clinical features overlapping DC, with T, B and NK immunodeficiency. Both genetic disorders presents deficiency in maintaining telomere integrity. Mutations in the DKC1 gene are responsible for the X-linked form of the disease.

Methods: A case report of a two-year-old male referred for investigation because of a family history of HHS.

Results: The patient had no history of recent infections, diarrhea or vaccine reactions. Weight in percentile 3 and height in 10. He also had nail dystrophy, leukoplaquia of the tongue and normal neurological development. Laboratory tests: lymphopenia and mild thrombocytopenia (bone marrow not performed due to family refusal); normal immunoglobulins and IgG subclasses levels; pre-and post-immunization levels of IgG to pneumococcal polysaccharides measured by ELISA were low for all tested serotypes; low levels of NK cells and lymphocyte subpopulations CD4+, CD8+, CD19+, as well CD4+/CD8+ ratio. Magnetic resonance imaging (MRI) of the brain showed a mild enlargement of magnum cistern, without cerebellar hypoplasia. Endoscopy showed an oesophageal stenosis (attributed to HHS). Genetic analysis by Polymerase Chain Reaction showed a missence mutation of the DKC1 exon 11 (A1a353 Val). His older brother, who presented the same mutation, had a previously history of recurrent and severe infections since his first month of life with evident neurological delay, transfusion dependent bone marrow failure, cerebellar hypoplasia and humoral immune deficiency and the complete clinical phenotype of HHS. Cerebellar hypoplasia was observed at brain MRI.

Conclusions: As identical mutations can lead to different manifestations it is likely that other homozygous or heterozygous genetic alterations not yet known might also contribute to HHS. Our familial cluster exemplifies how diverse the clinical phenotype can be between relatives carrying the same DKC1 point mutation. This clinical information may be important.
for counseling, as affected families may be very concerned about the potential clinical outcome of their offspring affected by this serious disease.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A210
Cardiac allergy (Kounis Syndrome) and loss of motor neural sensation during local anesthetic skin test
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Background: Kounis syndrome is myocardial ischemia following with allergic reactions. It is rarely mentioned in the allergy literature but more than 100 reports in the cardiology. But we didn’t find any article mentioned Kounis syndrome and loss of motor neural sensation during the skin allergy test.

Methods: 31 years old woman was admitted to our Immunology and Allergy outpatient clinic for drug allergy. Her history was; 4 weeks ago she took cildinamycin capsule and 4th day she had generalized urticaria. She had dental abscess and dental decay, dentist had been given to her cildinamycin and performed local anesthesia for filling her tooth. 5 minutes later she had pain in her body, dysnea, numbness on her tongue and neck. And she had been admitted to the emergency room. We had to find local anesthetic because she has severe dental ache and cotton plug in her tooth. Prick test was performed with 1/1 dilution and after intradermal test was performed with 1/1000 dilution with lidocaine and articaine. They were negative and there wasn’t any systemic reagin.

As soon as intradermal test was performed with 1/100 dilution she had nausea and severe left side chest, neck and back pain, dysnea and left arm numbness. We administered anaphylaxis treatment (adrenalin 0.3 mg i.m., O2 S It/dk, rapid isonok saline serum infusion, feniramin maleat i.e., metylprednisolone 40 mg i.v.). 5 minutes later urticarial hives were appeared her neck and face, stridor was heard. 0.3 mg adrenalin was injected about seven minutes later and five minutes later then she respiratory arrested. 0.3 mg adrenalin was administered intravenously and she recovered. But her chest pain progressed and left side of her body loosed of motor sensation. We analyzed her serum for cardiac enzymes three hours later and troponin was 2.9 ng/mL, CK-MB: 10.2 U/L. Myocardial infarction was diagnosed and she was transferred to the cardiology intensive care unit. Five hours later her enzymes elevated, 5.81 ng/mL/187 U/L, respectively.

Results: Coronary angiography was done and it was completely normal. About 24 hours later she recovered and all of her symptoms were disappeared. She discharged from hospital.

Conclusions: Kounis syndrome is rare but it’s life threaten. Almost all drugs cause this syndrome. Drug skin tests may be thinking as safe, but this case show that if there is a suspicion of this syndrome must to be careful. Come into mind and quick treatments this situation may be life saving.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A212
Investigation into patients with suspected adverse reactions to beta-lactams carried out by the allergy unit of Rio de Janeiro General Policlinic
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World Allergy Organization Journal 2015, 8(Suppl 1):A212

Background: Due to the high prevalence of patients with suspected adverse drug reaction (AR) to Beta lactam (BL), this study aims to determine the incidence of hypersensitivity reactions to these drugs, based on ENDa protocol (European Network for Drug Allergy).

Methods: This study was a retrospective analysis of cases of patients referred to the Allergy Clinic of Rio de Janeiro General Policlinic with records of suggestive of AR to BL, in the period between February 2011 and July 2014. All the patients observed ENDa protocol: specific questionnaire of adverse drug reactions, IgE specific for penicillin G and V, amoxicillin and ampicillin, followed by skin prick tests (SPT) and intradermal (ID) with penicillin and amoxicillin. Finally, the provocation test (DTP) was carried out with Amoxicillin, each step being followed from the previous negative result.

Results: Forty seven tests were performed, in 35 women (74.4%) with predominant age group between 50 and 70 years (36% of the women) and 12 men (25.5%) without predominant age range from 6 to 62 years old. There were 10 positive tests (21.7%) with 3 positive tests in making the SPT, 5 in ID test with 3 in DTP also without immediate reaction. Eighty percent of patients with positive results were women aged between 15 and 62 years (75% over 40 years) and only two male patients aged between 11 and 25 years.

Conclusions: These results demonstrated the importance of confirming a suspected history of AR to BL through specific tests, since 21.2% of patients have proved to have drug allergy, in contrast with 10% of the

A211
A systematic intervention for assistance of patients with asthma in Brazil: partnership between university and public health system
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World Allergy Organization Journal 2015, 8(Suppl 1):A211

Background: Current GINA guidelines emphasize the challenge of asthma care programs to meet local needs in various countries. We aimed to assess outcomes of a one-year capacitating program on asthma for non-specialists working in the Public Health System in Brazil.

Methods: A group of 16 allergists/immunologists developed a capacitating program in 11 Public Health Units in the city of Ribeirão Preto, Brazil. The program comprised lectures on asthma and hands-on training on spirometry and use of inhalation devices; production of didactic material; and development of a protocol on management of asthma. Spacers and spirometry were provided. Each researcher visited one Health Unit 2-4 times a month, to accompany the non-specialist on patients’ visits to the clinic, perform case discussions, and deliver short lectures to the health professionals. Records of asthma medications provided to patients upon physicians’ prescription in the North Region were compared to those from three other Regions with no intervention.

Results: During the year prior to the capacitation program, inhaled Beclomethasone was delivered to 2,876 patients upon physician’s prescription. At the end of the one-year capacitating program, there was an increase in deliver of inhaled Beclomethasone to 3,526 patients. Similarly, inhaled Albuterol, recommended as the rescue medication on the protocol, was delivered to 3,205 patients upon physician’s prescription on the prior year, with increase at the end of the program to 4,850 patients. No such increase was observed in the South, Central and East Regions, where no capacitating program was conducted. Comparable number of prescriptions filled for inhaled Beclomethasone in the periods analyzed was: 1,210 and 1,074 for the East Region; 1,882 and 1,468 for the Central Region; and 1,347 and 1,244 for the South region, respectively. For inhaled Albuterol, the numbers were: 1,736 and 1,813 for the East; 2,602 and 2,662 for the Central; and 1,535 and 1,795 for the South Region, respectively. The number of prescriptions filled for Albuterol tablets and Aminophylline tablets decreased in most regions, whereas prescriptions filled for Albuterol syrup remained unchanged, with high prescription rates during the fall and winter months.

Conclusions: A systematic capacitating program was successful in changing asthma prescription profiles among non-specialist doctors, with increasing delivery of inhaled Albuterol and inhaled Beclomethasone to patients with asthma.
international literature. And the negative provocation tests are important because they allow the patient to use the drug tested in the future.

A213
The importance of provocation tests with COX2 inhibitors on patients with a history of cross-hypersensitivity to non-steroidal anti-inflammatory (NSAIDs)
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World Allergy Organization Journal 2015, 8(Suppl 1):A213

Background: To verify the importance of provocation tests with COX2 selective inhibitors before release as an alternative medication, on patients with a record of cross-hypersensitivity to non-steroidal anti-inflammatory (NSAIDs).

Methods: Retrospective analysis of patient records submitted to provocation tests with COX2 selected inhibitors, in Policlínica Geral do Rio de Janeiro, in the period between October 2010 and July 2014. The provocation tests were simple blind controlled placebo.

Results: One hundred and twenty provocation tests were done with COX2 selected inhibitors, out of which, 116 with etoricoxib (96.6%) and 4 with celecoxib (3.3%). One hundred and two patients were female, with predominance in ages between 40 and 64 years old (41.8% of the men). Men represented only 15.9% of patients, with predominance in ages between 12 and 30 years old (40.10% of the men). Five positive tests occurred (4.1%), all of them tested with etoricoxib. In positive cases, 4 patients were female and 1 male, with predominance in ages between 17 and 29 years old, and 1 patient of 60 years old.

Conclusions: The liberation of alternative medication for patients with cross-hypersensitivity to NSAIDs should be permitted only after the realization of provocation tests with COX2 selective inhibitors, given that 4% of the tests are positive.

A214
Hypertrophic lichen planus-like atopic dermatitis: a case report
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World Allergy Organization Journal 2015, 8(Suppl 1):A214

Background: Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by pruritic eczematous lesions, which can be associated with other allergic comorbidities. Differential diagnosis of AD includes nummular eczema and lichen planus.

Methods: Case report of a twenty five year-old woman with dried and scaly skin lesions, associated with itching and recurrent skin infections.

Results: The lesions started at age 18 during the patient’s first pregnancy and had a predominant flexural distribution pattern. At the physical exam, the patient presented with erythema and infiltrative lesions in forearm and periorbital regions, and scaly erythematous papules, especially in inferior extremities. Some of these lesions presented an ulcerous center and had linear form. The patient had high specific serum IgE levels for house dust mites (Dermatophagoides farinae and D. pteronyssinus), grass and dog; sea food, fish, soy, wheat and latex. Serum total IgE was 11,100kU/L, and serology for hepatitis B and C was negative. The patient was treated with antihistamines, topical emollients and oral corticosteroids with low improvement. Because of this atypical presentation, other differential diagnoses were considered, including hypertrophic lichen planus. Skin biopsy was performed, showing hyperkeratosis, sub-acute spongiotic dermatitis and moderate acanthosis, compatible with atopic dermatitis and an evolution to lichen simplex chronicus.

Conclusions: Hypertrophic lichen planus is one of the differential diagnosis of atopic dermatitis and it commonly involves the flexor surfaces of the extremities bilaterally. Adult-onset AD can present with non-typical morphology and localization, therefore it is important to distinguish these two entities, since lichen planus can be associated with other diseases, such as viral hepatitis.

A215
Establishment of a cell culture model based on primary epithelial cells to investigate damage and repair of respiratory epithelial cells
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World Allergy Organization Journal 2015, 8(Suppl 1):A215

Background: The nasal epithelium represents the first barrier against entry of airborne particles into the respiratory system and therefore protects against allergens, pollutants and pathogens. We have previously used the respiratory epithelial cell line 16HBE14o- to define factors which can impair the barrier function of the respiratory mucosa. However, cultures of primary epithelial cells obtained from human nasal biopsies should resemble the natural situation in the nose better. Here we investigated primary human nasal epithelial cells regarding growth characteristics and sensitivity to damage by interferon-gamma and other factors.

Methods: Primary epithelial cells were isolated from nasal biopsies from allergic and non-allergic patients undergoing routine nasal surgery at the ENT Department of the General Hospital of Vienna with consent from the Ethics Committee of the Medical University of Vienna. Primary cells and 16HBE14o- cells were grown on semipermeable membranes, which allow exposure of the cells to various factors both from the apical and the basolateral side. Cells were grown until they reached confluence and gained a trans-epithelial resistance of more than 1000 Ohm. Cell layers were then exposed to interferon-gamma which is known to impair epithelial integrity. Furthermore, a scratch-test model was used to investigate epithelial repair after physical damage.

Results: Expression of epithelial cell makers on the surface of cultivated primary cells was confirmed by flow cytometry analysis. Histological staining of cultivated cells isolated by cytospins showed normal morphology with apical cilia. Normal function of cultured primary epithelial cells was shown by video analysis and ciliary beat frequency measurements. Barrier function decreased after exposure of cells to low doses (1ng/ml) of interferon gamma both in the case of primary and 16HBE14o- cells. Decrease of the barrier function was time- and dose-dependent. Repair of primary epithelial cell layers could be shown in the scratch-test model.

Conclusions: We established a cell culture model using both primary nasal epithelial cells from allergic and non-allergic individuals, in which we can investigate exogenous and subject-specific factors which affect epithelial integrity. Supported by projects of the Austrian Science Fund (FWF), the DK W 1248-B13 program MCCA and P4613, P4605.

A216
Common variable immunodeficiency and nodular lymphoid hyperplasia: case report
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World Allergy Organization Journal 2015, 8(Suppl 1):A216

Background: Nodular lymphoid hyperplasia (NLH) of intestine is an extremely rare lymphoproliferative disorder of uncertain etiology. Usually, polypos benign lymphoid tissue are present in the intestinal mucosa. It may present as an asymptomatic or manifest with gastrointestinal symptoms such as abdominal pain, chronic diarrhea, occult bleeding or intestinal obstruction. NLH found in association with common variable immunodeficiency (CVID) constitutes an increased risk for malignant transformation.

Methods: Report a patient with common variable immunodeficiency and diffuse nodular lymphoid hyperplasia of the small and large intestine.

Results: RG, 32, male, valued at outpatient consultation in Gastroenterology, Hospital do Servidor Publico Estadual de Sao Paulo in January
2014 due to heartburn and reflux. As personal history, had undergone total colectomy in 2009 for multiple polyps at colonoscopy and diagnosis of familial adenomatous polyposis. Pathology revealed reactive follicular lymphoid hyperplasia. Evolved with loose and frequent stools without blood or mucus. Upper Digestive Endoscopy in 2009: enanthematic pangastritis and light bulbodoudenite. A sigmoidoscopy conducted in 2010 showed ileal polyps and ileo-rectal anastomosis with inflammatory pseudo-polyps. Was admitted for further investigation with diagnoses of Inflammatory Bowel Disease and Lymphoproliferative Disease. The abdominal CT revealed lymph node enlargement in several chains and chest CT without evidence of lymph node enlargement. Colonoscopy showed sessile polyps in the ileum and colon mucosa with micronodular pattern. Metronidazole received due to Giardia lamblia in feces. The dosage of immunoglobulins IgG showed 279mg/dL, and IgA and IgM decreased, the diagnosis of CVID being taken. Received intravenous gammaglobulin 400mg/kg. Duodenal biopsy revealed nonspecific chronic inflammation with immunohistochemistry and search for Giardia lamblia negative. The revised in plate coagulometry reiterated the diagnosis of follicular lymphoid hyperplasia. The patient follow-up in outpatients receiving monthly intravenous infusion of gammaglobulin.

**Conclusions:** We have reported a case of a patient with CVID that presented NLH. Due to increased risk for intestinal lymphoma, should be kept under constant surveillance by tumor tracking.

**Consent:** Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

### A217

**Desensitization induces hyporesponsiveness and cell-surface phenotype changes on wild-type and humanized mouse mast cells**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A217**

**Background:** Rapid drug desensitization (DST) protocols have been developed based on clinical evidence, but in vitro studies are lacking. Understanding the mechanisms involved in the early stages of DST will allow optimization of treatments in patients’ treatment. The aim of this study is to demonstrate and characterize the induction of hyporesponsiveness in murine mast cells by desensitization.

**Methods:** We assessed the effect of rapid desensitization on murine bone marrow derived mast cells (BMMCs). Experiments with three different types of murine BMMCs were done: wild-type, LILRB4-/-, and transgenic expressing the human receptor FceRIi. Wild-type and LILRB4-/- BMMCs were sensitized with anti-DNP IgE and stimulated with DNP, while transgenic BMMCs were sensitized with concentrated human serum of allergic subjects expressing the human receptor FceRI. Wild-type and humanized mouse mast cells (BMMC) were stimulated with the respective allergen. BMMC were sensitized with concentrated human serum of allergic subjects expressing the human receptor FceRIi. Wild-type, LILRB4-/-, and transgenic expressing the human receptor FceRI. Wild-type and humanized mouse mast cells (BMMC) were stimulated with the respective allergen. BMMC were sensitized with concentrated human serum of allergic subjects expressing the human receptor FceRIi. Wild-type, LILRB4-/-, and transgenic expressing the human receptor FceRI. Wild-type, LILRB4-/-, and transgenic expressing the human receptor FceRI. Wild-type, LILRB4-/-, and transgenic expressing the human receptor FceRI. Wild-type, LILRB4-/-, and transgenic expressing the human receptor FceRI.

