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MEETING ABSTRACTS

P1

Asthma diagnosis and treatment – 1001. Identification of prevalent sensitizing allergens in India

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World Allergy Organization Journal 2013, 6(Suppl 1):P1

Background: This study was conducted to identify the most common sensitizing food and inhalant allergens in physician-diagnosed allergic children and adults in North India.

Methods: 274 allergy-diagnosed patients, divided into Group A (aged 6–12 yrs) and Group B (aged 12–65 yrs), were enrolled in the study. They were classified as atopic if had at least one positivity when screened with ImmunoCAP® Phadiatop and fx5 (Food mix 5; 6 common foods), a technology considered as the gold standard for IgE antibody blood testing worldwide. For identification of the sensitizing allergens atopic patients were further tested by ImmunoCAP® Specific IgE using a broad panel of common Indian allergens covering 17 foods and 19 inhalants (singles/mixes). Total IgE level was also determined for each atopic patient.

Results: Phadiatop/fx5 determined 59% (162/274) of the patients as atopic, where of 159 were included in further evaluation; 10% were in Group A and 90% were in Group B. Higher proportion (36%) of patients had the medical history of urticaria followed by atopic dermatitis (26%), asthma (23%) and rhinitis (23%). The commonest sensitizing food allergen was banana (68%) followed by sesame seeds (66%), lemon (45%), rice (31%), wheat (24%), cashew (23%) and peanut (21%). Among inhalants, house dust mite, D. farinae (83%) was the most prevalent sensitizing allergen followed by cockroach (79%), weed pollens (29-50%), tree pollen (16-29%), grass pollen mix (26%) and mold mix (25%). Less than 20% of patients tested positive to cockroach (45%), weed pollens (29-50%), tree pollen (16-29%), grass pollen mix (26%) and mold mix (25%).

Conclusions: This is the first Indian sensitization data of this dignity analyzed by ImmunoCAP® which provided useful native information of prevalent sensitizing Indian allergens that would improve cost effectiveness of allergy treatment and hence increase the quality of life of allergic patients in India. Phadiatop/fx5 revealed that the physicians’ diagnosis of IgE mediated allergy was accurate only in 59% of cases and thus highlights the importance of using allergy tests in conjunction with clinical findings for correct allergy diagnosis.

P2

Asthma diagnosis and treatment – 1002. FEF25-75%: a more sensitive indicator in the early detection of asthma

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Background: Spirometry is widely regarded as a clinically invaluable measurement method that is of genuine recommend for the diagnosis and management of asthmatic patients. FEV1 and FEV1/FVC are vastly perceived as asthma severity and control assessment indices, according to the present clinical guidelines. Since FEV1-index is chiefly within normal ranges even in the most severe cases, the certain criteria for asthma diagnosis is immensely base upon it’s significant alteration after bronchodilator challenge test. FEF25-75% represents a well-established indicator of small airway disease now for decades, however, it has been demonstrated that asthmatic patients do have remarkably lower FEF25-75%. Additionally FEF 25-75% meaningful response to the bronchodilator challenge test is seen in some asthmatics that are healthy in terms of other prognostic parameters.

Objective: This study was designed to detect the most sensitive index for the diagnosis of asthma and to determine the correlation between FEV1 and FEF25-75% indices and asthma control questionnaire (ACQ) scores.

Methods: we recruited 107 patients with the diagnosis of asthma who were attending follow-up sessions at the Children’s Medical Center Hospital (CMCH) between December 1, 2010 and May 31, 2012 to conduct a hospital-based study. A p value if <0.05 was considered to be clinically significant to our study.

Results: FEF25-75% Response proved to be more sensitive in detection of asthma in comparison to FEV1 Response as shown in our study (p = 0.042). Nevertheless, Pre-bronchodilator FEF 25-75% does not follow this trend, compared to Pre-bronchodilator FEV1 (p = 0.69). FEF 25-75% Response and ACQ score were significantly correlated (p = 0.01) while this is not the case between FEV1 Response and ACQ score (p = 0.46). Moreover, Pre-bronchodilator FEF 25-75 had a meaningful relationship with ACQ score (p = 0.03), as opposed to the pre-bronchodilator FEV1 in which no significant correlation was seemingly spotted (p = 0.17).
Conclusions: FEF25-75% provides a more sensitive way to assess the early detection, severity and progression of asthma, contrary to the conventional FEV1 index that currently constitutes the only certain clinical criteria to fulfill this role.

P3
Asthma diagnosis and treatment – 1003. Severe asthma: a comparison of clinical severity and lung function
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World Allergy Organization Journal 2013, 6(Suppl 1)P3

Background: Severe therapy resistant asthma is a relatively rare entity. This has been variously based on clinical and spirometric criteria. It has always been known that the correlation between clinical and physiological parameters is not very consistent and hence the difficulty in defining this entity. We have looked at our cohort of consecutive patients with severe and moderate asthma in trying to establish a correlation between clinical and spirometric parameters.

Methods: We looked at 850 consecutive patients with diagnosis of asthma based on Spirometric criteria (GINA guidelines). These were the patients who had compliance to medications was ensured and technique was optimised by trained healthcare personnel. We then selected the ones who had “Severe” & “Moderate” asthma based on Spirometry. We now looked at these patients and correlated their Spirometry with the symptomatology (use of rescue medication, night time awakening, exercise induced symptoms) and exacerbation rates (unscheduled GP visits, number of courses of OCS, emergency visits, hospitals and ICU admissions).

Results: Only 79 (9.29%) patients out of 850 had severe asthma & 352 (41.41%) patients had moderate asthma based on Spirometric criteria. We found that Spirometric findings correlated with clinical parameters in 69.4% patients with Severe Asthma & 86% patients with Moderate Asthma.

Conclusions: Only a small but significant percentage of patients in our population satisfy the Spirometric criteria of Severe Asthma (less than 10%). Even in this population there is lack of homogeneity between clinical parameters (symptoms & exacerbations) and physiological parameters (Spirometry). This correlation was much more consistent in patients with Moderate Asthma. Interestingly, we found more severe the asthma based on Spirometry, less was the correlation with symptomatology and exacerbations. This phenomenon and its causation needs to be studied in greater detail in longitudinal studies.

P4
Asthma diagnosis and treatment – 1004. The utility of mannilot challenge in the assessment of asthma
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Background: Mannitol challenge is becoming a supplementary and suitable method for the assessment of asthma, commonly used for the diagnosis of Exercise-Induced Asthma, due to its safety and high specificity, demanding less equipment and time requirement. Some studies show a closer relationship between AHR (Airway hyperresponsiveness) to mannilot and markers of airway inflammation compared with AHR to methacholine in a selected group of asthmatic subjects. We aimed to describe its suitability in a group of patients who were referred to our outpatient clinic with asthma suspicion.

Methods: Forty-eight patients over 14 years old from our Allergy Department with asthma symptoms (dyspnoea, cough or wheezing) enrolled in the study. Mannitol was inhaled according to manufacturer instructions (Dr. Anderson 9-Step protocol). The study included skin prick testing with a battery of common aeroallergens and respiratory function tests. All patients gave written informed consent.

Results: Forty-eight patients (27 female; 21 male) with a mean age of 30.61 years old were enrolled in the study. Forty patients were astopic (95.24%), showing at least one positive skin prick test and/or aeroallergen specific IgE. Two patients did not show any positive skin prick test nor aeroallergen-specific IgE. Twenty-two patients (45.83%) had a positive Mannitol Test with a mean PD15 of 155 mg. Mean Fractional exhaled nitric oxide (FeNO) of the former resulted 36.1 ppb. Six patients (27.27%) exhibited a rapid response to Mannitol challenge and were classified as severe AHR. Five patients (22.72%) showed a moderate response to Mannitol (Steps 5-6). Eleven patients (50%) exhibited a mild response to Mannitol (Steps 7-9). All patients who manifested AHR after Mannitol Test presented a rapid recovery (<10 minutes) to baseline FEV1 after Salbutamol inhalation. The mean time required to complete the test was 18 minutes.

Conclusions: Mannitol might be considered as a convenient method for AHR diagnosis, due to its good safety and time-saving profile, specificity and relatively low equipment requirement.

P5
Asthma diagnosis and treatment – 1005. Optimization for the withdrawal of inhaled corticosteroid treatment by monitoring fractional exhaled nitric oxide (FeNO) and lung functions
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World Allergy Organization Journal 2013, 6(Suppl 1)P5

Background: There are no standardized criteria or protocol for the withdrawal of inhaled corticosteroids (ICS) from remitted pediatric asthma in Japanese Pediatric Guideline for the Treatment and Management of Asthma (JPLG).

Methods: Among 55 asthmatic subjects in our hospital, FeNO and pulmonary functions were measured at the withdrawal of ICS, at 1 month and 3 month after. Those data were investigated whether it would be a predictor for the recurrence of asthma symptoms.

Results: Subjects in recurrent asthma symptom group were 28 cases and those of non-recurrent asthma symptom group 27 cases (relapse rate: 50.9%). Any significant factors in background patients’ profiles, such as FeNO and pulmonary functions, were not associated with the recurrence of asthma. In recurrent asthma symptom group, FeNO was significantly increased by 3 months after withdrawal of ICS (from 31.8 ppb to 49.2 ppb). Among recurrent asthma symptom group, pulmonary functions were significantly decreased within 1 months (FVC: from 2.11L to 2.02L, FEV1: 0. from 1.93L to 1.85L and %FEV1: 0. from 98.1% to 93.8%).

Conclusions: Although these factors at the time of ICS withdrawal could not predict asthmatic revival, it is highly recommended to follow asthmatic patients who quit ICS therapy by measuring pulmonary function and FeNO periodically.

P6
Asthma diagnosis and treatment – 1006. Perillae semen abolished allergic asthmatic response in murine model
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World Allergy Organization Journal 2013, 6(Suppl 1)P6

Background: Many inflammatory cells and cytokines play main role in allergic reaction, such as Th2 lymphocyte, mast cell, eosinophils, and monocytes such as IL-4,5,13. So those kinds of cells and cytokines would be the therapeutic targets in allergic inflammation. IL-10 regulates an allergic inflammation and makes tolerance, so it is one of good therapeutic modalities. Herb N(Perillae semen) has been used as a medicine for anti-cough and other chest symptoms in our ancient medicine. Chemical components of Perillae semen and physico-chemical properties of Perillae semen oil were analyzed for the use as an edible oil. The proximate
compositions of Perillae semen were 7.5% moisture, 33.2% crude fat, 16.3% crude protein, 2.8% crude ash, 6.5% crude fiber, and 33.7% nitrogen free extract. The major amino acids of Perillae semen were glutamic acid (66.9mg%), aspartic acid (32.5mg%), histidine(21.6mg%), and phenylalanine (20.1mg%). The ratio of essential/total amino acid was 41.3%. The physico-chemical properties of the seed oil were 0.91% specific gravity, 1.4808 refractive index, 3.6 acid value, 181.7 iodine value, and 194.0 saponification value. Composition of major lipid of the oil fractionated by silicic acid chromatography was 94.2% neutral lipids and 5.8% polar lipids. The major fatty acids of the oil were linolenic, linoleic and oleic acid. Here in this study, we tried to find the anti-asthmatic effects and its mechanism of herb N in murine asthma model.

Methods: The effects of herb N were evaluated by antibodies such as OA-IgE, Penh(penl) enhanced pause (PENH), measured by methacholine.

cytokines IL-4 and IL-5, INF-gamma and IL-10 by RT-PCR.

Results: Perillae Semen shifted immune response from Th2 to -P-3000) measured by methacholine. C900 (OM). The other group

P7
Asthma diagnosis and treatment – 1007. Clinical application of forced oscillation technique for children with asthma

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Background: Forced oscillation technique (FOT) measures respiratory impedance by applying external pressures to the respiratory system and makes it possible to evaluate various aspects of airway physiology including small airways. MasterScreen IOS® (IOS) has been widely utilized as a FOT. Recently, a new FOT, MostGraph1 has been available in Japan. Clinical experience including reference values of FOT, especially, for Japanese children, however have not been determined and correlations of the 2 FOTs, MostGraph1 and IOS, are not known.

Objectives: To establish clinical utility of 2 FOTs, IOS and Mostgraph, we aimed to determine reference values of FOT parameters by the 2 technique in Japanese children.

Subjects and methods: We performed FOT by using IOS and Mostgraph in 825 volunteer children from 6 to 18 years of age. ISSAC questionnaire was used to identify asthma and other allergies. In addition, 345 children with asthma who were treated at Mie National Hospital were also enrolled and IOS measurements at 3593 occasions were analyzed on the basis of clinical status of asthma.

Results: All the FOT parameters were strongly dependent on the height and we created regression equations corrected for height from the data obtained from 542 and 399 non-asthma subjects for IOS and Mostgraph, respectively. All the parameters from IOS and MostGraph were significantly correlated. However, correlation coefficients were relatively high in R5 and AX and low in XS and Frs, with Spearmann’s correlation coefficients of 0.62, 0.58, 0.39, and 0.41, respectively. Resistance parameters of both the FOTs in asthma were significantly higher than those in non-asthma subjects and correlated with severity of asthma.

Conclusions: Reference values of 2 methods of FOT for Japanese children were established. Because of the differences in oscillation generation methods, IOS and MostGraph may represent different aspect of airway physiology.

P8
Asthma diagnosis and treatment – 1008. Is small airways disease a widely prevalent yet underdiagnosed phenotype of asthma and COPD in India?

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Background: Spirometry reports of many patients with clinical features of Obstructive Airways Disease (OAD) show predominant small airways(SAW) disease with reduced flow rates, but GOLD or GINA spirometric criteria not diagnostic of COPD or Asthma.

Aims: To compare small airways spirometric parameters with GOLD/GINA diagnostic parameters for COPD/Asthma in clinically and FlowVolume(FV) Loop-wise suspected OAD.

Methods: We retrospectively reviewed clinical data and spirometry reports of patients referred for preoperative respiratory fitness. We reviewed reports of patients whose histories, clinical findings and Flow-Volume Loop obstructive patterns were consistent with COPD/Asthma, but which were not diagnostic of COPD/Asthma based on the GOLD/GINA criteria. Data was analysed for 49 patients.

Results: Data comprised 14 males, 35 females, mean age 54yrs (31-72), 82% never-smokers. 44 had post bronchodilator studies. FEF75 or FEF25-75 < 65% were categorised as SAW disease. Pre bronchodilator (Pre-BD) Mean FEV1/FVC was 78% (70-91%), however Mean FEF75 and FEF25-75 (% predicted) were 34.5% and 43.3% respectively. 6 patients had both, a reversibility in FEV1 >12% and improve by 200ml. Interestingly, of the remaining 38 patients who had no reversibility on a postbronchodilator study, 19 had > 30% reversibility in either FEF 25-75 or FEF75 (Mean reversibility of 53.3%) with a mean post bronchodilator increase in flow rates of 506.3 mL/s. All patients improved symptomatically with inhaled bronchodilator ± steroid therapy.

Conclusions: Small airways (SAW) disease is an important feature of both COPD and Asthma. Screening spirometry relying only on FEV1, FVC, FEV6 without small airways flow rates or visually documented obstructive pattern on FV Loops may miss SAW disease, thus underdiagnosing such phenotypes of COPD or Asthma which might be prevalent in Asian countries due to exposure to biomass fuel and air pollution.
P10
Asthma diagnosis and treatment – 1010. Lung function tests in exercise-induced asthma among pediatric population
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World Allergy Organization Journal 2013, 6(Suppl 1)P10

Background: EIA (Exercise-induced Asthma) can be considered a marker of severity and disease control in asthma. There are several diagnostic tools to evaluate airway hyperresponsiveness in EIA, but it has not been established the best one.

Our objective is to explore bronchial hyperresponsiveness with different lung function measurement techniques among a pediatric population with clinical history suggestive of EIA.

Methods: We included 23 patients who complained of respiratory symptoms (cough, chest tightness, dyspnea and/or wheezing) due to physical exercise. Lung function was monitored 5, 10, 15 and 30 min after exercise in 13 of these patients after reproducing the same exercise eliciting symptoms, with an Asthma Monitor (AMOS®, Jaeger). Exercise challenge, methacoline and manitol tests were performed in our outpatient clinic in all the 23 patients.

Results: Patients were aged between 8 and 16 years old (mean 12, ±2.27). Twelve out of 13 (92%) patients monitoring lung function showed a decrease in lung function after exercise.

A positive methacoline challenge test was observed in 21 subjects (87.5%) (PC20 from 0.08 to 10.51 mg/ml (mean 0.90, ±2.93). Manitol test was positive in 16 patients (65.67%), showing a PD15 from 15 to 475 mg (17.6 ± 1, ±186.61). Only 2 children (8%) resulted in a positive exercise challenge.

Conclusions: According to our results, exercise challenge shows a high percentage of negative results, what might be due to difficulties reproducing the same conditions when the exercise is performed in a real life setting. Lung function monitoring resulted in a high percentage of positive results, and also provided information regarding the elapsed time between the exercise discontinuation and the maximum lung function fall recorded. However, this technique is not standardized yet. Methacoline was the test detecting the highest rate of positive results mirroring bronchial hyperresponsiveness in a pediatric population with a clinical history of EIA.