**Results:** DST inhibited the IgE-mediated degranulation of BMMCs as desensitized cells released 43.3% less βHex and showed 73.2% lower LAMP1 surface expression compared to activated BMMCs. A group of desensitized and activated BMMCs were challenged again with an extra dose of 1 ng DNPHAs and additional release of βHex and LAMP1 expression were not different from the negative control, regardless whether BMMCs had been previously desensitized or activated. The hyporesponsiveness state of BMMCs induced by DST and activation was not due to mediator depletion as calcium ionophore induced marked release of βHex in these cells. Activated and desensitized BMMCs, respectively, expressed 40.3% and 15.7% less FceRI, 45.9% and 13.1% less PD-L1, and 23.5% and 11.3% less GP49 than negative controls. We observed that while the expression of PD-L1 on the cell membrane decreased, its intracellular amount increased.

**Conclusions:** Desensitization and activation induced hyporesponsiveness in WT and humanized BMMC, which can be assessed by LAMP1 expression and β Hex secretion. Hyporesponsiveness is not due to depletion of mediators or mediated by soluble factors, and is associated, but not dependent on FceRIi internalization.

### A218

**Humoral immune response in children’s patients with recurrent infections**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A218**

**Background:** Primary immunodeficiency diseases comprise heterogeneous group of disorders that affect distinct components of the innate and adaptive immune system. The aim of this study was to evaluate the humoral response in children’s patients with recurrent infections.

**Methods:** Venous blood samples were collected from 64 children in Pediatric Hospital Professor Henberito Ferreira Bezaire (HOSPED) - Federal University of Rio Grande do Norte (UFRN), Brazil. The laboratory investigation included measurement of serum IgG, IgM and IgG levels by immunoassay and the B lymphocyte quantification by flow cytometry with monoclonal anti-CD19 for the cases that presented decreased of the serum immunoglobulins.

**Results:** Among the 64 children included, 33 (51,6%) were male and 31 (48,4%) were female. The children age ranged from 2 months to 15 years old. According to age, 36 (56%) children were aged 0-5 years; 11 (17%) children were aged 5 years and 1 month to 10 years; 10 (16%) children were aged 10 years and 1 month to 13 years and 11 months and 7 (11%) children were aged 14 years to 15 years. Immunoglobulin concentration below age-appropriate reference values was observed for IgG in 7 (11%) children; for IgM in 3 (4,7%) children and for IgA in 3 (4,7%) children. B lymphocytes were absent in 3 (4,7%) children. The superior respiratory tract infections were the most prevalent in this population.

**Conclusions:** B-cell disorders are the most common type of immunodeficiencies and they are characterized by an increased susceptibility to respiratory tract infections. In this study, 3 patients received the clinical and laboratory diagnostic of X-linked agammaglobulinemia.

### A219

**Efficacy and safety of the use of omalizumab in a patient with difficult-to-control severe asthma and antiphospholipid antibody syndrome**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A219**

**Background:** Autoimmune conditions may be associated with allergic diseases. There are few studies on the safety of omalizumab use in patients with asthma who also present autoimmune disease.

**Methods:** Case report of a patient with severe asthma associated with antiphospholipid antibody syndrome (APS) treated with omalizumab.

**Results:** Female, 36-year-old patient, with uncontrolled asthma, dependent on oral corticosteroid. Patient had a history of cough, wheezing and dyspnea since childhood with worsening in the past few years, with dyspnea on minimal activities and use of rescue albuterol 3-10 times a day. She had a history of intensive care unit admission and intubation for asthma on two occasions. Associated conditions were: APS (thrombosis of the leg, miscarriage, stillbirth and positive lupus anticoagulant, use of aspirin, depression, GERD, and allergic rhinitis. She was on Formoteron/Budesonide 12/400mg plus inhaled Beclometasone 800mcg twice daily; Montelukast 10mg a day; Prednisone 5mg daily; Flutoxetine 40mg daily; nasal Budesonide 50mcg twice a day; Omeprazole 20mg once a day.

Her initial spirometry showed an FEV1 of 47% predicted, with response to bronchodilator (21% and 300mL reversibility). This pattern remained throughout her follow up in our Clinic. Her total IgE was 1200KU/L, and she presented positive skin prick tests to Dermatophagoides pteronyssinus,
D. farinæ and Trichophyton and negative to Aspergillus. Chest tomography and bronchoscopy were unremarkable. Despite correct use of medications, the patient had frequent exacerbations and need for increasing doses of oral prednisone up to 80mg daily, with weight gain of 1.8kg in 3 years. Omalizumab was started, and within two weeks the patient showed marked improvement of symptoms, making it possible to withdraw prednisone. There was reduction in use of rescue albuterol, improvement in quality of life and weight loss. After 9 months, treatment with omalizumab was discontinued due to supply problems, with worsening of asthma and return of oral corticosteroids. Provision of omalizumab was restored after 6 months, and the patient again had improvement of symptoms and discontinuation of oral corticosteroids. Currently, she uses rescue bronchodilator 2 times a week, lost 20kg and practices physical activity.

Conclusions: Omalizumab was very effective in controlling symptoms in a patient with severe asthma and APS. No adverse effects related to medication use were observed.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A220
Therapeutic trial in hereditary angioedema type III: Icatibant
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World Allergy Organization Journal 2015, 8(Suppl 1):A220

Background: Hereditary angioedema (HAE) is a disease transmitted by autosomal dominant inheritance, characterized by quantitative and / or functional deficiency of C1 inhibitor (C1-INH), which causes episodes of swelling, with involvement of many organs. HAE is currently divided into three groups. The HAE type III is a less frequent disorder that mainly affects women and is characterized by normal levels and activity of C1-INH.

Methods: Literature review and case description.

Results: We assessed a 33 years old female with episodes of lip angioedema and facial edema since March 2014, with no pruritus, with 18kg in 3 years. Omalizumab was very effective in controlling symptoms in a patient with severe asthma and APS. No adverse effects related to medication use were observed.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A221
Quality of YouTube videos for patient education on how to use asthma inhalers
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World Allergy Organization Journal 2015, 8(Suppl 1):A221

Background: Inhalers are crucial to the delivery of asthma medications, however their effectiveness is dependent on proper inhaler technique. This study evaluates YouTube videos on their content and ability to inform viewers on how to effectively use an asthma inhaler.

Methods: The website YouTube.com was queried for the search phrase “how to use asthma inhaler”. The resulting videos were assessed for duration, number of views, number of likes and dislikes, source of video, and content. Content was analyzed for proper inhaler usage. Specifically, videos were assessed whether they discussed the following 9 important steps of inhaler use: removing the cap, priming the inhaler, shaking the inhaler, breathing out before inhaler use, dispensing the medication, taking a deep/slow breath (or several breaths in the pediatric patient using a spacer), holding one’s breath (unless patient took several breaths with a spacer), waiting before taking a repeat dose, and rinsing the mouth after inhaler use.

Results: The search phrase returned 12,400 videos that were sorted by the default filter of “relevance”. The 20 videos on the first page of the results were analyzed since these are the videos patients are most likely to view by visitor statistics. On average, the videos were 2 minutes and 33 seconds long, with 31,583 views, 47 likes and 5 dislikes. Eight videos were from health care organizations, 5 from a professional society, 2 from health care professionals, and 5 from nonprofessional educational groups. Only 15% of YouTube videos (3 videos) discussed all 9 steps of correct asthma inhaler use. The 3 videos were from health care organizations.

Conclusions: The quality of YouTube videos on asthma inhaler use varies considerably. In our analysis, only 15% of videos discussed all steps of correct asthma inhaler use. Videos from health care organizations and professional societies were more comprehensive than those from nonprofessional educational groups and health care professionals not posting on behalf of a medical organization. There is a need for more reliable and accurate patient education videos on YouTube.

A222
Three cases with three different causes of lip and mouth swelling
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World Allergy Organization Journal 2015, 8(Suppl 1):A222

Background: Allergists are often consulted to diagnose and manage patients presenting with edema of the lips, tongue and mouth. It is often feared that the swelling would extend and jeopardize the airway and therefore treatment for presumed anaphylaxis may be initiated. We present three cases where the presentation was thought to due to an allergic reaction, but the etiologies were determined to be different.

Methods: Three cases with diagnosis of lip, tongue and mouth swelling were reviewed.

Results: First case is of a previously healthy 8 year old who presented with cough and a fever, and who was initially treated with a macrolide antibiotic develops lip and mouth swelling with blistering lesions on the lips and tongue. The patient was admitted to the hospital and initially thought to be an allergy to the antibiotic, but as the case progressed, a diagnosis of mycoplasma associated buccal mucositis was made. Second case is of a previously healthy 4 year old who presented to the emergency room with pain and swelling of the lips and tongue after drinking from a bottle labeled as containing peach tea. After being treated repeatedly with epinephrine for presumed anaphylaxis to a component of the drink, the case progressed with severe dysphagia and the development of a white coating of the tongue which was diagnosed as the ingestion of a caustic fluid. Third case is an 18 year old with recurrent disfiguring facial swelling. Initially treated with epinephrine for allergic angioedema, the lack of response to epinephrine, the persistence of the swelling over several days led to further work up that made the diagnosis of hereditary angioneurotic edema despite the absence of a family history.
Conclusions: Allergist encountering cases of acute onset of edema of the lips, mouth and tongue should entertain a wide differential diagnosis that can include allergic etiologies, idiopathic angioedema or other nonallergic disorders as presented above and including complications of mycoplasma infection, ingestion of caustic liquids and hereditary angioneurotic edema.

A223
Serum total IgE, ascaris lumbricoides specific IgE and eosinophils in parasites-infected children in a tropical area
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World Allergy Organization Journal 2015, 8(Suppl 1):A223

Background: This study investigated the relationship between total IgE and Ascaris lumbricoides specific IgE and eosinophils in children from endemic areas to assess the Th2-type immune response in a population that comprised 205 children with aged 1-10 years, and of low socioeconomic status.

Methods: Fecal samples were analysed by the methods of Blagg and Kato-katz. The serum levels of total IgE and A. lumbricoides specific IgE were determined by ImmunoCAP (Pharmacia) and the eosinophils were counted in peripheral blood.

Results: The results showed a prevalence of 89% (182) for intestinal parasites. A. lumbricoides was detected in 140 (68%) children. The levels of total specific IgE and eosinophils presented values above those of standard reference (median 480 KU/L and 0.74 KUA/L and 8%, respectively). Total IgE, A. lumbricoides specific IgE and eosinophils were significantly higher in the A. lumbricoides positive children as compared to A. lumbricoides negative ones (p = 0.02, <0.01 and 0.03).

Conclusions: Our results showed that parasites intestinal infection, particularly A. lumbricoides, induced a Th2-type immune response with production of the total and specific IgE and eosinophils.

A224
Impact on hospitalization rates as a result of the implementation of a care programme for severe asthma patients in Espirito Santo, Brazil
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World Allergy Organization Journal 2015, 8(Suppl 1):A224

Background: To assess the rate of hospitalization before and after actions taken in the care of severe asthma patients receiving treatment through the Unified Health System.

Methods: From 2003 to 2009 the following actions were implemented by the local health system: training of health professionals; creation of a referral outpatient clinic with a multidisciplinary team and free pharmacological services. The number of asthma related hospitalizations was collected in the period from 2002 to 2013 and rates and percentages of hospitalizations were calculated and linear regression model performed to determine the trend over this period of time. Data concerning the dispensing of medications which are included in State List of Exceptional Medicines (budesonide + formoterol 12/400 mcg) and in the State Ordinance 054-R, 12/05/2009 (salmeterol + fluticasone propionate) were also evaluated.

Results: The period from 2004 to 2013, 2,600 patients with severe asthma were enrolled in the program and had access to treatment. Of these, 209 (13%) required 1,600 mcg of budesonide for asthma control and 43 (1.6%) were diagnosed with difficult to control asthma and initiated anti-IgE therapy with omalizumab. Over time there was a decreasing trend in the rate and percentage of hospitalizations for asthma. There was a 72% reduction in hospitalization rates which decreased from 1.6 in 2002 to 0.45 in 2013 (R² = 0.84). A reduction in the percentage of hospitalization from 2.58% in 2002 to 0.81% in 2013 (R² = 0.91) was observed.

Conclusions: The implementation of a program for severe asthma patients has allowed access to specialized care and provided medications for all steps of the treatment of asthma. The actions taken have resulted in a reduction in the rate and percentage of asthma related hospitalization.

A225
Occupational contact dermatitis due to captopril
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World Allergy Organization Journal 2015, 8(Suppl 1):A225

Background: Approximately 50% of adverse drug reactions to angiotensin-converting enzyme (ACE) inhibitors occur in the skin. While angioedema is a well-known adverse cutaneous reaction to ACE inhibitors, other skin reactions are uncommon. We report the case of a patient with occupational contact dermatitis due to skin contact of the ACE inhibitor captopril.

Methods: Literature review and case description.

Results: We assessed a 36 years old female with a history of palpebral and lips oedema, flaking and pruritus, for two months, especially during her work. She worked in pharmaceutical industry and was referred to our outpatient because she had noticed worsening after contact with residues contained in captopril packaging during its manipulation. She had improved when had no contact with the packages. She was treated with topical corticosteroids and oral antihistamines. We performed contact delayed reading test (patch test) with captopril in the concentration of 10%, resulting papules, vesicles and swelling at the application site. In addition, there was a negative reaction standard test series. We told her to avoid new exposures to this drug and others with cross reaction.

Conclusions: Adverse skin reactions to anti-hypersensitive drugs are not uncommon, eczema and rashes usually being caused by thiazides, amiloride or beta-blocking drugs. It is well known that ACE inhibitors elicit angioedema. However, there have been few reports of eczematous skin reactions to ACE inhibitors and all have been due to captopril intake. We reported a patient having occupational contact dermatitis to captopril through skin contact. Although an uncommon event, captopril may elicit eczematous allergic reactions which can be diagnosed by patch-testing.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A226
B cell subtypes' kinetics over a 6 monthths period in CVID patients submitted to influenza and H1N1 immunization
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World Allergy Organization Journal 2015, 8(Suppl 1):A226

Background: Common Variable Immunodeficiency (CVID) is characterized by hypogammaglobulinemia and impaired specific antibody production, resulting in increased susceptibility to infections, mainly of the respiratory tract. In an attempt to minimize the recurrent episodes of infections, some studies have recommended immunization with inactivated pathogens or subunits, however, experience with vaccine administration in immunodeficient patients is limited.

Methods: Therefore, we evaluated the kinetics of B cell subtypes and specific antibody production before and after influenza and H1N1 vaccinations in 35 CVID patients followed at the Division of Clinical Immunology and Allergy of University of São Paulo Medical School and 16 controls. In addition, we assessed the possible beneficial effect of vaccination in CVID patients through...
application of a symptoms score during a period of one year before and one year after immunization.

Results: Interestingly, after vaccination, patients presented a significant reduction on the symptoms score, however they did not produce H1N1 and influenza specific antibodies revealing low seroconversion and seroprotection rates when compared to controls. The analysis of B cell kinetics in cell cultures stimulated with Influenza lysate and hemagglutinin peptide following immunization demonstrated a premature expression of switched memory B cell and plasmablasts at 30 days post vaccination which was not maintained for 180 days as observed in controls. Compared to controls, high frequency upon stimulation at 180 days post vaccination was maintained only by marginal zone B cells. Plasmablasts frequency at any time point is strikingly lower than in controls.

Conclusions: Despite the defect on differentiation and maintenance of memory and plasmablasts with consequent low secretion of specific antibodies, we conclude that CVID B cell subpopulations were capable to recognize and proliferate with Influenza peptides stimulation. It is possible that composing with T cell activation and, marginal zone B cells could be battling to prolong humoral response while linking innate and adaptive immune system reflected by the considerable clinical improvement observed after vaccination.

A227

Effects of beta-glucan in a mice model of vaginitis by candida albicans

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World Allergy Organization Journal 2015, 8(Suppl 1):A227

Background: Vulvovaginal candidiasis is an inflammatory disease, on vaginal tissue, caused mainly by pathogenic yeasts of Candida albicans. The objective of this study was to evaluate the immunomodulatory activity of beta-glucan in mice with vulvovaginal candidiasis under the influence of estrogen.