P11
Asthma diagnosis and treatment – 1011. OZAC- a herbal medicine for bronchial asthma
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World Allergy Organization Journal 2013, 6(Suppl 1)P11

Background: To assess the efficacy of a herbal medicine made up of ocimum sanctum,zingiber officinale,azadirachta indica,curcuma longa in a titrated combination tablet prepared by ‘IMMIS’ labs, India for bronchial asthma patients.

Methods: 100 subjects suffering from bronchial asthma were enrolled for this study from 2012 January to February, after obtaining consent of the participants and ethical committee approval. The bronchial asthma severity was graded as severe peft <200litr/s, moderate 200-300litr/s, mild 300-400litr/s. For this study moderate and mild categories were selected. Furthermore 20% (10 each of moderate and mild) were considered as control.

All the ingredients of OZAC together have the pharmacological action of bronchodilatation, anti allergic, mucolytic and antiasthmatic properties. The entry samples were assessed with Wright peak flow meter before and after the observation period of three weeks, besides the subjective evaluation. As and when required they were administered long acting fluticasone propionate (200mcg), short acting salbutamol (50mcg aerosol with an internal spacer TOPS (trans oro pharyngeal spacer) and doxophylline tabs (400mg). Results: 1. The entire sample consisted of 70 males and 30 females within the age range of 15 to 80 years.

2. The mild group (45%) required 2tabs of ozac twice daily and FF inhaler one puff daily. The improvement in the peft (15%)-pre and post treatment was significant (p<.001).

3. The moderate group had 2tabs of ozac twice daily+FF BIOD Salbutamol sos. The reversibility was significant (p<.001).

4. The control group moderate and mild required FF+S+doxophylline (400mg bid).

Conclusions: Ozac has distinct advantage in the treatment of bronchial asthma. The unique properties of its ingredients makes it an effective adjuvant to the asthma medication.

1. It reduces the need of the inhalers and other bronchodilators
2. It induces confidence in the users
3. It is cost effective and can be an effective adjuvant
4. There are no reported side effects.

P12
Asthma diagnosis and treatment – 1012. The efficacy of budesonide, randomized, controlled trial
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World Allergy Organization Journal 2013, 6(Suppl 1)P12

Background: Current evidence suggests that inhaled glucocorticoids (IGC) have a more profound topical none genomic effect on bronchial airways as compared to systemic glucocorticoids. The value of adding IGC to current therapy of acute asthma is not well established.

Methods: We conducted a double-blind, randomized, two-arm, parallel groups, controlled clinical trial to compare the addition of budesonide 1500 mcg or placebo (normal saline) to standard acute asthma treatment (albuterol and ipratropium bromide) administered in 3 divided mixed doses within 1 hour in the emergency department (ED). Children 2-12 years of age with moderate or severe acute asthma, scoring 8-15/15 on a well-validated scoring system were included. Both groups received a single dose of prednisone 2 mg/kg/day (max. 60 mg) at the beginning of therapy. The primary outcome was admission rate within 2-4 hours from starting therapy.

Results: A total of 723 children were enrolled in the study over 17 months duration, of whom 139 were allowed to re-enroll and be randomized to constitute 906 randomization assignments (458 on the treatment group and 448 on the control group); with baseline mean SD asthma score of 10.63 ± 1.73; age 5.52 ± 2.76 years; 35% girls; 30.8% (16.5%) with baseline severe asthma score of ≥12 (≥13). Statistical Analysis plan allowed for the potential dependency in response due to re-enrollments of a subset of children, using Generalized Linear Mixed Modeling (GLMM) techniques. Baseline demographic and clinical characteristics were not significantly different between the two randomized groups. Seventy-five out of 458 (16.4%) of the treatment group vs. 82/448 (18.3%) of the control group were admitted, (OR 0.85, CI: 0.59-1.23, p-value = 0.39). Among the severe asthmatics with baseline score ≥13, treatment vs. placebo group, GLMM adjusted admission rate was 30% vs. 47%, indicating a 17% difference in admission rate in favor of the treatment group (adjusted OR of 0.49, CI: 0.25-0.95; p-value = 0.035) that indicated a 51% reduction in the risk of admission for the treatment vs. control group.

Conclusions: Children with baseline severe asthma score ≥13 who were treated with budesonide had a significant reduction in their admission rate.
Background: Omalizumab is a recombinant humanized anti-IgE monoclonal antibody, indicated for add-on therapy for moderate- to severe-persistent allergic (IgE-mediated) asthma. Interim results at the 16 weeks time point of this 52 week study have previously been presented. We present a subgroup analysis looking at the efficacy of omalizumab at 16 weeks in relation to the serum IgE levels at baseline.

Methods: This open-label, multi-center, observational, prospective study, recruited 72 patients with moderate-to-severe persistent allergic asthma. Clinical efficacy was evaluated on the basis of improvement in asthma exacerbations, days missed at work/college, hospitalizations, ACQ 5, ACT scores, and FEV1. Safety and tolerability were also assessed. Qualitative and quantitative variables are analyzed using Chi-Square tests and paired t-tests, respectively. All parameters are comparing results at week 16 of omalizumab treatment with those at baseline.

Results: Mean serum-IgE levels at baseline were 437.45 kIU L⁻¹ (range 32-1599 kIU L⁻¹). For analysis purposes patients were categorized into three groups, according to their baseline serum-IgE levels. Group 1 (n=31), comprised patients with baseline serum-IgE levels of 32-250 kIU L⁻¹, and in group 2 (n=24) and 3 (n=17), patients with baseline serum-IgE levels of 251-600 and >600 kIU L⁻¹, respectively. Mean (SD) age in three groups was 53.5 (9.6), 43.8 (15.3) and 60.5 (13.5) years; correspondingly. In group 1, FEV1 levels improved by 0.27 liters (0.98 vs. 1.25, 95%CI; p=0.000) and in group 2 and 3 by 0.67 liters (1.32 vs. 2.00, 95%CI; p=0.001) and by 0.51 liters (1.27 vs. 1.46, 95%CI; p=0.002), respectively. Improvement in FEV1 levels was more prominent amongst patients with serum-IgE levels >600 kIU L⁻¹. This change in FEV1 levels in 3 groups, was significantly different, as determined by one-way ANOVA (F (2,23)=7.959, p=0.002).

Conclusion: In these patients add-on therapy with omalizumab improved lung function, quality of life and other clinical measures. In this small sub group analysis, the improvement was more marked in patients with a higher IgE level at baseline.

P16 Asthma diagnosis and treatment – 1016. Is atopy in people aged 40 years and over related to fixed airflow obstruction?

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Background: The Tucson and Normative Ageing studies showed atopy was well treated by macrolide administration. The incidence of DPB is high among Asian, especially Japanese and Korean. We experienced 4 DPB patients misdiagnosed to severe asthma or combined with asthma.

Case 1: A 70-year old female came to our clinic complaining uncontrolled asthma for 10 years. Spirometry showed obstructive lesion (FEV1=94.9%, FEV1/FVC=71.08%) with 5% bronchodilator (BD) response. PC20 of methacholine was 3.8 mg/ml. Chest CT showed diffuse bronchial wall thickening with tree in bud sign. Treated with clarithromycin for 1 month, FEV1 was improved from 64.9% to 84.2% without asthma medication.

Case 2: A 52-year old man complained his uncontrolled asthma for 4 years. He was diagnosed as severe asthma and treated at other hospital. His FEV1 was 1.74L (54.4%) and improved 20.6% after bronchodilator. CT scan showed diffuse bronchitis thus we administer clarithromycin for 6 months. FEV1 was improved from 54.4% to 95.3%. He could discontinue inhaled-corticosteroid and other asthma medications.

Case 3: A 25-year old male with uncontrolled asthma. Initial FEV1 was 2.51 L (62.6%) and severe sputum eosinophilia. His CT scan shows diffuse bronchits with tree bud sign and then treated with clarithromycin for 9 months. FEV1, was improved from 62.6% to 88.4%. He reduced daily amount of inhaled corticosteroid.

Case 4: A 60-year old female was visited to our clinic with severe asthma. Spirometry showed obstructive lesion (FEV1=42.9%, FEV1/FVC=73.37%) without BD response. CT scan shows diffuse bronchial wall thickening. FEV1 was improved from 42.9% to 97.1% after 6 months use of clarithromycin without any asthma medication.

Conclusion: We report 4 cases of DPB were mistaken for severe asthma or combined with asthma. We suggested DPB must be considered as a differential diagnosis for treatment resistant asthmatics in Korea.
current asthma and smoking status (OR=1.56, 95%CI 1.13-2.17). As expected, atopy was related to the presence of bronchodilator reversibility (OR=1.89, 95%CI 1.32-2.72).

Conclusions: The apparent association of atopy with fixed airflow obstruction using post-bronchodilator spirometry in people aged 40 years and over may be due to clinical heterogeneity.

P17
Asthma diagnosis and treatment – 1017. Prevalence and determinants of allergy and asthma amongst Indian children
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World Allergy Organization Journal 2013; 6(Suppl 1):P17

Background: Jaipur was one of the centres that participated in the third phase of International study of asthma and allergy in children (ISAAC). The findings of Jaipur centre are highlighted in this paper. Prevalence of symptoms of asthma was assessed in school going children of Jaipur. The effects of traffic pollution and tobacco smoke on the prevalence of asthma were also studied.

Methods: Schools at various centres were randomly selected. Children of eligible age group were included in the study after confirming with the school records. Two groups of children aged between 6-7 year and 13-14 year were selected and questionnaires were given. Parents of the younger age group children answered the questionnaire. The 13-14 year aged children answered the questions themselves along with an additional video questionnaire. The questionnaire included questions regarding exposure to traffic pollution and environmental tobacco smoke. Bivariate analysis was used to calculate the odds ratio.

Results: The prevalence of wheeze in past 12 months (current wheeze) in the 6-7 year age group was 5.43% and in the 13-14 year age group was 5.37%. The preservation of severe asthma was 3.42% in the 6-7y age group and 2.89% in the 13-14 y age group. The proportion of asthmatics with severe asthma was high with 62.94% in the 6-7y age group and 53.85% in the older aged children. In the 6-7y age group asthma was significantly associated with environmental tobacco smoke and in the 13-14y age group asthma was associated with traffic pollution. Odds of developing bronchial asthma in the 13-14g group exposed to traffic pollution was 1.730 (95% CI: 1.209 to 2.475 ). Current wheeze was also associated with the 6-7y age group with maternal cigarette smoking with odd ratio of 2.627 (95% CI: 1.781 to 3.875 ) and paternal cigarette smoking with odd ratio of 9.144 (95% CI: 5.457 to 15.324).

Conclusions: Environmental tobacco smoke and traffic pollution were associated with high prevalence of asthma amongst school going children of Jaipur.

P18
Asthma diagnosis and treatment – 1018. Effect of inhaled corticosteroids with long-acting beta2 agonists vs. inhaled corticosteroids alone on asthma control in children: results from national asthma survey
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World Allergy Organization Journal 2013; 6(Suppl 1):P18

Background: There is limited evidence for the comparative efficacy of inhaled corticosteroids (ICS) vs. ICS used in combination with a long-acting beta2 agonist (ICS/LABA) to treat asthma in children under 12 years.

Methods: Data from the National Asthma Survey were analyzed to compare asthma control in children (5 to 11 yrs) using ICS/LABA vs. ICS alone. Both short term (symptoms within last 2 weeks, day and night symptoms in last 30 days and use of systemic glucocorticoids in last 3 months) and long term (asthma attack, emergency department visits, hospitalizations and activity limitations in the prior year) outcomes were compared. Demographics, availability of health insurance, indoor allergen exposure and asthma education were compared between the two groups. Asthma control in an adult population (18 to 44 years) was also assessed for the same parameters.

Results: 69 children using ICS/LABA and 134 using ICS alone were identified. Baseline characteristics were similar in both groups. 67% of children were using ICS/LABA for more than 6 months. There were no differences in short and long term asthma outcomes between the two groups (p>0.05 for all outcome measures). Similar results were obtained with the adult population. (p>0.05 for all outcome measures).

Conclusions: These data indicate that asthma control in children, using ICS/LABA vs ICS alone, was not different than asthma control using similar medications in the adult population. LABA tolerance or the use of ICS/LABA in subjects with more severe asthma could explain these findings.

P19
Asthma diagnosis and treatment – 1019. Churg Strauss Syndrome – missed diagnosis and consequences
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Background: To have a high index of suspicion for diagnosing Churg Strauss Syndrome in patients presenting with asthma symptoms, pulmonary infiltrates and various systemic manifestations of the disease.

Methods: Case notes with investigations was retrieved from various specialists attending to the index patient with undiagnosed pulmonary symptoms and pulmonary infiltrates with systemic disease, especially chronic abdominal symptoms over a two year period. During the patient’s last admission she again presented with intractable abdominal pain, pyrexia, systemic hypertension (BP 170/140), loss of weight, emaciated (24 Kg), purpuric eczematous rash on the upper limb, unable to walk with marked weakness (polyneuropathy) and was being prepared for laparoscopic cholecystectomy by the surgeons for suspected cholecystitis.

Results: Review of data and clinical features reviewed the classical case of Churg Strauss Syndrome, highlighting the phasic nature of the disease. Beginning with the prodromal allergic phase progressing to the eosinophilic phase, vasculitic phase and post-vasculitic phase.

Conclusions: A classic case of undiagnosed Churg Strauss Syndrome over a 2-year period highlighting the sequential x-ray chest, CT, histological features (endoscopy and abdominal laparoscopy) and the systemic manifestation of the disease with a brief review of the topic. Suitable for 20 or 30 minutes oral presentation.

P20
1021-Asthma diagnosis and treatment – 1021. Prevalence of wheezing and risk factor of asthma in preschool children, South Korea
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Background: Childhood asthma is frequently perceived as a disease with uniform clinical pathways. This perception might be an oversimplification. The aim of the present study was to investigate the prevalence of wheeze in children ≤6 yrs of age and the proportions of children with the risk factors predicting asthma at school children.

Methods: The Green Breath for Children (GBC) recruited 1,354 preschool children who live in Jinchon area and are ≥2 yrs of age in 2011. Physical examinations, questionnaire for allergic and respiratory disease and skin prick tests were performed.

Results: Among 1534 preschool children, 1219 (90.0%) has completed response to questionnaire. Complete data were available for 1169 children about past medical history including wheeze, familial history and skin prick test. The prevalence of wheeze was 29.4%. It was found that incidence of wheezing declined and incidence of aeroallergen sensitization increased with age. Two hundred and ten preschool children had wheeze at ≤3 yrs of age. Two hundred and seventy three (22.3%) has associated risk factor of progression toward atopic asthma.

Conclusions: There were high prelevance of wheeze and presence of risk factor of atopic asthma. So it is needed that other methods or markers
are able to discriminate children who will have progression to asthma and asthma exacerbation in school childhood among wheezer in preschool children.

P21 Asthma diagnosis and treatment – 1022. The differences of clinical profiles by house dust mite sensitization in patients with asthma in Soonchunhyang University Hospital cohort

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World Allergy Organization Journal 2013, 6(Suppl 1):P21

Background: The majority of patients with allergic disease are highly sensitized to house dust mites (HDM). There is few data to observe sensitization rate to HDM in asthmatics in Korea. The aim of this study was to observe the differences of clinical profiles by HDM sensitization in patients with asthmatics in Soonchunhyang University Hospital (SCH) cohort.

Methods: We recruited 2316 asthmatic patients in SCh cohort. Lung function, BMI and sputum and blood eosinophils, and PC20, and clinical profiles were compared by HDM sensitization.

Results: HDM sensitization rate was higher prevalence in male than in female. Compared with non-HDM sensitization asthma, HDM positive asthmatics had early onset of age (D. farina, 39.0 ± 0.50 vs. 48.5 ± 0.42, p=0.001; D. pteronyssinus, 39.4 ± 0.50 vs. 48.3 ± 0.43, p=0.001). HDM positive asthmatics had shorter duration of asthma symptom than that of HDM negative asthmatics. HDM negative asthmatics had lower FEV1/FVC % than those of HDM positive asthmatics. PC20 in HDM positive asthmatics had lower than those of HDM negative asthmatics (D. farina, 5.59 ± 0.25 mg/ml vs. 6.82 ± 0.28 mg/ml, p=0.001; D. pteronyssinus, 5.54 ± 0.24 mg/ml vs. 6.87 ± 0.28 mg/ml, p=0.001). Blood eosinophils number in D. pteronyssinus positive asthmatics had higher than that of D. pteronyssinus negative asthmatics (400.7 ± 12.5 vs. 375.5 ± 15.3, p<0.05).

Total IgE in HDM positive asthmatics had higher than that of HDM negative asthmatics. There was no difference of BMI between two groups.

Conclusions: Our data indicate that atopy asthmatics who sensitized to HDM had early onset of age, high total IgE and airway responsiveness, and eosinophilic inflammation.

P22 Asthma diagnosis and treatment – 1023. The implementation of asthma management guideline and the obstacle factors in Korea

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World Allergy Organization Journal 2013, 6(Suppl 1):P22

Background: There is gap between the guideline and real practice of asthma management. The implementation of asthma management guideline is essential to reduce the gap and for the qualified standard care. We evaluated the implementation of asthma management guideline and obstacle factors to the implementation in Korean physicians.