Methods: Fifty four Balb/C mice of 7 to 10 weeks old under influence of estrogen were inoculated with 5x10^8 stationary-phase boutconidia of C. albicans, intravaginally. The mice were divided in three groups, treated with glucan vaginally (5mg/mL) and intraperitoneally (1mg/mL), and the control group that received saline, intraperitoneally. Vaginal lavage was obtained on days 2, 5, 8 e 10 after inoculation with C. albicans for the count of CFU by pour-plate method. Moreover, in the days 6, 9 and 11 after inoculation, three mice from each group were sacrificed and the vaginas were removed for histopathological analysis. The slides were stained by hematoxilin-eosin to evaluate the infiltrate of neutrophils and periodic acid-Schiff (PAS) for analysis of fungal burden.

Results: The mice treated with intraperitoneal and vaginal glucan showed smaller number of the CFU of C. albicans in the vaginal fluid, compared with control mice. However, just intraperitoneal group showed decrease of CFU statistically significant of 1.98 folds (p<0.01), in the 8 day that was confirmed with histopathological analysis. The groups treated with glucan showed greater infiltration of neutrophils compared with control group, but only vaginal group showed increase of neutrophils statistically significant of 3.3 folds (p<0.01), in the 9 day, compared to control group.

Conclusions: The data suggest that glucan may have an important activity in protection against vulvovaginal candidiasis associated to C. albicans.

A228

Utility of minor determinants in penicillin allergy skin testing

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World Allergy Organization Journal 2015, 8(Suppl 1):A228

Background: Penicillin allergy is a major concern among patients and physicians. There’s an estimated 5-10% self reported history of penicillin allergy by patients, but vast majority are not true hypersensitivities. Complete penicillin skin test with both major, minor determinants and amoxicillin is the test of choice for diagnosing IgE-mediated penicillin allergy. While Penicilloy pollysine (major determinant) is widely available, the minor determinants of Penicilloate and Penillate are not. The goal of this study is to investigate utility of using minor determinants to better detect IgE-mediated penicillin allergy.

Methods: In this retrospective study, inpatient penicillin skin test records were reviewed from past 6 years from one academic institution. All tests were done with major, minor determinants and amoxiillin along with positive and negative controls. Intradermals were done if prick testing was negative. Number of total positive tests, major determinant only positives, positives to each of the individual minor determinants, and positives to only amoxicillin were obtained.

Results: Of 528 subjects who underwent inpatient penicillin skin test from 2008-2013, 107 subjects (20.3% positivity) were determined to be positive from skin test based on a wheel >4mm accompanied by flare in setting of appropriate positive and negative controls. Of those positives, 39 subjects (36.4%) reacted to major determinant penicilloy, and only 13 (12.1%) reacted solely to penicilloy. 24 subjects (22.4%) reacted to penicilloy and 2 (1.9%) only reacted to penicilloate. 8 subjects (54.2%) reacted to penicilloate, and 25 (23.4%) only to penicilloate. 23 subjects (21.5%) reacted to penilloate, and 3 (2.8%) only to penilloate. 41 subjects (38.3%) reacted to amoxiillin and 8 (7.5%) only to amoxiillin. There were 41 subjects (38.3%) who only reacted to minor determinants (penicilloate, penilloate and/or penilloate). There were 68 subjects (63.6%) who reacted to a compound other than the major determinant.

Conclusions: This is one of the largest studies that examined the relative contributions of the various components of penicillin skin test to the detection of IgE-mediated penicillin allergy. While vast majority of administered penicillin is metabolized to the major determinant penicilloy moiety, it only accounted for a minority of total positive results in our data set. Reactivity only to minor determinants (penicilloate, penilloate and penilloate) and amoxiillin accounted for 63.6% of all the positive results. This study illustrates the utility of minor determinants and the importance of their inclusion in penicillin skin test.

A229

A survey study of medical knowledge about anaphylaxis

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World Allergy Organization Journal 2015, 8(Suppl 1):A229

Background: Anaphylaxis is a life-threatening, systemic hypersensitivity reaction, usually IgE mediated. It is the most severe form of allergic reaction and is almost always unexpected. Delay in treatment results in death by airway obstruction or vascular collapse.

Methods: We conducted an observational study with questionnaires about etioloogy, diagnosis and treatment of anaphylaxis between April and July 2014 at the Federal Hospital of Servidores do Estado/RJ.

Results: We evaluated 80 questionnaires answered by physicians (38 male) from various specialties. The majority of them were between 20 and 30 years-old. The most frequent specialties were Orthopedics and Pediatrics (22.5%). The graduation year was between 2005 and 2013 in 62.5%. Forty-six had already treated patients with anaphylaxis. The most frequent triggers were: drugs (22), food (20), insect stings (2) and others (2). The drugs cited were: NSAIDs (21), beta-lactam antibiotics (13), contrast media (9), NMBAs (2), latex (1), local anesthetics (1), colloids (1), captopril (1), and SMX-TMP (1). Food implicated were: sea food (16), shrimp (11), fish (4), milk (4), peanut (3) and egg (2). About first choice treatment of anaphylaxis, 38.3% answered that it was epinephrine IM, 32.5% said epinephrine SC, 13.8% corticosteroid IV, 10% epinephrine IV, and 2.5% antihistamines. Eighty-five percent of respondents referred those patients with anaphylaxis to allergists. Pediatricians treated the majority of cases of anaphylaxis (9), most of them caused by food. Pediatricians and physicians with more recent year of graduation cited the epinephrine IM as the appropriate treatment more often.
Conclusions: Anaphylaxis occurs as the result of allergen response, usually IgE mediated, which leads to mast cells and basophils activation and a combination of cutaneous, respiratory, cardiovascular, gastrointestinal, and neurological symptoms. Cutaneous and respiratory symptoms are the most common. The three most common triggers are food, insect stings and drugs. Epidemiological research is necessary for estimating the true prevalence and mortality. Education of health professionals is indispensable for recognition and management of anaphylaxis.

Clinical and epidemiological profile of patients with hereditary angioedema treated in a referral outpatient clinic in Vitória, Espírito Santo - Brazil

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Background: To assess epidemiological, social and clinical features of patients treated for hereditary angioedema in a referral outpatient clinic at Hospital Santa Casa De Misericórdia de Vitória, ES.

Methods: An observational, descriptive, cross-sectional study, based on a clinical-epidemiological survey of 51 patients with confirmed diagnosis of hereditary angioedema (HAE) from April 2011 to June 2014. Diagnostic confirmation was through the measurement of C4 and C1 inhibitor (C1-INH) quantitative and functional.

Results: Data from 51 patients, 29 (57%) females and 22 (43%) males, from 5 to 88 years old (mean: 32 years) was evaluated. Patients belonged to 7 families, 20 of them from the same family. The mean age of onset was 10 years and of diagnosis 26 years. Fifty (98%) patients were symptomatic, and 28 (55%) had experienced laryngeal edema. Deaths by laryngeal edema had occurred in 6 families. Crisis triggering factors were identified in 44 (86%) patients. Fifty-five (88%) patients presented HAE due to quantitative deficit of C1-INH. Maintenance treatment was required for 32 (63%) patients, of whom 26 (81%) used Danazol, 5 (16%) Tranexamic acid, and 1 (3%) both. Thirteen (26%) patients needed icabamt to treat 23 crises.

Conclusions: The diagnosis of HAE is still late and deaths due to severe attacks continue to occur. Therefore, it is important that health professionals are able to recognise and diagnose the disease and treat patients appropriately, as well as providing pharmacological services to control the disease.

Successful treatment of pregnant women with syphils and penicillin allergy

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A230

Background: Congenital syphilis (CS) is a transplacentally transmitted infection caused by Treponema pallidum that occurs in infants of untreated or inadequately treated mothers. The preferred treatment for syphils in pregnant women is penicillin. In patients with a history of penicillin allergy, skin testing and oral challenge should be performed. Penicillin desensitization is indicated for pregnant women with syphils who demonstrate immediate hypersensitivity to this drug.

Methods: We evaluated 6 pregnant women with syphils and history of allergy to penicillin. They were submitted to ENDA (European Network For Drug Allergy) questionnaire and skin tests (ST), prick and intradermal, to benzylpenicillin 10.000 U/mL with histamine as positive control and saline as negative control. The reactions were considered positive when the size of the initial wheal increased by 3 mm or greater after 15 minutes. We performed oral provocation test (OPT) with penicillin V in case of negative penicillin ST. Patients with negative OPT received the first dose of benzathine penicillin G 2.400.000IU IM at the hospital under supervision.

Results: Case 1: AV, 22 yo, VDRL 1:64. History of urticaria more than 1 hour after benzathine penicillin administration, nearly 9 months ago. Case 2: ACSC, 16 yo, VDRL 1:32. History of angioedema after amoxicillin intake (unknown interval between intake and reaction). She had 2 episodes of allergic reaction (last one was 1 year ago). Case 3: RSM, 38 yo, VDRL 1:64. History of urticaria minutes after benzathine penicillin administration at 14-years-old. Case 4: GFL, 18 yo, VDRL 1:32. History of allergic reaction to penicillin during her first years of life (unknown interval between intake and reaction; unknown clinical manifestation). Case 5: FAA, 16 yo, VDRL 1:1, positive TPHA. History of maculopapular exanthema 1 hour after benzathine penicillin administration. She had 2 episodes (at 5 and 12-years-old). Case 6: MA, 29 yo, VDRL 1:4. History of allergic reaction at the site of the injection of benzathine penicillin 1h after administration. She had 2 episodes before 1 year-old. All patients had negative tests (ST/OPT) and received treatment with penicillin without reactions.

Conclusions: Adequate treatment of syphils in pregnancy is crucial for prevention of CS. A reliable diagnosis is difficult in patients with a vague history of penicillin allergy. ST and OPT can be used for the evaluation of the hypersensitivity in order to decide whether desensitization is appropriate.

Consent: Written informed consent was obtained from the patients for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

Unmet needs in allergic rhinitis: international survey on management of allergic rhinitis by physician and patient. The physicians’ view (ISMAR 2 study)

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A232

Background: Allergic Rhinitis (AR) is a worldwide spread illness having an important impact on social life, sleep quality, school, and work productivity and huge costs. Patient preference is becoming an important aspect in medical care. ISMAR was designed as the first-over global survey to identify differences in attitudes and preference in patients and physicians about AR. ISMAR 2 is the second phase.

Methods: ISMAR is an international, multicenter, non-interventional, cross-sectional study in adults and children (≥ 6 years) with physician-diagnosed AR of at least 1 year of duration conducted in Algeria, Egypt, United Arab Emirates, Qatar, Kuwait, India, Islamic Republic of Iran, Pakistan, and Saudi Arabia.

Physicians (GPs/Family doctors/internists, pediatricians, allergists/pulmonologists, and ENT) working in public and private sectors or both were selected from master lists of physicians attending AR patients and invited to participate in the study. They answered to the Investigator’s Questionnaire (guidelines awareness, relevant AR symptoms, and preference for prescribing medication among others) and recruited consecutive patients to whom the ISMAR questionnaire was administered. Data collection was performed during a single visit. A patient’s questionnaire and a Case Record Form were also filled in. Statistical analysis was descriptive. Herein we are showing the physician’s view.

Results: One hundred and seventy eight physicians participated. They were aware about ARIA (83.6%) and GINA (76.4%) and followed them to classify patients severity (83.7%) and for choosing the treatment accordingly (82.0%). Key symptoms to diagnose AR were congestion (85.4%), sneezing (93.3%), and anterior watery rhinorrhea (89.3%). SQ and AR severity were assessed mainly by clinical history (93.8% and 98.7 %). The most commonly tests were serum total IgE (52.8%), eosinophilia (50.0%), x-rays (48.9%), CT scan (44.4%), and allergen skin tests (39.3%).
The main reasons to prescribe medication were symptom severity/frequency (98.3%), drug efficacy (80.3%) and safety (78.7%). Other less relevant reasons were personal experience (60.7%), route of administration (55.1%), cost (52.8%), and frequency of doses (48.9%). The preferred medications were oral anti-H₁, antihistamines (Oa-H₁: 68.5%) and intranasal corticosteroids (ICS: 64.0%) [in a 0–5 scale].

Conclusions: Guidelines are well known and useful to physicians. Clinical history was the main instrument to evaluate patient's SO, classification and severity of AR, and choice of treatment. Allergen skin tests were not commonly performed. Oa-H₁ and ICS were the most widely recommended treatment for AR and were considered effective and safe.

Acknowledgements: The ISMAR study was supported by Sanofi

A233
Evaluation of patients with angioedema in accompaniment in the allergy and immunology HSPE / SP
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Background: Angioedema is defined as delimited edema that compromises dermis and subcutaneous. May have different causes such as hypersensitivity, autoimmune, idiopathic, physical factors, angiotensin-converting enzyme inhibitor and C1 esterase inhibitor consumption or disability. The pathophysiological mechanisms depend on the cause. In addition to detailed history, additional tests are needed for targeting of etiology. Our Objective was evaluate the profile of patients treated in outpatient Angioedema Allergy and Immunology HSPE.

Methods: We included patients from the Allergy and Immunology Service, attended between January 2013 and June 2014, with angioedema as the main symptom. The following tests were ordered: Blood count, IgE, TSH, FT4, anti-TPO and anti-TG, ANA, RF, complement (C3, C4, CH50, C1q, C1 esterase inhibitor), CEA, CA 125, CA 19.9 and PSA. In addition, research allergic (immediate skin test, patch test, specific IgE test for physical urticaria, drug provocation when necessary) was also performed.

Results: Of the 110 patients with a mean age of 54.4 years, 50% were female. Only 20% have a family history of angioedema and 42.7% have a personal history of atopy. Among the possible triggering, ACE inhibitors and NSAIDs and were the most prevalent, accounting for 20.9% and 29.1% respectively, followed by ARB (8.9%), food (8.2%), contactants (7.3%) and others (2.7%). Patients under investigation and no defined causes account for 22.7%.

Conclusions: We observed in this sample that the drugs were the most common triggers of angioedema, with greater relevance to the association with NSAIDs and ACE inhibitors. Patients with urticaria were mainly associated triggering the use of NSAIDs, while in cases associated with ACE inhibitors did not observe reports of urticaria.

A234
The importance of tacrolimus in the treatment of allergic keratoconjunctivitis
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Background: Keratoconjunctivitis (KC) is an eye disease that potentially leads to blindness if not treated properly, which often requires follow-up for more than an expert. The aim of this study is to evaluate the response of topical tacrolimus in allergic keratoconjunctivitis.

Methods: A longitudinal study of series of cases conducted between September/2013 and June/2014, with 24 patients followed in Ocular Allergy and Ophthalmology. Hospital das Clínicas of the Federal University of Pernambuco. The patients included in the study had symptoms such as: itching, burning, redness and/or edema uncontrolled medical monitoring initial and were then taken to the ophthalmologist for defining more specific treatment.

Results: The median age was 10 years, with 15 male patients (62%). Of the 24 patients, 14 (58%) patients had allergic rhinitis, 7 (29%) had a diagnosis of asthma and rhinitis associated and 2 (8%) had rhinitis, asthma and atopic dermatitis. All were using medications for rhinitis and/or asthma continuously. Regarding the treatment of conjunctivitis, only 1 patient (4%) used systemic steroid treatment for symptoms, while in cases of symptoms using mast cell membrane stabilizer, 6 (25%) have control of symptoms using mast cell membrane stabilizer and antihistamine, others 6 (25%) necessary to add an ocular lubricant. In 11 patients (46%) with severe allergic KC was necessary to associate a topic corticosteroids and 5 (45%) of these group became steroid-dependent, only reaching remission of symptoms with tacrolimus 0.03% ophthalmic ointment. All patients who used tacrolimus reported improvement in signs and symptoms and adverse events were limited to the local burning in one patient who interrupted treatment, despite that improvement of edema and hyperemia.

Conclusions: Allergic rhinitis is very common in patients with KC, underscoring the importance of joint processing for clinical improvement. The use of topical tacrolimus 0.03% in and out of the conjunctival sac seems to be in the short term, effective, well tolerated and safe in the treatment of allergic conjunctivitis refractory to traditional treatment, and avoid prolonged corticosteroid therapy and its associated side effects, such as hypertension eye piece.

References:

A235
Gene polymorphisms as susceptibility factors in Brazilian asthmatic children and adolescents
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Background: Asthma is a complex disease due to the contribution of both genetic and environmental factors. Several genes and polymorphisms have been associated to asthma susceptibility and development, leading to distinct clinical patterns. The aim of this study was to analyze sixteen genetic polymorphisms in eleven genes previously associated to asthma in a Brazilian family-based population study.

Methods: Sixteen single nucleotide polymorphisms (SNPs) in TNF, IL6, IFNG, TGFβ1, IL10, CD14, TLR4, TLR7, TLR8, FLG, ADRB2 genes were genotyped in 311 family trios (n=994), by SSP-PCR or allelic-specific Taqman assay techniques. PLINK and Haplovew softwares were used for data analysis.