Methods: From March to April 2012, a total of 165 physicians in primary care, secondary and tertiary hospitals were enrolled. They filled in a questionnaire about their current practice on asthma: whether they followed the management guideline and if not, what might be the obstacle factors.

Results: Thirty eight percent of the physicians were male and their mean age was 43 (±8) years old. Ninety five percent of physicians had asthma patients in their clinics. Most of them (83.2%) knew about the asthma management guideline and 87.4% of them used the guideline on their asthma practice. Among the physicians, one hundred and twenty two (73.9%) were primary care physicians. 65.6% of the primary care physicians answered that they practiced according to the guideline for more than half of their patients. They reported difficulties in monitoring asthma control status. Only 26.2% of the primary care physicians prescribed inhaled corticosteroid (ICS) to most of their asthma patients, and the reasons that they do not prescribe ICS that much were physicians’ preference for oral medications and the concern about the possible refusal by the health insurance.

Conclusions: In primary care physicians, there was a huge gap between the management guideline and real practice. This study shows the necessity of education that ICS is the first-line choice in the treatment of asthma, and strongly suggests that the current health insurance policy should be improved for the better asthma care.

P23 Asthma diagnosis and treatment – 1024. Prevalence of depression among asthma patients and effects of asthma control on severity of depression

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World Allergy Organization Journal 2013, 6(Suppl 1):P23

Background: Asthma is a serious global health problem. Global prevalence of asthma ranges from 1% to 18% of population in different countries. In India, prevalence of asthma is 3% of the population. Major depressive disorder is the most common mood disorder often found to be higher among people with chronic health conditions like asthma. Presence of depression may lead to increased severity of asthma making it an uncontrolled asthma.

Our objective was to see prevalence of depression among asthmatic patients and effect of asthma control on severity of depression.

Methods: All patients who met the inclusion criteria evaluated with Goldberg’s The General Health Questionnaire (GHQ) 28, Bengali Version of Beck Depression Inventory (BDI) and Holmes & Rahe’s Life Event Scale. Severity of asthma and level of asthma control determined as per GINA guidelines. Follow up was done after 3 months and patients were again evaluated with Goldberg’s The General Health Questionnaire (GHQ 28), Bengali Version of Beck Depression Inventory (BDI) and Holmes & Rahe’s Life Event Scale.

Results: Among 100 patients 35 (35%) had normal BDI score, mild mood disturbance was found in 23 (23%), borderline clinical depression in 12 (12%), moderate depression in 20 (20%), severe depression in 9 (9%), extreme depression in 1 (1%) patients. Follow up done at 3 months showed 68 patients had controlled and 32 patients had partially controlled asthma. Follow up evaluation with BDI showed 37 (37%) patients had normal score. Mild mood disturbance was found in 24 (24%), borderline clinical depression in 14 (14%), moderate depression in 4 (8%), severe depression in 8 (8%), extreme depression in 1 (1%) patients. There is no significant correlation between severity of asthma and severity of depression (Correlation coefficient 0.047, p value 0.322). There is also no correlation of asthma control on severity of depression (Correlation coefficient -0.036, p value 0.362).

Conclusions: Depression is highly prevalent among asthma patients. There is no significant correlation between severity of asthma and severity of depression. There is also no correlation of asthma control on severity of depression.

P24 Asthma diagnosis and treatment – 1025. Prevalence of childhood asthma in small city of Iran: an ISAAC study

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World Allergy Organization Journal 2013, 6(Suppl 1):P24

Background: Asthma and other allergic disorders are common health problems around the world especially in children and have a negative impact on quality of life. Allergic diseases are one of the leading causes of school absence as well as reduction in children performance at school.
Epidemiologic Studies have shown that the prevalence of asthma and other allergic diseases have risen over the past decades. Many factors have been reported that contribute to this increase including genetic factors as well as environmental factors such as lifestyle, infections and diet. Preventing and controlling allergic diseases require information about the Prevalence, risk factors and triggers which can be vary in different countries. The objective of this study was to determine the prevalence of asthma and other allergic diseases among 6-7 year old children in Birjand city.

Methods: In a cross-sectional survey in 2011, all school children age 6-7 years in Birjand city were evaluated based on ISAAC protocol. Persian version of ISAAC core questionnaire was completed by parents in total 3070 school children (M/F ratio=0.88) were participated in this study.

Results: The response rate was 91%. The prevalence rate for Wheezing, physician diagnosis asthma, exercise wheeze, rhinitis and eczema was 15.5%, 2.2%, 3.2%, 12.4% and 8.2% respectively. Except eczema, prevalence of other symptoms was higher in boys than girls but the differences were not significant compared with females.

Conclusions: Our study shows that prevalence of rhinitis and wheezing is high among school children in Birjand city. Further studies should be performed to determine risk factors of allergic disorders in this area.

P25 Asthma diagnosis and treatment – 1026. Long term twice weekly dose of methotrexate in steroid dependent chronic allergic diseases Suman Kumar 1, Poonam Kumar 2

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World Allergy Organization Journal 2013, 6(Suppl 1):P25

Background: The purpose of this review is to characterize the type of patient who may benefit from alternate, nonsteroidal agents and to examine the current evidence behind their use.

Methods: Evaluated the use of oral or IM low-dose methotrexate vs placebo in steroid-dependent asthma patients using either parallel or crossover design. 100 patients enrolled in study attending the ent and allergy centre (India)panchkula patients were on long term steroid therapy for more than 1 years. Age of patients between 30 to 50 years. Study comparing methotrexate, 10 mg weekly orally, or placebo.

Results: It was concluded that methotrexate allowed a good amount of reduction in oral corticosteroid compared to patients receiving placebo. The benefit of using methotrexate were very promising as compared to side effects of corticosteroids in steroid dependent allergy diseases however, and should be balanced against the potential for side-effects associated with the use of methotrexate.

Conclusions: With low dose weekly therapy of methotrexate we can reduce the side effects of prolonged steroids have suggested that methotrexate may have potential long-term benefits coupled to generally mild adverse events; although adverse effects were not of a serious nature they were observed in up to one-third of patients. Rare but potentially life-threatening adverse effects involving the pulmonary, hepatic and haematological systems remain of particular concern. methotrexate should therefore be considered as an adjunct to high dose inhaled STEROIDS in patients who require more than 10mg of prednisolon daily, and who experience severe and unacceptable steroid-related adverse effects. Treatment should only be initiated by physicians with experience in the use of the drug, and the relevant safety parameters should be closely monitored.


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World Allergy Organization Journal 2013, 6(Suppl 1):P26

Background: Obesity is common, especially in children with asthma. An entity termed “childhood obesity-associated asthma” was proposed to be linked to Th1 polarization rather than the common Th2 profile of allergic diseases.

In one study, high body mass index (obesity or overweight) was associated with asthma at all ages. Another study showed obesity negatively impacted asthma control. In a Japanese study, the cutoff for BMI prediction of asthma was lower than the Westerns. Consistently, race and ethnicity were shown to influence the association between obesity and asthma.

The aim of this study was to explore whether Emirati asthmatic children have higher body mass index (BMI).

Methods: This cross-sectional study involved public school children (age = 12 to16 years in the 7th and 8th grades) in the Eastern province of United Arab Emirates (UAE). A questionnaire (21 exploring questions to be answered by the parents) was given to 1,218 students of the chosen classes. Eight hundred ninety one (73%) students returned the survey and were included in the study. Other collected data included students’ height, weight, FEV1 and PEF.

Results: The prevalence of asthma was 13% (115 of 891 students). There were no difference in the asthma prevalence among males and female (p=0.159). BMI (mean ± SD) for the asthmatics was 21.43 ± 7.01 and non-asthmatics 20.22 ± 5.53 (p=0.076). Atopic dermatitis (p=0.001), allergic rhinitis (p<0.001) and food allergy (p<0.05) were higher among the asthmatics.

Conclusions: BMI was higher among asthmatics, although the difference did not reach a statistical significance. Atopic disorders significantly clustered in asthmatic children.

P27 Asthma diagnosis and treatment – 1028. A rare case of bronchial asthma and allergic rhinitis with complete right lung agenesis investigated in tertiary case hospital

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World Allergy Organization Journal 2013, 6(Suppl 1):P27

Background: Unilateral lung agenesis is extremely rare. These patients usually present in infancy or childhood with recurrent respiratory infection and cardiopulmonary insufficiency. Here, we report a rare case of bronchial asthma and allergic rhinitis whose investigation showed complete right lung agenesis.

Methods: A 26 year-old lady presented with episodic breathlessness, chest tightness, recurrent nasal obstruction and excessive sneezing, mainly during change of season along with opacity of the right hemithorax on chest x-ray. Further detailed work-up including spirometry, high resolution CT scan of the thorax and fibroptic bronchoscopy confirmed complete right lung agenesis in patients with bronchial asthma and allergic rhinitis.

Results: Chest x-ray PA view showed homogenous opacity with signs of volume loss on the right side. After that we confirmed by CT images of the thorax that revealed complete absence of right lung with hyperinflation and compression of the left lung to the right side. Further, fiberoptic bronchoscopy showed completely absent right main bronchus and trachea directly leading to left main bronchi. Spirometry was also performed which revealed obstructive airway disorder with 13% post bronchodilator reversibility confirming the diagnosis of bronchial asthma. Complete control of symptoms was achieved for formeterol 6 µg and mometasone 200 µg (via dry powder inhaler) and intranasal fluticasone 50 µg (nasal spray) 2 puffs twice daily and oral montelukast 10 mg with levocetirizine 5 mg once daily. The patient was completely asymptomatic when reviewed after 1 month follow up and she was advised to stop intranasal fluticasone and to continue formeterol and mometasone inhaler with oral montelukast and levocetirizine preparation.

Conclusions: This rare case illustrates that a high index of suspicion is necessary to diagnose the condition. Simple and regular asthma medications may good enough to relieve symptoms even in patients with unilateral lung agenesis for control of symptoms.

P28 Asthma diagnosis and treatment – 1029. Yoga as an adjuvant therapy in asthma management

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About 300 million people are suffering from asthma globally and about 10% of it about 30 million asthmatics belong to India. Current treatment...
involves use of preventer and reliever inhalers, antileukotrienes and methyl xanthines. Many studies have shown the effect of yoga on bronchial asthma as significant improvement in pulmonary functions, quality of life and decrease in medication use but only a few studies have attempted to show the effect of yoga on biochemical changes. The present study was conducted on 276 subjects with mild or moderate bronchial asthma who were allocated randomly to either the cases/ yoga (intervention) group (n= 121) and the control group (n= 120) in the Department of Pulmonary Medicine, King George’s Medical University, Lucknow, U.P. The yoga group received an intervention based on yoga (asanas, pranayama & meditation), in addition to standard medical treatment and the control group received only standard medical treatment and both groups were assessed at 0th, 3rd and 6th month.

There was a significant improvement found in asthma symptom score and Asthma Quality of Life scores in yoga group than control group. There was significant improvement found in day time symptoms in yoga group at 3rd month & 6th month than control group. Significant improvement was found in yoga group at 3rd month (p-value 0.004) & 6th month (p-value < 0.0001) in total AQOL score and its sub-domains (activity limitation (p-value < 0.0001) & emotional function (p-value 0.006 & < 0.0001) in comparison to control group. In the yoga group, there was a steady and progressive improvement found in pulmonary functions as compared to the control group. There was significant difference found in haemoglobin, TLC, Eosinophils, Monocytes & Super oxide dismutase level. The rescue medication use has a significant decreased in comparison to control group.

The present study showed that yoga group has significant improvement in asthma symptom scores, spirometrical, biochemical changes, quality of life and also helps in reduction of inhalation therapy, thus reducing the cost of therapy. So, it can be useful cost effective add on therapy of asthmatics.

**P29 Environmental and Occupational Respiratory Disease – 1030: Role of fungi (molds) in allergic airway disease – an analysis in South Indian Otologyngy Center**

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World Allergy Organization Journal 2013, 6(Suppl 1):P29

**Background:** To determine the incidence of fungal sensitivity and to identify the types of fungi responsible for causing Respiratory Allergies in South Indian population.

**Methods:** A study was done on the data related to 570 patients who had visited the allergy clinic in the Otologyngy Department from January 2000 to September 2009. Clinical history related to Allergy was taken and clinical examination was done. The investigations done included Total Serum IgE levels, Peripheral Oesinophil percentage, Skin tests & Fungal culture. Based on the clinical findings, patients were categorized into three groups viz.1. Allergic Rhinitis (AR), 2. Allergic Rhinitis with Asthma (ARA), 3. Allergic Fungal Sinusitis (AFS). Based on the skin tests, patients were classified into three groups viz. 1. Positive towards fungus, 2. Positive towards allergens other than fungus (HDM, pollen, insects, food, etc), 3. Positive towards other allergens and fungus. Based on the skin tests, individuals sensitized to specific type of fungus were identified.

**Results:** The results for sensitivity on skin tests were as follows: Fungus alone: 29.9%; Fungus + other allergens: 14.7%; Other allergens: 55.3%. Whereas, Overall sensitivity for fungus: 29.9% + 14.7% = 44.7%; Positivity for fungus alone was highest in AR group (47.9%); Positivity for fungus + other allergens was highest in AR group (63.8%). In all three clinical groups, the highest sensitivity for fungus that was identified was for Aspergillus fumigatus and Aspergillus flavus. In case of Allergic Fungal Sinusitis with Nasal Polyposis, the most common fungus that was identified on fungal culture was Staphylococcus (55%) followed by Aspergillus flavus (40%). Skin tests conducted by Agashe et al (Bangalore, South India) were found to be positive for Helminthosporium, Alternaria nigrospora and Cladosporium (Agashe SN et al, 1983).

**Conclusions:** Diagnosis and Immunotherapy of allergy to fungi require well characterized or standardized extracts that contain the relevant allergens of the appropriate fungus. Many such studies from India and other countries may help in the better understanding of this condition which can lead to proper diagnosis and management.

**P30 Environmental and Occupational Respiratory Diseases – 1031. A study of outdoor aeroallergens in Riyadh, Saudi Arabia**

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World Allergy Organization Journal 2013, 6(Suppl 1):P30

**Background:** To investigate the outdoor aeroallergens at two different, a fully developed (FD) and a less developed (LD), sites in Riyadh, capital city of Saudi Arabia.

**Methods:** Two Burkard Volumetric 7-day Recording Spore Traps were employed at both locations. Exposed slides were read at 12 bi-hourly traverses, with a total of 60 fields per 24 hours (0-24 hours). The study was initiated in January 2012.

**Results:** The data analyzed so far revealed the presence of different pollen and fungal species at both sites. The ratio between the pollen and fungal spores was 1:5. The airborne pollen grains showed quantitative and qualitative differences between the two sites. At FD site, the major pollen grains included Phoenix dactylifera (31%), grass pollen (14%), Artemisia nummularia (12%), Amaranthus viridis (10%), Artemisia monosperma (7%), Plantago sp. (6%) and Populus sp. (4%). The minor species (<1%) were Casearia sp., Chenopodium murale, Eschscholtzia sp., Eucalyptus sp., Lilium sp., Prosopis juliflora, Salix sp. and Salsola imbricata. At the LD site, the major species included Phoenix dactylifera (36%), grass pollen (15%), Salix sp (8%), Artemisia monosperma (6%), Aptirex nummularia (6%), Plantago sp. (3%), Populus sp. (3%), Amaranthus viridis (2%) and Ambrosia sp. (2%). The minor species included Daucus carota, Eucalyptus sp. and Salsola imbricata. The fungal spores recorded at both sites displayed only quantitative variations. The major components of these spores at FD site included Arthriinum (14%), Ulocladium (14%), Cladosporium (13%), Alternaria (10%), ascosporse septate (10%), smut spores (9%), Basidiopore (7%), ascosporse non septate (6%), Bipolaris (3%), Mycosmucyte (3%), Periconia (3%), Aspergillus/Penicilium (2%), Stenophylym (2%) and Curvularia (1%). The minor components (<1%) were Drechslera, Melanospora, Peranospora, Pithomyces and Torula. The major fungal spores at LD site were Ulocladium (13%), Cladosporium (12%), Aspergillus/Penicilium (11%), smut spores (11%), Alternaria (9%), ascosporse septate (9%), Basidiopore (9%), Arthriinum (8%), Stenophylym (5%), ascosporse non septate (4%), Periconia (3%) and Bipolaris (2%), while the minor spores included Curvularia, Drechslera, Melanospora, Mycosmucyte, Peranospora, Pithomyces and Torula.

**Conclusions:** The results indicate that developed and less developed sites have no impact on the qualitative and quantitative diversity of fungal spores but such diversities were recorded in airborne pollen species.

**P31 Environmental and occupational respiratory diseases – 1032. Study of allergen pattern in cases of chronic allergic rhinitis in central India**

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World Allergy Organization Journal 2013, 6(Suppl 1):P31

**Background:** To know the Allergen pattern of Central India in cases of Chronic Allergic Rhinitis. From year 2006 to 2012.

**Methods:** 504 patients of Chronic Allergic Rhinitis in the age group of 06 to 63 years of age of either sex were taken for study of Allergen Pattern by Modified Prick Test.