Results: TDT analysis showed that, among the 16 SNPs studied, three SNPs were associated to susceptibility to the development of asthma, rs1800629 (TNF-308) minor allele (p=0.0031; OR=0.5), rs1800795 (IL6-174) minor allele C (p=1.87exp-7; OR=0.35) and rs1800471 (TGFβ1+915) minor allele C (p=1.34exp-8; OR=0.11) were significantly less frequently transmitted within the families, suggesting a protective effect of these alleles against the development of asthma. After ethnicity stratification, the same SNPs showed significant association in White patients (n=168), but not in Mullato patients (n=154) for TNF-308A, which is possibly related to number of patients analyzed in this population. IL6-174, TNF-308 and TGFβ1+915 haplotype association analysis showed risk to asthma (GGG, OR=5.3, p=1E-5) and protection to asthma (CGG, OR=0.24, p=1E-4).

Conclusions: Our results revealed a protective association of TNF-308A, IL6-174C e TGFβ1+915C variants in a Brazilian family-based association study confirming previously reported data and established two new haplotypes conferring asthma susceptibility.

A236
Evaluation of TH17 profile in common variable immunodeficiency patients with or without autoimmunity
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Background: Common Variable Immunodeficiency (CVID) is the most common symptomatic primary antibody deficiency in clinical practice and it is characterized by hypogammaglobulinemia, increased susceptibility to infections, autoimmune diseases and malignancies. The pathogenesis of CVID is still not well established. Immunologic abnormalities found in CVID patients include defects in B cell differentiation, in T cell function, altered receptor expression and cytokine production, regulatory cell disturbances and disorders of innate immunity. The aim of this study was to evaluate the T\(_{\text{H}17}\) profile of CVID patients, in order to observe if CVID patients with autoimmunity present a T\(_{\text{H}17}\) polarized cellular response pattern.

Methods: Forty two CVID patients were recruited from the PID outpatient clinic, Clinical Immunology and Allergy Division of HC-FMUSP, being 17 with and 25 without autoimmunity. T lymphocyte characterization was done by flow cytometry using the following panels: activation panel (CD3, CD4, CD8, HLA-DR, CD38, CD69, Live/dead); regulatory T cells panel (CD3, CD4, CD8, CD25, CD39, CD45-RO, CD127, Live/dead, FoxP3); and functional panel - upon 5 hours stimulation - (CD3, CD4, CD8, Live/dead, TNF-\(\alpha\), IFN-\(\gamma\), IL-2, IL-17, IL-21).

Results: No difference was found in the T\(_{\text{H}17}\) profile (% CD4\(^+\)IL-17\(^+\) cells) between CVID patients with/without autoimmunity. Likewise, T\(_{\text{H}17}\) profile was not different when all CVID patients were compared to controls. We observed a reduction in Treg frequency in CVID patients with autoimmunity in comparison to patients without autoimmunity as well as controls. CVID patients presented increased expression of activation markers in CD4 and CD8 T cells when compared to controls. Finally, increased percentage of IL-17 producing CD8 T cells (Tc17) was observed in patients with autoimmunity.

Conclusions: We conclude that in CVID, T\(_{\text{H}17}\) cells may not be responsible for the induction of autoimmunity which is possibly consequent to the several immune dysregulations found in this immunodeficiency. More studies are necessary to establish T\(_{\text{H}17}\) and Tc17 function in CVID pathogenesis.

A238
Rare clinical concomitancy in female patient: still syndrome and omeprazole pharmacoderm - case report
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World Allergy Organization Journal 2015, 8(Suppl 1):A238

Background: Adverse drug reactions account for 11.5% of hospitals admissions (MASTROIANNI et al). Among the drugs involved in the etiology of these reactions, Omeprazole is one of the most frequent. Although this approach unusual conditions, we can highlight the Still syndrome, systemic inflammatory disease (OWLIA MB, MEHRPOOR G). By coursing with similar dermatological symptoms, the physician must have an active critical thinking and pharmacological knowledge determined to establish the differential diagnosis of the disease as the presenting symptoms.

Methods: In this case report, we describe drug eruption associated with Omeprazole in a patient previously diagnosed with Still Syndrome.

Results: After extensive medical history taken by the allergist, the patient revealed chronic use of Omeprazole for over ten years, so far not reported for the same. Thus, the suspension was indicated in the use of drug rash with complete remission. Endocrine, skin, nerve and muscle disorders, although rare, may also occur in the patient who makes use of such drug. In this sense, the cutaneous reactions of the type erythematous rash are symptoms that, although rare, may also manifest in patients, as reported in this case. Diseases like Still syndrome can mimic dermatological picture with the same cutaneous manifestations (OWLIA MB, MEHRPOOR G), which contributed to the difficult elucidation of this urticaria and angioedema diagnosis.

Conclusions: The resolution of the urticaria and angioedema presented by the patient was only possible thanks to an accurate anamnesis with her, added to the fact of medical knowledge about the medicinal drug (reaction to Omeprazol), including those more rare, which ratifies the need for critical thinking reactions and pharmacological knowledge of the professional in your work routine.

A239
Unmet needs in allergic rhinitis: international survey on management of allergic rhinitis by physician and patient: the optimal management (ISMAR 2 study)
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Background: Allergic Rhinitis (AR) is a worldwide spread disease and has an important impact on social life, sleep quality (SQ), school and work productivity and huge costs. ISMAR was designed to identify attitudes and trends among physicians managing AR in different parts of the world. ISMAR 2 is the second phase.

Methods: ISMAR is an international, multicenter, non-interventional, cross-sectional study conducted in adults and children (≥ 6 years) with physician diagnosis-AR of at least 1 year of duration. Physicians recruited consecutive patients to whom the ISMAR questionnaire was administered.

Data collection was performed during a single visit. Other 2 additional documents (the investigator’s questionnaire and Case Record Form) were also filled in. Statistical analysis was descriptive. For statistical inferences, Student t or Wilcoxon test were performed according to the variables normality. Herein we show the results on Patient Optimal Management.

Patients fulfilling the following criteria were considered as optimally managed:
- Patient education, environmental control and allergen avoidance.
- Optimal pharmacological treatment according to ARIA guidelines.

**Results:** Two thousand three hundred patients (2298 were analyzed), mean age 28.8 ± 15.9 years, 54.4% of males were included in 5 new countries and in 4 countries (new centres) that already participated in ISMAR phase 1. The nasal symptoms frequency was > 4 days per week (29.5%), < 4 consecutive weeks (19.5%), > 4 days per week (29.1%) and > 4 consecutive weeks (21.8%) [N=2207]. 85.7% of patients had never smoked. Current smokers suffered most commonly of persistent rhinitis (61.3%). Patients reported having within the past 12 months, most frequently: recurrent cough (57.1%), nocturnal cough (40.8%), recurrent dyspnea/breathlessness (36.5%), dyspnea/breathlessness after exercise (33.1%), recurrent wheezing (32.1%), cough after exercise (29.8%), nocturnal dyspnea/breathlessness (29.5%). AR symptoms impaired sleep (63.5%), mood (61.9%), physical activities (50.4%), and working performance (42.1%). 96.3% of patients received recommendations to avoid allergens and irritants. 96.6% were receiving AR treatment, mainly antihistamines and nasal corticosteroids but also anti-leukotrienes and nasal and oral decongestants. 55.8% of patients had an optimal treatment. Patients with a frequency of nasal symptoms > 4 days per week and > 4 consecutive weeks and those with recurrent dyspnea/breathlessness appeared as more frequently optimally managed (p<0.001 and P=0.018, respectively).

**Conclusions:** This study shows that optimal management in terms of cross-reactivity and cross-tolerance of various CM in DHRs, especially in CM skin-test negative patients.

**Consent:** Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

### A241

**Investigation of the positivity profile for the skin prick test in children infected with parasites in the metropolitan region of Pernambuco, Northeast of Brazil**


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**World Allergy Organization Journal 2015, 8(Suppl 1):A241**

**Background:** Parasitic infections induce Th2 cell immune profile and modulate the symptoms of asthma and rhinitis. The objective is to analyze the modulation of parasitic infection in the skin prick test profile in children with asthma from two localities in the metropolitan region of Recife - Pernambuco.

**Methods:** Children between 2 and 14 year old were submitted to a parasitological study using the Hoffman, Pons e Janer (3 blades) method and the Kato-Katz (2 blades) method. The ISAAC questionnaire was applied to collect informations related to asthma. The Skin Prick Test was applied using extracts of Dermatophagoides pteronyssinus (DP), Blomia tropicalis (BT), Batella germánica (BG), Periplaneta americana (PA), fungus and cat epithelium (EPC).

**Results:** Sixty-two children were registered, 35 (65,17%) classified as having asthma by ISAAC. Between asthmatics 11 (31,42%) were infected with parasites and 24 non-infected (68,58%). Among non-asthmatic children (n=27, 43,54%), 25 were infected (92,6%) and 2 non-infected (7,4%). The parasites identified in asthmatic children were Enterobius vermicularis (n=2, 18,18%), Ascaris lumbricoides, Trichuris trichiura and Angiostrongylus sp (n=1, 9,09%), Giardia lamblia (n=5, 45,45%), T. trichiura and Angiostrongylus sp (n=1, 9,09%), T. trichiura and A. lumbricoides (n=1, 9,09%), T. trichiura (n=1, 9,09%), within the non-asthmatic were A. lumbricoides (n=3, 12, G); L. lambia (n=10, 40%), T. trichiura (n=6, 24%), Schistosoma mansoni (n=1, 4%), Angiostrongylus sp (n=2, 8%), S. mansoni, T. trichiura e Angiostrongylus sp (n=1, 4%), T. trichiura, A. lumbricoides and Angiostrongylus sp (n=2, 8%). The prick test was positive in 18 children (29,03%), with 7 infected (11,29%) and 11 not infected (17,74%). The positivity profile of the prick test were 2 children only for DP (11,11%), 1 for BT (5,53%), 11 for DP and BT (61,11%), 1 for DP, BT and fungus (5,53%), 1 for DP, BT, BG, PA and EPC (5,53%), and 1 for BT,BG and PA (5,55%).

**Conclusion:** The parasitic infection was more frequent in non-asthmatic children. It was not possible to verify alterations in the positivity of the prick test among asthmatic children and the association with parasitic infections. The most frequent allergens in the positivity of the prick test was Dermatophagoides pteronyssinus and Blomia tropicalis.

### A242

**Notalgia Paresthetica as a differential diagnosis of chronic itching: report of two cases**

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**World Allergy Organization Journal 2015, 8(Suppl 1):A242**

**Background:** Notalgia Paresthetica is part of the differential diagnosis of chronic itching. For years it was confused with one of the clinical varieties of cutaneous amyloidosis, being called “dorsal amyloidous lichen”, however, it was observed that the deposition of amyloid substance is not the cause, but the consequence of pruritus. It is characterized by itching and hyperpigmentation, usually in the scapular region. Symptoms appears in the areas of T2 to T6 dermatomes and affect more frequently females above 50 years. The pathophysiology
involves the anatomical path of the spinal nerves, as well as neuropeptides released by nerve fibers in the peripheral nervous system. Some works relate it to the changes in the spine (compressions, hernias and trauma). The diagnosis is clinical with complementary examinations, such as CT and MRI. There is not a specific treatment, requiring a multidisciplinary approach.

Methods: Report of two cases of notalgia paresthetica as a differential diagnosis of chronic itching.

Results: In 2013 we had two female patients, 43 and 48 years old, both with hyperchromic brownish spots on the dorsal region and one also with supra umbilical lesion. Both without continuous use of medications. One of them complaining of recurrent candidiasis for 5 years, which was investigated revealing IgA deficiency associated. For the differential diagnosis of chronic itching, after detailed anamnesis, laboratory tests and imaging studies were requested:

- Patch test: weak reactor for Potassium Dichromate and Ammonium Thioglycolate (48h/96h: +/+) in only one of the patients.
- Prick test: negative.
- One of them performed MRI with paramedial disc protrusion to the left between C4 and C5, diffuse disc bulging rectifying the ventral dural sac between C5-C6, and disc protrusion compressing the ventral dural sac between C7-T1. The other patient underwent CT, with marginal osteophytes in the vertebral bodies, Schmorl nodes in vertebral plateaus of D8 and D11.

Conclusions: Notalgia Paresthetica is usually an undiagnosed disease, so, most professions treat only the symptoms. The correct diagnosis is necessary for appropriate treatment.

A244

Specific IgE test: sex, age and pathologies that most require this test in a Northeastern City of Brazil

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World Allergy Organization Journal 2015, 8(Suppl 1):A244

Background: The measurement of total serum IgE is made in some cases to investigate if there is the occurrence of allergic processes. However, does not identify specific antibodies. When it is high may indicate an allergic process, or the ability to initiate some. However, increased IgE levels may also indicate other problems such as parasitic diseases, IgE myeloma, hyper-IgE syndrome and some stages of HIV infection. Therefore, to make a diagnosis of allergy is interesting to use other allergy tests, such as specific IgE (RAST) or prick-test. We surveyed data from patients who underwent the examination of serum total IgE to know which allergic diseases that most affect the examination, which gender and age group most affected, and also calculated an average of IgE in each pathology or group of pathologies.

Methods: A retrospective observational study of the period 2010 to 2013 was conducted, we analyzed the key data from patient files of an Allergy and Immunology’s public ambulatory service in the city of Campina Grande, who had undergone the examination of serum total IgE.

Results: Among the 100% investigated (n = 100), 52% were male and 48% female. 61% of range 0-10 years, 10% of 10-20 years old, 13% of 20-30 years old, 9% of 30-40 years old, 3% of 40-50 years old, 4% of 50-60 year old. As pathologies, 27% had allergic rhinitis averaging 379.33 KU / L of total IgE. 18% had Bronchial Asthma averaging 223.89 KU / L of IgE. 11% had the association Allergic Rhinitis and Bronchial Asthma averaging 453.85 KU / L of total IgE, 8% had Atopic Dermatitis with an average of 931.6 KU / L of IgE, 9% had Food Allergy averaging 199.89 KU / L of IgE, and 27% other diseases or associations.

Conclusion: We conclude that in this service there is an equivalence between the number of men and women who have changes in examination of IgE. We have also seen that children and adolescents are the most feature changes and perform the test. Furthermore, we showed that the majority of patients with high IgE levels has allergic rhinitis, although the values are higher in patients with atopic dermatitis.

A245

Study of bronchial hyper-reactivity in patients with allergic rhinitis in an urban Indian setup

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World Allergy Organization Journal 2015, 8(Suppl 1):A245

Background: The concept of Atopic march was developed to study the progress of Atopic Dermatitis to Allergic Rhinitis to Asthma. Epidemiologic studies have constantly demonstrated strong associations between Rhinitis and Asthma. Bronchial hyper-reactivity is an important component in the definition of Asthma. Many patients with Allergic Rhinitis have lower Airway hyperreactivity or bronchial hyper-reactiveness without obstructive ventilatory defect on PFT indicating that such patients may have a risk of developing Asthma. Most of these studies have been conducted in the Western countries. Our study aimed to detect the presence of Bronchial hyper-reactivity in patients with Allergic Rhinitis with normal lung function tests in our set up.

Methods: In our study, 40 patients of Allergic Rhinitis with normal PFT were screened by Bronchial Challenge Tests (BCT) for the presence of Bronchial hyperreactivity after obtaining required ethical clearance from the Institutional Ethics Committee.

Observations: Allergic Rhinitis, especially without any respiratory presentation was commonly seen in the younger age group. The study population comprised of predominantly male patients. Majority of the patients in the study had Mild Allergic Rhinitis. More than half the study population had Bronchial Hyper-reactivity. Of these, majority had severe Bronchial Hyper-reactivity. It was found that as the duration of symptoms increased in years, the concentration of Histamine at which the BCT was
positive decreased and the correlation was found to be significant. No significant correlation was found between Allergic Rhinitis and Eosinophilia. Also, no significant correlation was found between Bronchial Hyperreactivity and Eosinophilia. A significant positive correlation was found between family history of Allergic Rhinitis and Asthma and BCT. Our study showed a significant positive correlation with Atyopy and BCT.

**Conclusions:** Allergic Rhinitis patients with Atopy are likely to be BCT positive and as a result likely to develop Asthma in the future. As the duration of Allergic rhinitis symptoms increased in years, the concentration of Histamine at which the BCT was positive decreased. Bronchial Challenge tests can be used as a screening tool in patients with Allergic Rhinitis to know the likelihood of developing asthma.

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**A246**

**Omalizumab in symptomatic therapy of laryngeal oedema and urticaria attacks in a patient with post operative pulmonary carcinoid tumor**

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World Allergy Organization Journal 2015, 8(Suppl 1):A246

Omalizumab has been investigated in various other conditions including chronic urticaria (CU), perennial and seasonal allergic rhinitis (AR), pruritic bullous pemphigoid, latent allergy, peanut allergy, idiopathic anaphylaxis, hyper-IgE syndrome, chronic rhinosinusitis, interstitial cystitis, aspirin sensitivity, mastocytosis, eosinophilic gastroenteritis and atopic dermatitis. Most patients with chronic urticaria have an autoimmune cause: some patients produce IgE autoantibodies against autoantigens, such as thyroperoxidase or doublestranded DNA, whereas other patients make IgG autoantibodies against FcεRI IgE, or both, which might chronically activate mast cells and basophils.I had a male patients with food allergy with pulmonary carcinoid tumor, aged 23. Autologous Serum Skin Test, Anti Nuclear Antibody,and hepatitis markers (HBsAg, HBsAb, anti HCV HIV, thyroid antibodies were negative in patients. Liver, thyroid, and renal function tests, serum IgG, IgA, IgM, levels were within normal ranges. Skin prick tests (SPTs) were highly positive for kiwi, tomato, fish, orange. The specific IgE levels were correlated with the SPTs. Total IgE level were 960 IU/L (normal range=0-100 IU/L).A mass was defined on lobe lobe of left lung on computerized tomography. PET CT SUVmax6. The patient was operated. In postoperative period, he had recurrent laryngeal oedema and urticaria attacks. Omalizumab treatment planned because of the patient was resistant to antihistamines and steroids.

For the very first time, we used omalizumab in symptomatic therapy of recurrent laryngeal oedema and urticaria attacks in a patient with postoperative pulmonary carcinoid tumor for eight months. During the four years of follow-up, no recurrences was noted in carcinoid tumor. Control PET CT and CT results revealed normal findings. After omalizumab treatment, symptoms were decreased. Oral antihistamines and mast cell stabilizing drugs used for treatment afterwards. Oral steroid was given only once. Recent sutudies show that, Pooled data analysis revealed that a causal relationship between omalizumab therapy and malignancy is unlikely.

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**A247**

**The administration of clopidogrel attenuates airways hyperresponsiveness and airway inflammation in an ovalbumin specific allergic asthma model**

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**Background and objective:** Cysteinyl leukotrienes (LTs) contribute to airway inflammation by interacting with type 1 and 2 cysteinyl leukotriene receptors as well as not clearly known type 3 leukotriene receptors. In contrast to LTC4 and LTD4, LTE4 is weak agonist at type 1 and 2 cysteinyl leukotriene receptors. Although LTE4 plays a key role in airway inflammation, our understanding of its potential receptor remains unclear. We investigated the effects of clopidogrel in the development of allergic airway inflammation using mouse asthma model and eosinophil cell-line.

**Methods:** BALB/c mice were sensitized by intraperitoneal injection of ovalbumin (OVA) on days 0 and 14, followed by 3 nebulated OVA challenges on days 28-30. On each challenge day, 30mg/kg clopidogrel was administered through intragastric administration 30 minutes before challenge. 48 hours after OVA challenge, mice were assessed for airway hyperresponsiveness (AHR), cell composition and cytokine levels in bronchoalveolar lavage (BAL) fluid. Human eosinophil EOL-1 cells were treated with LTE4 with or without clopidogrel, and intracellular and extracellular eosinophil cationic protein (ECP) expression were investigated by Western blot and ELISA, respectively. Finally, CC ligand 5 (CCL5) levels in BAL fluid were measured by ELISA. Our experiments were approved by Institutional Animal Care and Use Committee of Ajou University (IACUC #152).

**Results:** The administration of clopidogrel decreased AHR and airway inflammatory cell numbers including eosinophil in BAL fluid following OVA challenge (P<0.01, respectively). These results were associated with decreased levels of Th2 cytokines and CCL5, but not Th1 cytokine in BAL fluid. In histological analysis, the inflammatory cells in peribronchial and perivascular areas as well as mucus-containing goblet cells were also decreased in the clopidogrel administered mice compared to vehicle treated mice (P<0.01). LTE4 stimulation decreased intracellular expression of ECP but this expression was attenuated by pre-treatment of clopidogrel.

**Conclusions:** Clopidogrel could prevent the development of AHR, airway inflammation, and cytokine production in allergen challenged mice through the inhibition of eosinophilic activation. Clopidogrel could be a novel therapeutic target for asthma treatment.

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**A248**

**Unusual presentation of Omenn syndrome: case report**

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**Objective:** Omenn syndrome (OS) is a rare autosomal recessive disease. Several cases have been reported with the usual clinical presentations of dermatitis, alopecia, chronic diarrhea, recurrent infections or failure to thrive. We report the first Emirati case with unusual presentation of presumptive intestinal obstruction proved to be OS via molecular analysis.

**Introduction:** OS characterized by symptoms of severe combined immunodeficiency (SCID), in association with the cardinal triad of hepatoplasenomalge, lymphadenopathy and erythroderma. Immunological defects are rarely present at birth and generally occur during the first months of life with hypereosinophilia, hypogammaglobulinemia, high IgE levels in spite of lacking circulating B cells. Different mutations are responsible for this syndrome. OS is fatal without hematopoietic stem cell transplantation.

**Case report:** F.N. is an Emirati girl born at term to first cousin healthy parents weighing 3 Kg. Over first 2 weeks of life she started to have progressive diffuse exfoliative erythematous rash, started from the scalp vertex. At 5 weeks of age she was admitted to the hospital for bronchiolitis. At 7 weeks of age she was readmitted for a right arm abscess management. As she was having alopecia including eyebrows and eyelashes, she was evaluated by dermatologist and their impression was seborrheic dermatitis. Moreover, she started to have feeding intolerance with bilious vomiting. The radiological studies showed signs of partial intestinal obstruction. As her clinical condition was worsening, she was shifted to Pediatric Intensive care Unit, where her weight loss, lymphadenopathy, and progressive hepatoplasenomalge were emphasized. Laboratory findings were significant for eosinophilia, anemia and hypoalbuminemia. Accordingly, more investigations were directed towards an immunodeficiency disorder. Results showed hypogammaglobulinemia; low IgG (<2 g/L), IgM (<0.4 g/L) and IgM (<0.22 g/L), but high IgE level (31g/L). Flow cytometry result: B-cells (CD19) absent, T cells increased (97%) with abnormal distribution of CD4 and CD8 and normal natural killer cells (2.7%). Mutation analysis confirmed Homozygous RAG1 gene mutation. Diagnosis of OS was confirmed and she underwent HSCT successfully abroad.
Conclusion: Early diagnosis of OS is crucial to initiate appropriate treatment, since it is lethal when hematopoietic stem cell transplantation is delayed. In addition to the classical clinical presentations, other unusual clinical presentations are not uncommon as in our case. Molecular analysis is now available to determine the exact diagnosis or to serve as a tool for genetic counseling and prenatal diagnosis.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A249 Medical knowledge on managing anaphylaxis in northeastern brazil
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Background: To assess the medical knowledge on the management of anaphylaxis in emergency (non-pharmacological actions, pharmacological approaches, biphatic anaphylaxis reaction) at the Hospital of Trauma e Emergência Dom Gonzaga Fernandes, located in Campina Grande-PB.

Methods: A descriptive cross-sectional study with a questionnaire to 60 physicians working in Hospital de Trauma e Emergência Dom Gonzaga Fernandes em Campina Grande-PB.

Results: No pharmacological actions, pharmacological measures, and knowledge of biphatic anaphylaxis reaction were approached. As non-pharmacological measures, maintenance of respiratory tract was cited by 48 physicians, whereas attention to hydration, intravenous access and patient positioning were cited by 12 doctors. As pharmacological measure, adrenaline was mentioned in 48 questionnaires as the primary drug, nine physicians reported corticosteroids as primary drug and three physicians cited antihistamine. As a route of adrenaline administration, they were mentioned: subcutaneous (39,6%), intravenous (22,9%), intramuscular (29,2%) and 8,3% did not know. About the local administration of epinephrine: 70,8% did not answer, 10,4% cited the forearm, 6,3% cited the abdomen and 12,5% cited the thigh. About patients with beta-blockers and refractory to treat anaphylaxis, an indication of glucagon to control food allergy was mentioned.

Conclusions: Anaphylaxis is a potentially fatal entity, whose incidence and severity are increasing, but remains significantly under-diagnosed and under-treated.

A250 Diffuse bullous cutaneous mastocytosis in an indigenous child of the Amazon Region of Ecuador
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Background: Diffuse Bullous Mastocytosis is a very rare variant of Cutaneous Mastocytosis. It is characterized by a diffuse infiltration of the skin by mast cells manifesting as yellowish, thickened doughy skin with appearance of large blisters. This is the first report of a case of this condition in an indigenous child of The Amazon region of Ecuador.

Methods: We report a 1-year-old female infant with history of recurrent episodes of vesicles bullous lesions on bilateral upper and lower extremities since 4 months old. She has presented four widespread critical episodes that required treatment in an Emergency department over the last 9 years. She had only received primary care attention.

When the patient consulted at the Dermatology outpatient department, She presented generalized dermatosis characterized by a polymorphism injury; urticarial wheals, erythematous vesicles and blisters, postinflammatory hyperpigmented macules, facial and eyelid angioedema, moderate pruritus. Also, target lesions on palms and soles. Systemic examination was within normal limits.

Skin biopsy from an axilar lesion showed subepidermal bulla and an upper dermal inflammatory infiltrate comprising of lymphocytes and many mast cells. The overlying epidermis with spongiosis and intraepidermal blister. It was diagnosed as Diffuse Cutaneous Mastocytosis and the child was remitted to the Allergy department.

Results: After 3 weeks of short course of prednisolone (1mg/kg) along with H1 and H2 receptor antagonists, the control of the symptoms was obtained. General and specific recommendations were also provided.

Conclusions: This is the first report of a case of Diffuse Bullous Mastocytosis in an indigenous child of The Amazon region of Ecuador. This diagnosis was made possible by the improvement in health services attention specialist trained in the Amazon region of Ecuador.

A251 Eosinophilic esophagitis prevalence in adults with dysphagia or heartburn: preliminary results
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World Allergy Organization Journal 2015, 8(Suppl 1):A251

Background/aim: Eosinophilic esophagitis (EoE) is a chronic immune-mediated condition characterized clinically by esophageal dysfuction and pathologically by infiltration of > 15 eosinophils per high-powered field (HPF) in the esophageal mucosa, since other causes of esophageal eosinophilia (including proton-pump inhibitor responsive esophageal eosinophilia [PPI-REE]) are excluded. It occurs worldwide especially in children and adults < 40 years, affecting notably Caucasian male. Treatment includes dietary elimination of food allergens and topical corticosteroids.

The aim of this study is to determine the prevalence of EoE in adults with dysphagia or heartburn followed in the Immunology and Gastroenterology Services of the Hospital Universitario Antonio Pedro, Universidade Federal Fluminense, Niterói, Brazil.

Methods: Prospective study. Patients complaining of heartburn for more than twice a week, dysphagia or food impaction were submitted to a clinical questionnaire and upper gastrointestinal endoscopy (UGE) to exclude specific causes. If the chief complaint was dysphagia and UGE was normal or revealed typical EoE features, biopsy was performed in proximal, medial and distal esophagus, gastric antrum and duodenum.

For the ones with heartburn and erosive eosinophil or normal UGE, treatment with PPI was offered for 8 weeks and biopsy was also performed in case of non response. Patients with dysphagia and histological criteria of EoE (> 15 eosinophils/HPF in the esophagus only) received PPI for 8 weeks and repeated biopsy to distinguish EoE from PPI-REE. Skin prick tests (SPT) with aeroallergens and foods were performed in patients with EoE diagnosis.

Results: A total of 77 subjects were enrolled (79,2% female, mean age 59,4 yo [22-83 yo], 49,4% with dysphagia, 50,6% heartburn). Seventeen (22,1%) were examined by biopsy which revealed at least 15 eosinophils per HPF in 3 cases (3,8%), all of them with typical endoscopic findings of EoE. One of those was confirmed with EoE (prevalence of 1,3%), the other was a PPI-REE and the last patient waits histopathological confirmation. SPT were negative in the patient with EoE.

Conclusion: The prevalence of EoE among brazilian adults with dysphagia or heartburn was 1,3% (1 of 77 patients), similar to the low prevalence reported in international literature.

A252 Application of moisturizer to neonates prevents development of atopic dermatitis
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World Allergy Organization Journal 2015, 8(Suppl 1):A252

Background: Skin barrier dysfunction contributes to development of atopic dermatitis (AD). We performed a prospective, randomized...
controlled trial to investigate whether protecting the skin barrier with a moisturizer prevents development of AD and allergic sensitization.

**Methods:** We enrolled 118 neonates at high risk for AD (based on family history of AD in parents or siblings) and randomized to intervention group or control group (59 infants for each group). In intervention group, we applied emulsion-type moisturizer daily on a whole body during the first 32 weeks of life. All infants were scheduled to visit at weeks 4, 12, 24 and 32 of life and were examined the skin condition. The onset of AD (eczematous skin lasting more than 4 weeks) and eczema (lasting more than 2 weeks) were assessed by a blinded dermatologist, based on the modified Hanifin and Rajka criteria. The primary outcome was the cumulative incidence of AD plus eczema (AD/eczema) at 32 weeks. The secondary outcome, allergic sensitization, was evaluated based on serum levels of allergen-specific IgE, measured by high-sensitivity allergen microarray of diamond-like carbon-coated chip (UMIN Clinical Trials Registry Identifier: UMIN000004544).

**Results:** Among 118 infants, 47 developed AD/eczema (19 in the intervention and 28 in the control group). The cumulative incidence of AD/eczema was approximately 32% fewer in infants randomized to intervention group than that in controls by week 32 (P = 0.012 in log-rank test). We failed to reveal a statistically significant effect of emollient-use on allergic sensitization based on the level of IgE antibody against egg white at 0.34 kU/L CAP-FEIA equivalents. However, the sensitization was significantly higher in infants who developed AD/eczema than in those who did not (odds ratio, 2.86; 95% confidence interval, 1.22-6.73).

**Conclusions:** Daily application of moisturizer during the first 32 weeks of life reduces the risk of AD/eczema in high-risk infants. Allergic sensitization during this time period is associated with the presence of eczematous skin, but not with moisturizer use (J Allergy Clin Immunol. 2014; in press).

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**A253**

Allergenic activity and ability to induce T cell and cytokine responses of different infant milk formulas

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**Background:** Many hydrolyzed cow’s milk (CM) formulas are available for avoidance of allergic reactions in cow’s milk allergic children and for prevention of allergy development in high risk infants. CM formulas were compared regarding the presence of immunoreactive CM components, IgE reactivity, allergenic activity, ability to induce T cell proliferation and allergic or pro-inflammatory cytokine secretion.

**Methods:** Using biochemical techniques and antibody probes highly specific for seven different cow’s milk allergens, a blinded analysis of a panel of eight cow’s milk formulas, one non-hydrolyzed, two partially hydrolyzed, four extensively hydrolyzed and one amino acid formula, was conducted. IgE reactivity and allergenic activity of the formulas were tested with sera from cow’s milk allergic patients (n = 26) in RAST-based assays and with rat basophils transfected with the human FcεRI, respectively. Furthermore, the induction of T cell proliferation and the secretion of a panel of cytokines in PBMC cultures from cow’s milk allergic patients and non-allergic individuals were assessed.

**Results:** Immune-reactive whey proteins (alpha-lactalbumin, beta-lactoglobulin) were found in the two partially hydrolyzed formulas and casein components in one of the extensively hydrolyzed formulas. One partially hydrolyzed infant and the extensively hydrolyzed formula containing casein components showed remaining IgE reactivity whereas the other hydrolyzed formulas lacked IgE reactivity. Interestingly, only two extensively hydrolyzed formulas and the amino acid formula did not induce T cell proliferation and pro-inflammatory cytokine release whereas the remaining formulas varied regarding the induction of Th2, Th1 and pro-inflammatory cytokines.

**Conclusions:** The investigated CM formulas showed a great variability regarding the presence of immunogenic CM components, IgE reactivity, allergenic activity and induction of pro-inflammatory cytokines. These results of our study may explain different outcomes obtained in clinical studies using CM formulas for prevention and treatment and they show that certain CM formulas without allergenic and low pro-inflammatory properties can be identified.

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**A254**

Factors that improve the adherence to medication in asthmatic patients treated with inhalation therapy

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**Background:** Adherence to inhalation therapy is a critical determinant of the success of asthma management. However, in practice, no adherence to inhalation therapy is very common in asthmatics. The effects of adherence to inhalation therapy in asthma is less known about the relationship between medication adherence and quality of life in these patients. The aim of this study is to assess the factors that contribute to adherence to inhalation therapy and examine their correlation with quality of life.

**Methods:** In 264 asthmatics, enrolled following GINA guideline, a cross-sectional analysis was performed using a self-reported adherence questionnaire with responses on a 7-point Likert scale (7 = not impaired at all - 1 = severely impaired).