After detailed history. Clinical Examination of ENT, Routine blood counts, absolute Eosionophil count, Serum IgE estimation. Patient were off the antihistaminc for minimum of seven days. Allergy test by modified prick method was performed on upper limbs on palm aspect of forearms. Glycerinated Histamine acid phosphate as positive control and Glycerinated buffer saline as negative control were used. Each patient was tested for same 166 Allergens, Wheal & flare response recorded.

**Results:** In above study with 504 patients following were the percentage of different Allergens positive in above group.

House dust mite 18% with D. Fariniae 18%, Pollens 78.5% with Prosopis Juliflora 15.5% . Fungus 13.5% with Aspergillus Flavus 4.5%, Insects 64.5% with Cockroach female 35.5%, Dusts 38.5% with Grain Dust Rice 22%,
Danders 21% with Human Dander 6.5%, Fabrics 5% with Silk 2%, Foods 50% with Milk 5%, Miscellaneous 7.5% with Parthenium Leaves 4%.

Conclusions: The above study gave us the common Allergen pattern in Central part of India in cases of Chronic Allergic Rhinitis as Pollens 78.5%, Insects 64.5%, Food 50%, Dusts 38.5% were mostly responsible for Chronic Allergic Rhinitis.

P32
Environmental and occupational respiratory diseases – 1033. Rust fungi of plants and high IgE levels in asymptomatic workers of a stored food grains godown: a possible relationship
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World Allergy Organization Journal 2013, 6(Suppl 1):P32

Background: Rust fungi are often isolated in air samples collected from storage areas, however, their role in allergy is not investigated so far. Thus this study was designed to find out any possible role of rust fungi in human allergy.

Methods: Air samples were collected during loading/unloading of stored food grains in a godown with the help of Rotrorod sampler, UK on petroleum jelly coated tape at 2900 rpm for 30 minutes, the tapes were then directly inoculated on Sabouraud’s dextrose media for isolation of fungi by imprint smear. Most of the collected samples yield Aspergillus sp., Rhizopus sp., Penicillium sp., Mucor sp. and along with them one variety of Rust fungi of plants was also repeatedly isolated. Formaldehyde based fungal suspensions were prepared from all the cultured fungi, workers’ blood samples were collected and sera were separated. Then serum samples were tested with the formalin suspensions of the isolated fungi in the form of slide agglutination tests. Serum total IgE levels of all collected blood samples were also measured by ELISA test method.

Results: It was found that the isolated Rust fungi of plants gave positive agglutination tests with almost all collected serum samples while agglutination reactions with the other isolated fungi were much less. The reactions of the isolated Rust fungi were violent with sera showing high IgE levels. Serum IgE levels were also very high in many of the workers.

Conclusions: This study indicates that Rust fungi of plants have got a role in human allergy and details regarding this should be explored for the benefit of the mankind.

P33
Environmental and occupational respiratory diseases – 1034. A novel ELISA method for the detection of dust mite allergens using IgY technology
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World Allergy Organization Journal 2013, 6(Suppl 1):P33

Background: One of the main strategies to reduce the expression of allergic symptoms in atopic patients sensitized to house dust mites is the use of detection system for monitoring and reduce environmental allergens in indoor spaces. In this context, the IgY technology represents a valuable tool. The specific aims of this study were to standardize a house method of indirect ELISA assay for detection of dust mite allergens using mouse IgY antibodies.

Methods: We used two specific avian antibodies against synthetic oligopeptides raised and designed from the mature cistein protease that previously were development by us: anti-P04 and anti-P06. The specificity of this IgY was evaluated using Dermatophagoides farinae(Df) and Blomia tropicalis(Bt) and Periplaneta americana(PA) extracts. Dust samples were taken from mattresses and it were collected in cellulose filters, then extracted and diluted in 1X PBS, pH 7.4. Antibodies were diluted 1/250. Dust samples from unused brand new mattresses were used as negative control.

Results: Both IgYs, anti-P04 and anti-P06, showed reactivity against Df and Bt extracts, but not against the extract of P.A. The anti-P04 IgY showed higher sensitivity compared to the IgY anti-P06. The limit detection at the mite extracts was >0.3 ug/mL protein. Antibodies were able to detect allergens at a Limiting dilution of the dust samples until 1/8 for IgY anti-P04 and 1/4 for anti-IgY PO6. Samples tested by ELISA using dust from unused mattresses were negative. Direct relationship was observed between the number of Dermatophagoides sp in the sample when it was comparative with OD of the ELISA assay.

Conclusions: Specific IgY antibodies seems to be useful for the detection of mite allergens in dust samples. This in house indirect ELISA could be used routinely in the laboratory for detection of mite allergens in indoor spaces. This study provides the basis for the detection and monitoring of other allergens in domiciliary.

P34
Environmental and occupational respiratory diseases – 1035. Isolation and purification of major allergenic protein of moth and rice weevil insect extracts
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World Allergy Organization Journal 2013, 6(Suppl 1):P34

Background: The study was plan to isolate and purify the major allergenic protein from moth and rice weevil insect whole body extracts (WBEs).

Methods: For purification of allergenic proteins, crude insect WBEs were subjected to 80% ammonium sulphate precipitation, anion exchange column chromatography using DEAE-Sepahcel and fast protein liquid chromatography (FPLC) using Mono Q column.

Results: After 80% ammonium sulphate precipitation, most of the proteins were recovered in 80% precipitable fraction, 58.4% in moth and 71.2% in rice weevil. However, the recovery in supernatant was low 6.1% in rice weevil and 14.4% in moth extract. In ELISA inhibition of both the insect WBEs, most of the allergenic activity was recovered in 80% ammonium sulphate precipitate fraction (80% ppt). No allergenic protein bands were detected in the supernatants of both insect extracts. Molecular weights of allergenic proteins ranged from 10 kDa to in 105 kDa. When 80% ppt of both the insect extracts was subjected to anion exchange chromatography, three peaks were obtained in each extract. FrI of both the purified insects induced significant inhibition of insects ELISA. FrI of both insects also produced some inhibition, FrII failed to induce any inhibition. SDS-PAGE analysis of FrI revealed that it contains 13 proteins in moth and 10 protein bands in rice weevil. In immunoblot experiments, FrI showed only one allergenic protein of moth (30 kDa) and three in rice weevil (63 kDa, 45 kDa and 22 kDa).

On FPLC of FrI of moth and rice weevil extract, four fractions (FrIa, FrIb, FrIc and FrId) were obtained. Of the 4 fractions, FrIa of moth and FrIc of rice weevil showed maximum allergenic activity. In SDS-PAGE analysis of FrIa of moth and FrIc of rice weevil revealed protein bands of 30 kDa and 45 kDa, respectively. Major allergenic proteins of moth extract identified in immunoblot experiments, corresponding to molecular weight 30 kDa was recovered in fraction moth-FrIa; in rice weevil extract major allergenic protein was recovered in fractions FrIc of molecular weight 45 kDa.

Conclusions: This purified protein may be used as a reference reagent for the standardization of insect extracts used for diagnosis and immunotherapy of allergic patients.
The quality of life is significantly impaired in subjects with allergic rhinitis, but can be improved by treatment. However, the condition may frequently be trivialized by the patient and/or unrecognized (by the physician), resulting in the inadequate control of symptoms. Many causative agents have been linked to AR including pollens, molds, dust mites, and animal dander. Aeroallergens play a major role in the pathogenesis of allergic diseases, particularly rhinitis and asthma.

**Objectives:**
1. To analyse the trends and patterns in patients with allergic rhinitis who visited our clinic.
2. To get baseline data regarding the spectrum of allergens.
3. To adapt appropriate treatment protocols.
4. To plan further studies.
5. To study the skin sensitivity to various allergens by skin prick test in patients of nasobronchial allergy.

**Methods:** We conducted a clinical audit of the patients evaluated in the allergy clinic Jan 2011 – Jan 2012. Study design: Cross-sectional observational study. The patients were evaluated with a detailed history, anterior rhinoscopy and nasal endoscopy. Investigations including Absolute eosinophil count, Total serum IgE, Skin prick test and nasal smear for eosinophils were performed. All these details were recorded in a proforma. A panel of 22 allergens were tested which were broadly divided into 6 groups namely: fungi, pollen, dust, animal epithelia, dust mite and insects. We present here the results of our annual audit and the allergen sensitivity pattern.

**Results:**
The skin prick positivity was highest among fungi (29.86%), followed by pollen (23.61%), dust (21.3%), animal epithelia, dust mite and insects (16.4%). Overall the most common allergen was found to be Parthenium hysterophorus (44.9%).

**Conclusions:** The present study serves as a baseline for selecting of panel of aeroallergens for skin prick tests and also depicts the allergy pattern and trends in urban India. This study will further be corroborated by establishing a pollen calendar specific for this region. Allergen avoidance and choice of allergens for immunotherapy will be planned on this basis.