**Results:** Of the 264 patients who were potential participants, 175 (66.3%) responded with usable information. The only significant factor associated with the overall mean adherence score was receiving repeated instruction about inhalation techniques (P = 0.037). Of the 175 respondents, 84 (48.0%) were given repeated verbal instruction and/or demonstrations of inhalation technique by a physician. Significant correlations were found between the overall mean adherence score and the health-related quality of life score (Asthma Quality of Life Questionnaire (AQLQ): total, r = −0.37, P = 0.028; symptoms, r = −0.41, P = 0.001; impacts, r = −0.38, P = 0.002). Furthermore, patients with repeated instruction showed better quality of life scores than those who did not receive instruction (total, P = 0.033; symptoms, P = 0.031; Impacts, P = 0.021).

**Conclusions:** Repeated instruction for inhalation techniques may contribute to adherence to therapeutic regimens, which relates to better health status in patients suffering of asthma.

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**A255**

Assessment of sensitivity to common aeroallergens in a Tunisian population

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**World Allergy Organization Journal 2015, 8(Suppl 1):A255

**Allergic diseases are common in clinical practice and are considered by the World Health Organization (WHO) as an important health problem (Liu et al. 2010; Worldwide, about 500 million people are affected (15%) with a prevalence of 20-30% in developed countries (Laaidi et al. 2009). This study aimed to identify the major aeroallergens and their prevalence in a population of patients living in a polluted oasis situated in the southwest of Tunisia. A total of 67 patients were admitted to the Department of Pneumology and Oto-rhino-laryngology at Gafsa Hospital between August 2007 and September 2008. They were invited to a health examination including skin-prick test, blood sampling and assessment of specific IgE to several common aeroallergens. Of the 67 patients, only 39 were sensitive to allergens (58.2%), 23 of whom were sensitive to more than one type of allergen (58.97%). The most common aeroallergens were tree and grass pollen (32.9%), followed by animal dander (19.7%), mites (17.5%), herbaceous pollen (12.0%), mould (6.5%), latex (6.5%) and cockroaches (4.3%).
Although this study was limited to a modest target population of patients, we did observe significant results that highlight the most frequently detected allergens in the region of Gafsa. These results are in agreement with reports from other studies conducted in other areas.

References

A256
Women are more vulnerable to allergy than man in Gafsa city, Tunisia
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World Allergy Organization Journal 2015, 8(Suppl 1):A256

The prevalence of allergies has vastly increased over recent decades due to air pollution and climate change. The present study aims to identify any seasonal variations in the allergens, to help prevent and treat allergic diseases; and investigate any correlations between the reported allergens and other biotic parameters, namely age and sex. The study included 67 subjects (49 female and 18 male; age range 10-73 years) who visit the Department of Pneumology and Oto-rhino-laryngology of the Regional Hospital of Gafsa, between August 2007 and September 2008. The allergic condition of these patients was confirmed by measuring allergen specific IgE levels using the multiple allergen simultaneous test-chemoluminescent assay (MAST-CLA). A total of 30 allergens were tested and classified into seven groups: tree and grass pollen, herbaceous pollen, animal dander, moulds, latex, cockroaches and mites.

The seasonal distribution of allergens shows that the frequency of respiratory allergy was mainly observed during spring corresponding to the pollination season. However, the detection of some seasonal allergens, such as olive pollen, outside the pollination season can be explained by the cross-reactivity between allergens. The age range of patients with sensitivity was found to be between 10 and 73 years, with the most sensitive patients aged between 20 and 50 years. The sex variable was significantly associated with the studied allergens since sensitivity was present more frequently in women than in men.

A257
Rhinovirus infection has allergen-specific tolerance-breaking effects on PBMCs of healthy individuals
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World Allergy Organization Journal 2015, 8(Suppl 1):A257

Background: Allergen-specific T cell tolerance is important in healthy immune responses to environmental allergens, mechanisms of loss of tolerance to allergens is still not completely understood. Studies investigating maintenance and breaking of peripheral T cell responsiveness clearly showed the contribution of inflammatory cytokines and triggering of TLR4 and TLR8 to loss of unresponsiveness to allergens. Human rhinoviruses are most common viral infective agents in humans and the predominant cause of cold. The primary route of entry is the upper respiratory tract. Upon infection, virus replicates, spreads and cause infected cells to release chemokines and cytokines. Rhinovirus infections are known to be associated with an increased risk of asthma development, and among children with prevalent asthma, 85% of asthma exacerbations are associated with viral infections. However, the exact nature of this relationship remains unclear.

Methods: PBMCs of healthy individuals with known healthy responses to allergens were incubated with Rhinovirus 18 and 16 strains, with increasing doses with the absence or existence of allergens in cell-culture conditions. On day +5, cell proliferation was investigated with [3H]-thymidine incorporation or CFSE dilution methods. Rhinovirus strains were produced upon infection with HELA cells and culture supernatants containing alive rhinovirus was used in cultures. TCID50 of viral infection was evaluated and dilutions in PBMCs were made according to this value.

Results: Our results demonstrate the allergen-specific T cell tolerance-breaking effects of both strains in different virus doses.

Conclusion: More detailed studies are needed to clarify molecular mechanisms for breaking of allergen-specific unresponsiveness by rhinovirus infection.

A258
Effect of zinc on cadmium induced oxidative stress: an in vivo study
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World Allergy Organization Journal 2015, 8(Suppl 1):A258

Background: The effects of Cadmium (Cd) exposure and the treatment with Zinc (Zn) on hepatic oxidative stress was studied.

Methods: The exposure of rats to Cd was at a dose of 2.2 mg/kg CdCl2; injected subcutaneously four times weekly for 2 months. Rats were supplemented with Zn (2.2 mg/kg ZnCl2) injected subcutaneously four times weekly for 2 months) one hour prior to Cd exposure.

Results: showed that Cd-treated rats showed increased in activity of both GPT and GOT. Cd-treated rats demonstrated increased in MDA level. In group IV, MDA level was found to be decreased by Zn indicating the ameliorative effect of Zn on Cd toxicity. Treatment of rats with Zn caused a mild decrease in SOD activity as evidenced by group II but group III (Cd-treated rats) showed a marked decline in its activity by 45.2% in liver samples. Intriguingly, Zn showed a significant recovery in SOD activity by 45% as compared to group II. After the treatment with Cd, group III showed a decrease in Catalase activity as compared to the control. However, its activity was found to be recovered in group IV (Zn) in liver as compared to group III.

Conclusion: Hence, Zn significantly induced oxidative stability in the hepatic tissues of a Cd-treated animal model.

A259
Characteristics and first treatment dose of Dutch patients (12-60 years old) receiving prescriptions for asthma and initiating inhaled corticosteroids (ICS) therapy as either extra-fine (EF) ciclesonide or standard-particle (SP)-ICS
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World Allergy Organization Journal 2015, 8(Suppl 1):A259

Background: Asthma management guidelines suggest little difference between EF and SP-ICS other than potency and therefore EF-ICS should be used at same dose as fluticasone (FP) and half the dose of SP-becloamethasone (BDP). Cohort studies suggest EF-SP-ICS patients can achieve better asthma control than FP patients at lower doses. We compared baseline characteristics and first prescribed doses of patients initiating ciclesonide vs. SP-ICS.

Methods: Data from the PHARMO Database Network (pharmacy and hospital discharge records) on patients (12-60 years old) with ≥2 prescriptions for asthma therapy (2005-2012) were compared over 1 year before initiating ciclesonide vs SP-ICS. Co-morbidities were evaluated using GGT and before ICS initiation. To avoid inclusion of potential COPD patients, those >60 years old and those using long-acting muscarinic antagonists were excluded. Sex and age at ICS initiation; initial ICS doses (actual prescribed doses); short-acting β2-agonists (SABA) use (year before initiation); prescriptions for acute oral steroids and overall asthma control (no hospital admissions, no acute oral steroids and ≤200 mcg/day salbutamol) in the year prior and including initiation date;
and prescriptions of drugs for treating co-morbidities (year before and after initiation) were compared using t-test/chi-square test (p<0.05).

Results: Of 4,064 patients, 34% initiated therapy as ciclesonide and 66% as SP-ICS, with same proportion of males (36%). Differences (p<0.001, unless otherwise specified) for ciclesonide vs. SP-ICS were: mean±SD age (43±13 vs. 38±14 years); median (Inter Quartile Range) initial ICS doses 160±160-160 vs. 500±250-500 μg; proportion of patients not on SABA (72% vs. 57%) and on SABA daily dosage between 1-100 μg/day (21% vs. 29%), 101-200 μg/day (5% vs. 9%) and >200 μg/day (2% vs. 6%); proportion of patients not prescribed acute oral steroids (90% vs. 88%), prednisolone and oral controlled asthma (87% vs. 92%), proportion of patients prescribed inhaled steroids (44% vs. 38%) and topical (31% vs. 28%) steroid preparations, prok-pump inhibitors (41% vs. 29%) and cardiac diseases or hypertension drugs (28% vs. 21%).

Conclusions: For comparable asthma control and similar prevalence of co-morbidities, patients were prescribed triple the dose of SP-ICS versus ciclesonide. Further to this analysis, the effects on asthma control in the year following ICS initiation will be investigated.

A262
Dual systemic allergic rhinitis and local allergic rhinitis
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Methods: Twenty-nine patients with seasonal SAR (positive SPT to grass and/or olive pollen) with well-defined symptoms during pollen season in addition to nasal symptoms throughout the year were included. Clinical questionnaires, skin tests, serum specific IgE, nasal levels of tryptase and eosinophil cationic protein, and nasal allergen provocation test (NAPT) with grass, olive, D. pteronyssinus (DP), and Alternaria alternata (AA) were performed.

Results: The coexistence of dual SRLAR was confirmed in 23 patients by NAPT (82.1%) with positive response to AA in 9 patients (22%), to DP in 19 (46.3%), and to both AA and DP in 13 (31.7%). No discordance between SPT and NAPT results was obtained. The SPT and NAPT with seasonal pollens were positive to grass in 11 patients (26.8%), to olive in 20 (48.8%), and to both grass and olive in 11 (26.8%). No significant differences between seasonal and perennial allergens threshold concentrations were observed. The 56.5% of patients reported a seasonal onset of nasal symptom followed by perennial symptoms in the next years. The 30.4% a perennial onset of symptoms with a clear spring worsening, and the 13% could not remember the onset of the disease.

Conclusions: These results demonstrate the coexistence of seasonal SAR and perennial LAR in patients who developing symptoms throughout the year and have negative SPT to perennial allergens should be explored.

A261
Consequences of the introduction of a new protein during the recovery period of a chronic intestinal inflammation
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Methods and results: Male C57BL/6 mice (n=30) were immunized with 100μg of peanut protein. Half received a 30-day raw-peanut-challenge diet (CD) (inflamed-I) while the other received mouse chow (controls-C)(Teixeira 2008). They were further divided and received sweetened OVA (new protein) (egg white diluted in distilled H2O, 1.5 v/v5% sucralose) orally for 7 days, on day 0 (I1 C1), 10 (I2 C2) or 20 (I3 C3) post CD. We assessed body weight, food intake, antibodies and T cell phenotype of mesenteric lymph nodes (MLN) and spleen (SPN). ANOVA with Tukey post-test was performed. Statistical significance considered p<0.05. This study was approved by UFF’s Ethical Committee (CEUA #00147-09). During CD groups I2 (-1.94±2.2) and I3 (-1.44±1.8) but not I1 (0.15±0.6) showed significant weight loss compared to C. The C groups (37.50±6.4) ingested significantly more kcals compared to I1 (31.20±2.6), I2 (30.78±2.5) and I3 (30.83±4.3). OVA consumption was significantly lower in I1 (3.21±1.0) compared to I2 (6.53±3.19), I3 (6.82±2.3) and C (7.5±1.7). In the MLN we observed a significant increase of CD8+ T cells of I1 (29.49±4.1) and I2 (31.72±4.0) compared to I3 (21.53±3.6) and C (25.65±5.4) and CD8+CD25+ T II (0.43 ±0.2) when compared to I2 (0.32±0.0), I3 (0.24±0.1) and (0.30±0.1) with no significant difference in CD4+ T cells I (37.34±5.7 and C 38.35±5.1) and CD4+CD25+ T cells (I 6.86±1.5 and C 7.00±1.9). In SPN, we observed significantly more weight than in patients with negative serum specific IgE tests for fungi. The clinical difference between serum fungus-specific IgE-positive and –negative asthmatics who showed negative skin prick tests was also examined.

Method: A total of 38 patients who showed negative skin prick tests after undergoing 50 common allergens including D. farinae, D. pteronyssinus and 5 fungi (Penicillium notatum, Cladosporium, Aspergillus fumigatus, and Alternaria,Fusarium spp.) with positive methacholine provocation test provocation test and chronic lower respiratory symptoms were included in this study.

Results: In 16 patients (42.1%) with negative serum specific IgE Tests for both fungi and HDM, total IgE (76.7 + 27.3 % ), respectively. In patients with negative serum specific IgE Tests for fungi (75.5 + 24.2 % ) and in patients with positive serum specific IgE Tests for HDM (76.6 + 27.3 % ), respectively. In patients with negative serum specific IgE Tests for both fungi and HDM, PC20 (2.61 + 1.32 mg/ml) was significantly higher than in patients with positive serum specific IgE Tests for fungi (2.23 + 2.05 mg/ml) and in patients with positive serum specific IgE Tests for HDM (1.34 + 1.12 mg/ml), respectively.

Conclusion: In asthmatic patients who showed negative skin prick tests, but high serum IgE, serum specific IgE test for both fungi and HDM might be needed for detection of HDM.
A263
Subcutaneous allergen immunotherapy with dermatophagoides pteronyssinus in patient with local allergic rhinitis
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World Allergy Organization Journal 2015, 8(Suppl 1):A263

A264
Bronchial hyperreactivity induced by tropomyosins from cockroach and shrimp: a mouse model to study in vivo cross-reactivity
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A265
Safety of meloxicam oral provocation challenge in patients with NSAID reaction
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World Allergy Organization Journal 2015, 8(Suppl 1):A265

Background: In this study we investigated the efficacy and safety of subcutaneous allergen immunotherapy (AIT) with Dermatophagoides pteronyssinus (DP) in patients with local allergic rhinitis (LAR).

Methods: A randomized, double-blind, placebo-controlled, parallel-group, phase II study was conducted. Thirty-six subjects with LAR to DP were randomized to receive Pamgamin Plus, ALK, Dermatophagoides pteronyssinus (AIT-DP) or placebo for 24 months. The primary endpoint was total symptoms (TSS) and total medication scores (TMS). Secondary endpoints included: total combined symptom+medication scores (TCS), daily symptoms score (DSS), daily medication score (DMS), medication free days (MFD), skin testing, nasal allergen provocation test (NAPT-DP), and adverse events. Serum and nasal lavage samples were obtained for immunological studies.

Results: Twenty-eight patients completed the study. AIT-DP produced a significant improvement in the primary endpoints compared to placebo (a 47% of reduction in TSS (0.60 vs 1.14; p<0.001) and a 51.2% in TMS (0.65 vs 1.34; p=0.002). Moreover, at 6-12-18-24 months significant improvements in TCS (p=0.046; p=0.037; p=0.011; p=0.007) and DSS (p=0.003; p=0.012; p=0.001; p=0.001); and at 24 months in DMS (p=0.014), and MFD (p=0.031) compared to placebo were observed. AIT-DP induced an objective improvement in nasal tolerance to NAPT-DP at 6-12-18-24 months (p=0.003; p<0.001; p<0.001; p<0.001) compared to placebo, with negative responses in the 50% of patients. AIT-DP was well-tolerated, one patient had a local moderate reaction solved without systemic treatment. No systemic reactions occurred.

Conclusion: We prove that AIT with Dermatophagoides Pteronyssinus is an effective and well-tolerated treatment in LAR patients. This phase II study provides the indication for AIT in LAR.

Background: In vivo cross-reactivity among tropomyosins, major pan-allergens among invertebrates, is established. Our aim was to investigate the effects of purified tropomyosins from cockroach and shrimp (recombinant Per a 7) and shrimp (natural Lit v 1) on airway inflammation and hyperresponsiveness in a mouse model of asthma.

Methods: BALB/c mice 4 to 6 weeks of age were sensitized twice with 50âg of rPer a 7 or nLit v 1 intraperitoneally with 1 mg ml, and challenged with 50âg of rPer a 7 or nLit v 1 intranasally for three days. A group was sensitized with rPer a 7 and challenged with nLit v 1 under same conditions. Controls received saline on same day. Twenty-four hours after the last challenge, mice were ventilated with Flexivent$, and in vivo bronchial hyperresponsiveness was evaluated with increased doses of inhaled methacholine (6.25, 12.5, 25 and 50mg/ml). After ventilation, bronchoalveolar lavage fluid (BALF) was collected and cell counts were performed.

Results: Sensitization and challenge of mice with rPer a 7 or nLit v 1 resulted in increase in bronchial hyperresponsiveness, given by increase in total and bronchoalveolar lavage cells. Total cells in BALF increased in rPer a 7 (1x10³ vs 3x10³, p<0.01) and nLit v 1 (1x10³ vs 1x10³, p<0.001) groups, as compared to controls. There was increase in macrophages for rPer a 7 (5x10³ vs 1x10³, p<0.001) and nLit v 1 (5x10³ vs 3x10³, p<0.001) and eosinophils for rPer a 7 (2x10³ vs 1x10³, p<0.001) and nLit v 1 (2x10³ vs 9x10³, p<0.001). Mice immunized with rPer a 7 and challenged with nLit v 1 showed no changes in bronchial hyperresponsiveness or eosinophils on BALF as compared to controls (2x10³ vs 6x10³). However, there was an increase in neutrophils in this group as compared to controls (5x10³ vs 1x10³, p<0.01).

Conclusions: Experimental asthma induced by purified tropomyosins from cockroach and shrimp mimicked the main characteristics of human asthma. Despite the high degree of sequence identity and IgE immunological cross-reactivity, our data suggested that in vivo cross-reactivity of these tropomyosins is unlikely.

Background: Nonsteroidal anti-inflammatory drugs (NSAIDs) are one of the most frequently used drug groups worldwide, for their significant properties analgesic and anti-inflammatory. Induce a variety of adverse reactions, both type A (related to the effects of the drug) and type B (related to individual response). Although the mechanisms underlying the adverse effects remain unclear, inhibition of cyclooxygenase (COX) seems to be the most accepted explanation. For their significant analgesic, anti-pyretic and anti-inflammatory, constitute an essential medicine for the treatment of several diseases, making it imperative to find a safe alternative in patients who report a hypersensitivity reaction to AINE.

Objective: To evaluate the safety of meloxicam as analgesic and anti-inflammatory alternative for patients who have experienced a hypersensitivity reaction to a NSAID.

Methods: We retrospectively evaluated patients who had reported an adverse reaction to several drugs of the NSAID group and had been subjected to a challenge with Meloxicam, between 2010-2013, in our allergy service in Medellin, Colombia.

Results: A total of fifty-seven patients reported hypersensitivity reactions to two or more NSAIDs, nineteen patients reported an anaphylactic reactions. All were challenged with meloxicam, thirty-six patients with an incremental doses of 1.5, 3, 4.5 and 6 mg for a total dose of 15 mg, seventeen patients with a total dose of 7.5 mg, one patient to 10mg and one patient 5 mg for their age. Fifty-five patients had a negative test challenge, two patients (3.5%) with a positive challenge, both with skin symptoms (hives and angioedema).

Conclusion: Meloxicam is an anti-inflammatory analgesic and safe alternative for patients who have experienced a hypersensitivity reaction to 2 or more NSAIDs.

References

A266
Pulmonary function and symptoms in asthmatics adolescents
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Background: Asthma is a chronic inflammatory disease that may impose limitations to daily activities when not appropriately treated. It can be under-diagnosed in adolescents due to possible denial of symptoms in...
this age group or low perception of airflow obstruction. The aim of this study was to measure the degree of airway dysfunction in adolescents with asthma and determine the degree of disease control.

**Methods:** Asthmatic adolescents were identified in schools of Aracaju – Sergipe, based on the ISAAC questionnaire administered in 2012/2013. During the visits, spirometry was performed and the degree of disease control was evaluated through of specific questionnaire.

**Results:** 64 adolescents with asthma were identified, and 50 of them were interviewed. Spirometry was performed in 44 students. Most were from private schools, aged 12-14 years. Nineteen adolescents (38%) denied any manifestation of active asthma. Of the 44 patients who underwent spirometry, 29 (65%) reported symptoms of the disease and 19 (43%) had FEV1/FVC <0.80. Of these, 6 (31.6%) had no symptoms.

**Conclusions:** Despite the trend towards higher frequencies of clinical manifestations in adolescents with airway obstruction, it is still possible to identify a percentage of asymptomatic adolescents in this group.

### A267 Common variable immunodeficiency misdiagnosed as Crohn Disease

**Background:** Common variable immunodeficiency (CVID) is one of the most common primary immunodeficiencies in adults and is characterized by defective antibody production, low levels of serum immunoglobulins and increased susceptibility to infection. About 20% of different gastrointestinal pathologies. But also the pathology of gastrointestinal tract in patients with CVID showed a wide spectrum of histological patterns which could mimic many conditions such as inflammatory bowel disease.

**Objective:** The presented case highlights the importance of the evaluation of primary immunodeficiency in patients with chronic gastrointestinal disorders.

**Case report:** JRLM, 38 years, male, natural from Rio de Janeiro, Brazil, with a history of recurrent respiratory infections during childhood, begins to present diarrhea (3-4 episodes of loose stools /day) in 2004 without much blood. The colonoscopy showed moderate erosive pancolitis and a nodular ileitis. It was therefore decided to start treatment with mesalazine. In 2005 the colonoscopy was repeated and the patient received the diagnosis of Crohn’s Disease and mesalazine was replaced by azathioprine, however the control of diarrhea was not obtained. In 2013 the patient began treatment in Antonio Pedro Hospital where the colonoscopy was repeated and showed inappecific pancolitis and the endoscopic aspect was not suggestive of Crohn’s disease. The stool examination for parasites showed the presence of Giardia lamblia and Blastocystis hominis and the treatment with metronidazole and ivermectin control the diarrhea. In that time, screening tests for serum immunoglobulin were requested and showed IgG=212mg/dl (751-1555), IgA=6,67mg/dl (82-453) and IgM=10,2mg/dl (46-304). The patient was diagnosed with common variable immunodeficiency and started treatment with prophylactic amoxicillin and intravenous immunoglobulin with remarkable improvement.

**Discussion:** Several studies have documented increased incidence of inflammatory bowel disease in CVID patients. Some patients require in addition to intravenous immunoglobulin replacement therapy, steroids or immunosuppressive drugs to control diarrhea. However our patient showed improvement only with the prophylactic amoxicillin and intravenous immunoglobulin therapy. The chronic diarrhea and the colonoscopy findings mimic the presence of inflammatory bowel disease and mislead the physician for a period and lead to the exclusive treatment of inflammatory bowel disease.

**Consent:** Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.
We report a case of a female patient, 53 years old, referred to the Medical records of 40 children and adolescents. The most frequent IgE: IgE increased: 20 (52.63%), the normal IgE: 18 (47.36%). (2 patients IgE Unknown); Ratio CD4 / CD8: CD4 / CD8 ratio was low in 16 cases (43.24%), CD4 / CD8 ratio was high in 10 cases (27.07%) and CD4 / CD8 ratio was Normal: 11 (29.72% ). (3 patients with CD4 / CD8 ratio unknown). JG4 greater than IgG3: normal relationship: IgG3-IgG4 in 20 cases (60.6%); ratio reversed: IgG4-IgG3 in 13 cases 13 (39.4%) and 7 patient with IgG3 and IgG4 Unknown.

A270
Asthma: when suspect food allergy in patients with asthma
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World Allergy Organization Journal 2015, 8(Suppl 1):A270

Background: The relevance of our study focuses on patient with food allergy and at increased risk for developing bronchial asthma and its association with the type of delivery, early feeding and family history of allergy.

Methods: We analyzed randomly a study of 36 cases among the medical records of patients from the files of the BSFA (Brazilian Society of Food Allergy), aged between 2 and 16 years, of both genders, with the diagnosis of food allergy and asthma. Asthma was diagnosed by the classical clinical picture. Food allergy was diagnosed by the normalization of the clinical picture in response to the withdrawal of the offending food from the patient diet, resulting in total disappearance of the clinical disturbance. All patient relapse after the food challenge with the offending food. All the patients had both diseases mediated by IgE.

Results: According to age, 25 (69%) of patients were children and 11 (31%) were adolescents. The first symptoms began is 4 months in 7 (15.78%), 1 asthma (5.26 %) and 1 had aniggooedema (5.26%). The main manifestations are: abdominal pain (15 - 37.5%), bulkystools (14-35%), lack of appetite (12-30%). Other less frequent: vomiting, reflux, bloating and abdominal distention. BALT: Rhinitis (11-36.66%), asthma / bronchitis (10 - 33.33%), pharyngotonsillitis (9-30%), phlegm (9-30%). Other less frequent: otitis, sinusitis, snoring and coughing. SALT: Facial pale (18 - 64.29%), shiners (9 - 32.14%), prurigoestrófallo (8 - 28.57%), atopic eczea (6-21.42%). Other less frequent: urticaria and erythematoperiainal. CNSALT: Irritability (9-50%), sleepdisorder (7-38.88%), Hyperactivity (4-22.22%), headache (3-16.66%). Other less frequent: ADIND and fatigue.

Laboratory tests: IgE: IgE increased: 20 (52.63%), the normal IgE: 18 (47.36%). (2 patients IgE Unknown); Ratio CD4 / CD8: CD4 / CD8 ratio was low in 16 cases (43.24%), CD4 / CD8 ratio was high in 10 cases (27.07%) and CD4 / CD8 ratio was Normal: 11 (29.72% ). (3 patients with CD4 / CD8 ratio unknown). JG4 greater than IgG3: normal relationship: IgG3-IgG4 in 20 cases (60.6%); ratio reversed: IgG4-IgG3 in 13 cases 13 (39.4%) and 7 patient with IgG3 and IgG4 Unknown.

Conclusion: This study adds important clinical data to the understanding of cows’ milk enteropathy. In our experience this clinical entity, occurs at any age, from infancy to adolescence and affect both sexes.

A271
Cow’s milk enteropathy
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World Allergy Organization Journal 2015, 8(Suppl 1):A271

Objective: To study the main clinical manifestations and laboratory findings presented by patients with cow’s milk enteropathy (CME).

Material and Methods: Medical records of 40 children and adolescents were studied, 21 males and 19 females with a mean age of 4, 2625 years (maximum: 12 years / Min: 2 months) with the diagnosis of food allergy and CME.

Results: Chief Complaint: 1 - weightloss (16-40%), 2 - abdominal pain (14-35%), 3 - diarrhea (13 - 32.5%), 4 – associated respiratory complaints (12-30%), 5 - vomiting (7 - 17.5%). Other clinical Picture with less frequency: constipation and abdominal distension. Malt system affected and Homing response: GALT - 40 (100%), BALT - 30 (75%), SALT - 28 (70%), CNSALT - 18 (45%).

Clinical main manifestations in each organ of shock: GALT: Diarrhea (19 to 47.5%), abdominal pain (15 - 37.5%), bulkystools (14-35%), lack of appetite (12-30%). Other less frequent: vomiting, reflux, bloating and abdominal distention. BALT: Rhinitis (11-36.66%), asthma / bronchitis (10 - 33.33%), pharyngotonsillitis (9-30%), phlegm (9-30%). Other less frequent: otitis, sinusitis, snoring and coughing. SALT: Facial pale (18 - 64.29%), shiners (9 - 32.14%), prurigoestrófallo (8 - 28.57%), atopic eczea (6-21.42%). Other less frequent: urticaria and erythematoperiainal. CNSALT: Irritability (9-50%), sleepdisorder (7-38.88%), Hyperactivity (4-22.22%), headache (3-16.66%). Other less frequent: ADIND and fatigue.

Laboratory tests: IgE: IgE increased: 20 (52.63%), the normal IgE: 18 (47.36%). (2 patients IgE Unknown); Ratio CD4 / CD8: CD4 / CD8 ratio was low in 16 cases (43.24%), CD4 / CD8 ratio was high in 10 cases (27.07%) and CD4 / CD8 ratio was Normal: 11 (29.72% ). (3 patients with CD4 / CD8 ratio unknown). JG4 greater than IgG3: normal relationship: IgG3-IgG4 in 20 cases (60.6%); ratio reversed: IgG4-IgG3 in 13 cases 13 (39.4%) and 7 patient with IgG3 and IgG4 Unknown.

Conclusion: This study adds important clinical data to the understanding of cows’ milk enteropathy. In our experience this clinical entity, occurs at any age, from infancy to adolescence and affect both sexes.

A272
Decreased subsets of T lymphocytes CD8 in patients with IgE food allergy
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Objective: To study the decrease of CD8 T lymphocytes in patients with FoodAllergy (FA) of the IgE type associating with its clinical manifestations.

Methods: Analysis of 16 records of patients selected as having the IgE Food Allergy, who presented the CD4 / CD8 ratio, greater than 3, by reduction of CD8 bellow the average and evaluating its clinical presentation of FA.

Material and methods: Of these 16 records, 11 were girls (68.75%) and 5 were boys (31.25%).

Results: 8 children had gastrointestinal imiediated hypersensitivity (42.10%), 6 had increased this ratio due to hives (31.57%), 3 had rhinitis (15.78%), 1 asthma (5.26 %) and 1 had anigioedema (5.26%). The main complaints of these children were also analyzed. The most frequent complaints were skin with 9 reports (33.33%), followed by constipation with 7 (25.94%) and respiratory complaints with 6 (22.22%). There were also 5 reports of acute diarrhea (18.51%), 3 with abdominal pain and vomiting 3 with weight loss and 1 with reflux. In this study of the 16 children with CD4 / CD8 ratio high, 15 were born by cesarean delivery.

Conclusion: The analysis of the records of patients with IgE FA and high CD4 / CD8 ratio has shown that these patients will reflect in the clinic with symptoms of skin, respiratory and gastrointestinal disorders. Of these, we note that the most common symptoms are skin complaints (33.33%) and the most common disease that leads to decreased CD8 is the Immediate Gastrointestinal Hypersensitivity (42.10%). Hardest hit were the GALT systems and SALT. 15 of the 16 studied cases were born by cesarean delivery.

A273
Diseases induced by malfunciton of the enteromammary circle
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Objectives and study: Breast milk is produced by the mammary gland under the influence of the enteromammary circle of the mother. The bipolar extremes of this circle is represented by the GALT system, in the GI tract of the mother. The other extreme is represented by the mammary gland.

The present study was develop to explore the broad exprectum of the clinical picture of children presenting symptoms exclusively breastfed.

Methods: From January 2009 to January 2011, charts from 24 children, age 0 to 6 months, diagnosed with breast milk enteropathy where selected. All children where exclusively breast fed since birth. Results: The symptomatology related to the GALT, was blood in stools present 58,3% of the patients. Gastro-oesofageal reflux, was present in 41% of the patients, abdominal pain in 33,3%, diarrhea in 20,5%, constipation in 16,6%, bulky stools, flatus and vomiting in 12,5%, colics and nausea in 8,3% and hiccups in 4,1%. In the SALT system, the skin show as the most frequent alteration the atopic eczema with a prevalence of 16,6%, followed by eczema of folds in 12,5%, pallor, erythema of the cheeks, perioral erythema and seborheic dermatitis where present in 8,3% of the cases.

In the genetic background the family history of allergy show rhinitis in both parents, in 37,4% of the father and 8,3% of the mother, intolerance to food in 16,6% of the mothers versus 8,3% of fathers. Asthma was present in 25% of the mothers versus 20,4% in the father. Conclusion: The present study design to explore the broad exprectum of the clinical picture of children exclusively breastfed reveal that the spectrum of the desease.

Case report: follow-up of long term prophylaxis of hereditary angioedema with an alternative attenuated androgenic drug

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World Allergy Organization Journal 2015, 8(Suppl 1):A274

Background: Hereditary Angioedema (HAE) is a disease caused by defective production or function of C1 inhibitor (C1-INH) and transmitted by autosomic dominant inheritance pattern. Treatment of HAE is divided into three parts: short-term and long term prophylaxis, and treatment of acute attacks. The long-term prophylaxis of HAE is aimed at reducing the frequency and severity of acute attacks. This is usually made using attenuated androgens.

Methods: We report the case of four patients with HAE followed for more than 10 years, treated with oxymetholone, an attenuated androgen.

Results: Four patients (one male; three female) with HAE have received oxymetholone 25 mg twice a week for long-term prophylactic treatment of HAE and have been followed for at least ten years. Two patients are well controlled and showed no acute attack in the last 3 years. One patient has allergic rhinitis and have presented acute attacks associated with superior airways infections. One patient remained controlled for more than 20 years with oxymetholone but has shown repeated crises in the last two years with no apparent cause. Observed side effects were gilipidemia and moderate weight gain in all patients. No hepatotoxicity were observed.

Discussion: Long –term prophylaxis of HAE is usually done with attenuated androgens. Danazol and stanozolol are the anabolic steroids most commonly used in clinical practice. Although the efficacy of these drugs in the treatment of HAE is well established, the mechanism for this effect remains unclear. There appears to be an enhancement of C1 INH protein production. Methyl-testosterone and oxymetholone were already described with same properties. In Brazil, stanozolol isn’t available and Oxymetholone is less expensive than danazol. All our four patients were from low income social status and oxymetholone were the only drug affordable for long-term use.

Conclusion: Low doses of oxymetholone can be a reliable and safe attenuated androgen for patients with HAE when danazol or atanozolol are not available for long-term prophylaxis of HAE.

Prevalence, clinical features and severity of allergic rhinitis in elderly: preliminary results

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World Allergy Organization Journal 2015, 8(Suppl 1):A276

Background: In the last years, studies have demonstrated that chronic rhinitis is a common disorder in elderly patients, although epidemiologic data related to this population is sparing. Indeed, there is no information regarding the prevalence of rhinitis in the elderly in Brazil.

The aim of this study was to determine the prevalence, clinic features and severity of allergic rhinitis (AR) in the elderly and compare them with an age-matched group with non-allergic rhinitis (NAR).

Methods: Prospective study. Geriatric patients with nasal symptoms assisted at Universidade Federal Fluminense (UFF) Immunology Service in

Recurrent pneumonias and bronchiectasis associated a common variable immunodeficiency

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World Allergy Organization Journal 2015, 8(Suppl 1):A275

Introduction: Common variable immunodeficiency (CVID) is the second more comom cause of Immunodeficiency. Its prevalence is about 10 000 a 50 000 persons. Its incidence is about the first and second life’s decade. Both genders are committed and it can be associated a several phenotypes such a recurrent infections,autoimmunity,enteropathy, neoplasms,polyclonal lymphocytic infiltration. The main recurrent infections are those that achieve lungs,paranasal sinuses and gastrointestinal. 60% of the cases of CVID are associated a bronchiectasis. The diagnosis is based on current infections ,reduction of IgG , igm and/or iga below 2 standarts desviations for age , age over 4 years old and excluding others causes of hypogammaglobulinemia.

Objective: The objective is to report the case of a patient who was diagnosed with CVID a recurrent pulmonary infections and bronchiectasis.

Description of the case: GOA,16 years old, 6 previous pneumonias . The first one was when she was 6. She was hospitalized in two of those episodes and also showed weight loss .when she was 15, the investigation was started. Sweat test and anti HIV were negative. low levels of Immunoglobulins were found (IgG=20,1 mg/dl; IgM=32,2 mg/dl; IgA=7,2 mg/dl; IgE=1,1 mg/dl). The lymphocyte immunophenotyping search was normal for her age (CD3=2939mm3, CD4=693mm3, CD8=2011mm3, CD19=876mm3). Tomography of the chest presented suggestive areas of severe chronic bronchiectasis. After the exclusion of others hypogammaglobulinemias ' causes and the diagnostic of CVID being confirmed, the treatment was iniciated using intravenous immunoglobulin 400 mg/kg/day and antimicrobial prophylaxis with azitromicin. After initiation of treatment, the child didn't have others infections and Gained satisfactory weight. Currently she is being monitored in a immunology ambulatory.

Conclusion: We want to emphasize need to exclude CVID in patients that presents recurrent pneumonias, mainly when it’s associated a bronchiectasis.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

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Niterói, Brazil were analyzed upon clinical questionnaire, physical examination and skin prick test (SPT).

Diagnosis of AR was made based on characteristic clinical findings and positive SPT result. For the diagnosis of nonallergic rhinitis, it was required a negative SPT result among those with clinical positive findings. The two groups of patients – those with AR and NAR – were compared in terms of gender, age, clinical features, severity level and duration. Statistical analysis were performed using SPSS 18.0 program.

Results: Thirty-two individuals above 60 years of age were included in the analysis. The prevalence of allergic rhinitis was 25%. The age in the sample ranged from 61 to 78 yo in the atopic group and from 60 to 85 yo in the non-atopic patients. In AR group, 7 were female (87,5%); of the patients in the group of NAR, 19 were female (79,2%). The most common symptom in atopic patients was nasal congestion following by rhinorrhea and in the other group, nasal congestion following by sneezing. There was no statistic difference between the prevalence of symptoms in both groups (p>0.05).

There was no difference between the groups in terms of severity and duration of the symptoms. The majority of patients with AR and NAR (33% and 37, 5%, respectively) were classified as mild / persistent rhinitis.

Conclusion: To date, the prevalence of allergic rhinitis in elderly patients in our sample was similar to that encountered in general population. Furthermore, clinical findings and severity of the symptoms were similar in AR and NAR patients.

A277
Severe congenital neutropenia: case report
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Introduction: Neutropenia is defined in the literature as absolute neutrophil counts in peripheral blood of less than 1500 cells/mm3 in more than one year old and less than 2000cells/mm3 in children in the first year old of life. Neutropenia is classified as mild, moderate or severe, and may be congenital or acquired, persistent or not. Kostmann syndrome is a severe neutropenia, the incidence varies 1-2 cases/ 100.000 – 1.000.000 and attends with severe recurrent infections early.

Case description: JBL, white, male was admitted three times with recurrent pneumonia, otitis, anemia, neutropenia, eosinophilia and monocytosis in peripheral blood and cord lock maturation phase promyelocytic to the bone marrow. Used G-CSF. At 11 months old age showed severe pneumonia without clinical response and death.

Discussion: recurrent infection in this child began early, as happen in monocytes, lymphocytosis and eosinophlias associated with maturation arrest of marrow in the series promyelocytic suggest the diagnosis of syndrome Kostmann. Beside the proper treatment of infections is indicated using G-CSF.

Conclusions: Kostmann syndrome should be considerate in the differential diagnosis of severe persistent neutropenia in children, among the prophylaxis and treatment of infections associated with the use of G-CSF members of appropriate monitoring of the patients.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A278
Recurring pain in right iliac fossa in children: report of two cases associated with food allergies
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World Allergy Organization Journal 2015, 8(Suppl 1)A278

Objective: To present two cases of food allergy with unusual presentation and discuss the diagnostic approach in children.


Case No. 2: Boy, 9 years. Pain in right lower quadrant , abdominal pain for three months located in the right iliac fossa, a predominantly nocturnal and radiating to right thigh. A child psychiatrist prescribes antidepressants. Personal Background.

Mixed Breastfeeding from birth. Atopy: asthma, atopic dermatitis, infantcolic.


Both cases improve with hypoallergenic diet.

Conclusion: The presence of lymphoid nodular hyperplasia and family history and / or personal history of atopy severe gastrointestinal symptoms may be due to food allergy. The elimination diet is diagnostic and therapeutic turn.

Consent: Written informed consent was obtained from the patients for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

A279
A case report of allergic blepharoconjunctivitis to alcaftadine
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Background: Alcaftadine is a novel drug available in eye drops to treat allergic conjunctivitis. The different syndromes can coexist and it is very important to be aware about the possibility of drug sensitization in these cases. Furthermore, a multidisciplinary approach by allergists and ophthalmologists is required to fully understand these patients.

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We studied the data of the physical examination of the right low abdominal area, i.e., in the right iliac fossa, as a signal will be very suggestive for food allergy. The evidence of this signal will be very suggestive for food allergy.

**Conclusion:**

The prevalence of causes of cell mediated food allergy in children in Rio de Janeiro

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World Allergy Organization Journal 2015, 8(Suppl 1):A282

**Introduction:**

The frequency of Food Allergy (FA) has been increasing in recent years. The prevalence of cell-mediated FA among this cases is unknown. The major cause for the difficulty of this diagnosis of cell-mediated FA is the absence of a major biomarker. In this study we select patients with cell-mediated FA based in their Clinical Picture, normal IgE and clinical cure with the treatment with the withdraw of the offending food from the diet.

**Material and methods:**

71 patients were selected for the study, with cell-mediated FA. In this group of patients we caracterise their clinical picture.

**Results:**

The clinical diagnosis among all the 71 patients studied was: in 62% (44 patients) the clinical diagnosis was Cow’s Milk Enteropathy (CME); in 15.5% (11 patients) the clinical diagnosis was Breast Milk Colitis (BMC); in 8.45% (6 patients) the clinical diagnosis was Abdominal Pain and Abdominal Distention with Motor Impairment (APAD); in only 5.6% (about 4 patients) the clinical diagnosis was Cow’s Milk Enterocolitis (FPIES); in others 5.6% (4 patients) the clical diagnosis was Constipation (C) and finally in 2.8% (in 2 patients) the clinical diagnosis was Celiac Disease.

**Conclusion:**

The highest prevalence among all cases of FA cell type mediated was CME, the second clinical picture in frequency was BMC. Less frequent causes of cell mediated FA in Rio de Janeiro was APAD, FPIES, C and CD.

**A283**

Use of bottle of cow’s milk in nursery

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World Allergy Organization Journal 2015, 8(Suppl 1):A283

**Introduction:**

FoodAllergy (FA) has become a common problem in practice for the gastroenterologist and allergists, by increasing its frequency world wide. One cause of this increasing factor is the use of bottle of cow’s milk prior to breast milk. The aim of this work is to add new data for the inappropriate habit of offering a bottle of cow’s milk in the nursery before the breast Milk.

**Material:**

130 patients with FA collected among the charts of the Brazilian Society of Food Allergy were studied regards the use of bottle fed prior to breast at the nursery station.

Patients were classified according to their clinical and their laboratory tests in patients with mediated IgE FA, non-IgE mediated FA and mixed IgE and non-IgE FA.

**Results:**

Of the 70 patients with IgE-mediated AA, 44 took the bottle in the nursery before human milk (HM) (62, 85%); of 42 patients with non-IgE, 19 took the bottle in the nursery before the HM (45.23%), and 18 patientswith mixed FA, 8 took the cow’s Milk before the HM (44.4%).

**Discussion:**

The results show that the use in the nursery of the bottle of cow’s milk correlated with the cases of IgE-mediated FA (62.85% and 44.44% versus 45.23%) than the other types of allergies. This finding concurs with the literature data, with respect to that allergen stimul in the first days of life, induce newborn to produce IgE Food Allergy.

**Conclusion:**

Early introduction of any other protein in the diet of the newborn before breast milk is associated, at high rates, to IgE FA.
A284
Lactose intolerance at a day care center in the municipality of Duque de Caxias, Rio de Janeiro, Brasil
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World Allergy Organization Journal 2015, 8(Suppl 1):A284

Objectives and study: Lactose intolerance has a variable prevalence in different parts of the world. The differences may be explained by the diverse eating habits of each population, allowing over the years a selection of individuals with and without the ability to digest lactose - ontogenetic variation. The objective of this study is to identify the prevalence of lactose intolerance and their presenting main symptoms, developed by children at a Day care center in the municipality of Duque de Caxias, Rio de Janeiro, Brazil, after an oral lactose tolerance test.

Methods: Oral lactose tolerance test was done in all children at the daycare center. At the end of the test a questionnaire was held to identify symptoms. A hundred children were analyzed (61% male and 39% female), between 2 and 13 years (30% from 2 to 4 years; 37% from 5 to 7 years; 24% from 8 to 10 years; and 9% from 11 to 13 years).

Results: The blood test showed 52% of the children with positive results for lactose intolerance and 48% were negative. From the questionaires answers were gotten in 64% of the patients. Lactose intolerance (positive test with symptoms) was present in 20.3% of the samples. Inconclusive results (positive test without symptoms and negative test with symptoms) reached 42.2% of the samples. Healthy patients represent 37.5% of the studied population. Among the symptoms, diarrhea was the most prevalent (50%), followed by abdominal pain and headache (20%), and flatula/abdominal distension (5%). Children between 5 and 7 years were the more somatic.

Conclusion: Lactose intolerance was present and frequent among children at the evaluated Day care center. The significant prevalence of this disease makes indispensable the referral to a Gastroenterology Unit all patients under the suspicious of lactose intolerance, to get the proper diagnosis and treatment as well as the proper diet orientation.

A285
Severe atopic eczema and recurrent infections: diagnosis of the Job syndrome according to Guimbacher criteria
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World Allergy Organization Journal 2015, 8(Suppl 1):A285

Introduction: The syndrome of hyper-IgE syndrome or Job syndrome or Burckley syndrome, is a rare primary immunodeficiency characterized by defective phagocytic manifesting recurrent infections, mainly Staphylococcal associated with eczema severe atopic, musculoskeletal disorders, pathological fractures, scoliosis and levels high IgE (> 2.000IU / ml).

Among the immunological characteristics, we can find defects in neutrophil chemotaxis, decreased production of interferon gamma, eosinophilia mutation and STAT 3. Most cases are sporadic, but there are cases with patterns of autosomal dominant or recessive inheritance. The diagnosis is clinical using the criteria of Grimbacher. The treatment is the same of the bacterial and fungal infections. Some consensus oriented prophylaxis of infections with antibiotics.

Objective: Report the case of a patient with severe atopic eczema and criteria for the syndrome hyper IgE Grimbacher seconds.

Case description: IFS 2 years and 9 months, with a history of atopic eczema since 3 months of age and history of intrauterine growth retarded neonatal sepsis associated with severe skin lesions, three hospitalizations for pneumonia and hospitalization due infected with abscesses dermatitis. Physical examination showed coarse facies, prominent forehead, broad nasal bridge, hypextensible joints of knees and severe atopic eczema refractory to treatments. In evaluating Additional research showed anti-HIV antibody negative, eosinophilia persistent (4080 cells / mm 3) and IgE= 2.000IU / ml.

Conclusion: Given the difficulty for the molecular diagnosis of the syndrome hyper-IgE, we report a probable case of the disease evaluated according to the criteria of Grimbacher be used in our service. Reiterates the importance of investigating immunodeficiency in children with severe atopic eczema associated with recurrent infections.

Consent: Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

Reference

A286
ARIA México 2014: transculturization of a guideline involving 11 national medical societies
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World Allergy Organization Journal 2015, 8(Suppl 1):A286

Background: International guidelines on allergic rhinitis (AR) and its impact on asthma (ARIA) have been developed in collaboration with the World Health Organization since 2001, with updates in 2008 and 2010. The ARIA documents have changed the AR classification, improved the diagnosis of co-morbid asthma and have enhanced the treatment of AR. Although ARIA 2010 has been translated into Spanish, its content is hardly known to physicians outside the circle of experts in Mexico. Mexican specialists felt a formal transculturization of the guideline would enhance its acceptability among primary and specialized health care workers.

Methods: 3 members from 11 professional societies (Allergists, ENTs, pulmonologists, pediatricians and family physicians), each assigned by their presidents, were invited to form part of the Guidelines Developing Group (GDG). The GDG developed a SCOPE document, determining the focus of the guideline: using AGREE-II—an instrument to evaluate quality and adaptability of guidelines- they confirmed ARIA 2010 was of suitable quality and adaptability for Mexico. They then applied ADAPTE, to formally transculturize ARIA 2010 to Mexican reality. A Delphi process was used among GDG members to agree on the Spanish translation of ARIA clinical questions and the exact wording of the replies, formulated into recommendations or suggestions and explaining interpretation of these. Annotations according to Mexican reality (drug safety, costs and cultural issues) were added to the text.

Results: A total of 45 questions from the original 2010 ARIA were included and divided into six groups covering prevention, medical treatment, immunotherapy and alternative medicine to treat patients with allergic rhinitis with or without asthma. One extra question, not included in the original 2010 ARIA, on the use of Nasal Lavages for AR was created sustained by a systematic literature review. Most of the questions reached agreement in one or two rounds; one question required three rounds.

Conclusions: When high-quality international guidelines on a certain topic exist, transculturization, using recognized instruments might yield well-sustained documents, of high local value. As such, an easy-to-use, adapted, up-to-date and applicable allergic rhinitis guideline for Mexico is now available.
1mL 50% glycerin (under GMP standards). The SPTs were carried out in quadruplicate with the concentrate extracts and three serial half-log dilutions, and +/- controls. The study took place at study sites with different climatologic conditions. To determine if there exists a statistically significant difference between the relative potency of the TIM extracts a parallel line bioassay was carried out using the mean surface of the four wheals of the SPTs per extract and per concentration (Wilcoxon, Asymp. Sig.(2-tailed)). Based on the wheal sizes of the concentrate extracts in relation to the REF, BAU values were calculated.

**Results:** Differences in wheal size between concentrate extracts reached statistical significance for all, except Soluprick-REF. The calculated BAU compared to the REF values for both solutions were between 11,300-16,300BAU/mL and the tablets varied between 4200-7300 BAU.

**Conclusions:** Based on SPT whealsizes grass-tablets seem to have a higher relative potency than the previously published value of 2800BAU (which was based on in vitro testing). There is a statistically significant difference (p=0.011) between the allergen concentration as measured in SPT of both tablets. Probably other factors apart from the precise allergen content of the tablets and their potency determine the efficacy of sublingual immunotherapy.

Cite abstracts in this supplement using the relevant abstract number, e.g.: Larenas-Linnemann et al.: Relative potency in SPT of solution and tablet SLIT allergen extracts of Timothy grass pollen from 2 European manufacturers compared to a US reference extract. *World Allergy Organization Journal* 2015, 8(Suppl 1):A287

[Link to relevant abstract]