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**P36 Environmental and occupational respiratory diseases – 1037. Sensitization to indoor aeroallergens in pediatric patients**

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World Allergy Organization Journal 2013, 6(Suppl 1):P36

**Background:** Indoor aeroallergens are the main cause of sensitization. The aim of this study is to identify the most common indoor aeroallergens which tested positive by skin tests in Monterrey, México.

**Methods:** A retrospective, observational and descriptive study reviewed the skin tests results for indoor aeroallergens in pediatric patients ≤ 16 years in 2011. We evaluated the results of skin tests specifically for: Dermatophagoides farinae, Dermatophagoides pteronyssinus, Felis domesticus, Canis familiaris, Blattella germanica and Periplaneta americana.

**Results:** A total of 439 skin tests were performed for indoor aeroallergens in pediatric patients. There were 57.6% (n = 253) men and 42.4% (n = 186) women with mean age of 6.3 years. Patients were divided into the following age-groups: children under 3 years (17.8%, n = 78), 3 to 5 years (35%, n = 154), 6 to 12 years (36%, n = 158) and 13 to 16 years (11.2%, n = 49). The main diagnoses were chronic rhinopathy 88.9% (n = 390), asthma 16.7% (n = 73), atopic dermatitis 4.3% (n = 19) and other 7.3% (n = 32). At least 57.9% (n = 254) of the patients had one positive skin test for the evaluated allergens. In these patients, we found sensitization to D. farinae in 77.2% (n = 196), D. pteronyssinus 84.6% (n = 215), B. germanica 24% (n = 61), P. American 18.9% (n = 48), F. domesticus 18.5% (n = 47), and C. familiaris 10.2% (n = 26).

**Conclusions:** D. farinae, D. pteronyssinus and B. germanica were the most commonly aeroallergens found at the skin tests. When divided by age, F. domesticus and C. familiaris were more frequently found in children less than 3 years. In addition, D. farinae and D. pteronyssinus were identified more commonly in older age groups.

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**P37 Environmental and occupational respiratory diseases – 1038. Efficacy of influenza vaccination on pediatric asthma control**

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World Allergy Organization Journal 2013, 6(Suppl 1):P37

**Background:** Influenza vaccine has been recommended for asthmatic patients in many countries as observational study have established that influenza infection can be associated with asthma exacerbation. But influenza vaccination itself has the potential to adversely affect pulmonary function. This study sought to determine whether influenza vaccination status is associated with asthma control in children or not.

**Methods:** A survey was conducted of patients ≥6 yrs old with a diagnosis of asthma who were registered in Iranian Pediatric Asthma Registration program (IPAR) in Immunology, Asthma and Allergy Research Institute (IAARI), Tehran, Iran since 2008. Management practice and level of asthma control according to GINA guideline, for 517 children were evaluated. Data were analyzed using the statistical package SPSS version 16. Univariate analysis were performed to identify association between influenza vaccination and asthma control.

**Results:** Among 172 well controlled patients, 59 one (34.3%) influenza vaccination was not current, 103 (59.54%) vaccination was current, and 10 patients didn't receive vaccine. In group II (partly controlled + uncontrolled) 301 patients were registered, in which 164 (54.55%) was current, 131 (43.52%) was not current, and 64 (21.26%) didn't receive vaccine. There was a significant relation between receiving vaccination and well-controlled asthma (p<0.000).

**Conclusions:** Controversy exists regarding the effectiveness of influenza vaccination in improving asthma control in pediatric population. In this study it has been shown; using yearly influenza vaccination is related to better asthma control level in children and it’s recommended to vaccinate all children with asthma.
one patient had parasitosis (giardiasis), one patient had severe side effects, one patient had dyspnea two hours after the injection, and one patient had a dyspnea attack 2 hours after the injection. The changes in MPV levels were not statistically significant. There was also significant decrease in IGE levels after the treatment. 

**Conclusions:** Our clinical follow-up study suggesting that monitoring the complete blood cell count might be important in the use of omalizumab. Only in one case, a dyspnea attack occurred 2 hours after the injection. The patient was hospitalized and treated appropriately, and discharged after a 24 hours of follow-up period. Thrombocytopenia developed in one patient and the treatment was suspended. Although we did not have any anaphylaxis, we believe that the patients should be monitored at least for 3 hours after the Omalizumab injection.

**P39**

**Environmental and occupational respiratory diseases – 1040. Associations between asthma and bronchial hyper-responsiveness with allergy and atopy phenotypes in urban black South African teenagers**

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**World Allergy Organization Journal 2013, 6(Suppl 1):P39**

**Background:** Epidemiological studies in South Africa show increasing prevalence rates of asthma and allergic sensitisation in both urban and rural Black African communities, and narrowing of the urban-rural gradient.

There is a paucity of current data on bronchial hyperresponsiveness (BHR) in urban Black African children, associations between asthma and BHR and the relationship between BHR, allergen sensitisation and other atopic diseases.

**Objectives:** To determine asthma and allergy phenotypes in unselected urban Black African (Xhosa-speaking) teenagers and to associate BHR with asthma, other atopic diseases and allergen sensitisation.

**Methods:** Cross sectional study of two hundred and eleven urban high school Xhosa children. Modified ISAAC questionnaires regarding asthma, eczema and rhinitis were administered. BHR was assessed by methacholine challenge using hand-held nebulisers. Skin prick tests (SPT) were performed to 8 aeroallergens and 4 food allergens.

**Results:** Asthma was reported in 9% and 16% demonstrated BHR. Rhinitis was reported in 48% and eczema in 19%. Asthma was strongly associated with BHR. Asthma was associated with eczema whereas BHR was associated with rhinitis.

SPTs were positive in 34% of subjects; aeroallergens in 32%, food allergens 5%. The most common sensitivities were to house dust mites (HDM) and German cockroach. BHR was associated with sensitivity to any aeroallergen, Cat, HDM, Cockroach and Bermuda grass. Number of positive SPTs was associated with asthma and BHR. With each level of SPT positivity there is 40% increased prevalence of asthma and 70% increased prevalence of BHR.

The rate of allergen sensitisation in subjects with BHR (72%) was much higher than those without BHR (28%); house dust mite sensitivity: 69% in subjects with BHR and 18% in those without.

**Conclusions:** These are the highest rates of allergen sensitisation in both urban and rural Black African children, associations between urban and BHR and the relationship between BHR, allergen sensitisation and other atopic diseases.

**P41**

**Environmental and occupational respiratory diseases – 1042. Influence of environmental endotoxin and allergen levels on prevalence of asthma and allergen sensitizations in urban and rural children in Guangdong, China**

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**World Allergy Organization Journal 2013, 6(Suppl 1):P41**

**Background:** To study the association between house dust endotoxin levels and respiratory symptoms and allergen sensitizations in children from the urban areas (Guangzhou) and rural areas (Conghua) of Guangdong province, China.

**Methods:** Three hundred and seventeen children aged 13-14 years (Guangzhou 188, Conghua 129) with self-reported respiratory symptoms (including asthma) and allergic rhinitis in the children of Guangzhou were significantly higher (1794 EU per square meter, 10.95 EU endotoxin/g dust) than those of Guangzhou (508.8 EU per square meter, 6.45 EU endotoxin/g dust, p<0.01). Logistic regression analyses showed a positive association between endotoxin levels and PD25-FEV1 (r=0.174, p<0.05), and a negative association (p<0.01) between endotoxin levels and the wheal sizes of skin response to Dermatophagoides pteronyssinus (Der. p) and Dermatophagoides farinae (Der. f).
Conclusions: These findings suggest that exposure to higher levels of house dust endotoxin might contribute to the lower risk of allergic sensitization in children.

P42
Environmental and occupational respiratory diseases – 1043. Effects of socio-economic status, lifestyle patterns and demographic factors
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World Allergy Organization Journal 2013, 6(Suppl 1):P42

Background: Asthma is increasing among adults in Delhi and its fundamental cause is not known yet. Identifying the potential risk factors may be helpful to understand its cause.

Methods: A community based study of 50 cases and 50 controls ranging in age from 18 to 50 years was undertaken in Delhi region of India. The cases were collected from Dr. B.R Ambedkar Hospital, Rohini. The controls were chosen from the same demographic region. Statistical package for social studies (SPSS ver.17) was used to find statistical significance.

Results: In clinical cases of asthma, poor sanitation and water supply (p<0.01), low education level (p<0.01), low income (p<0.01), positive family history and low physical activity (p<0.01) were found to be associated with asthma. We also found that low education level (p<0.001,6.75 times), low family income (p<0.001,9.11 times), low personal income (p<0.001,12.5times), poor sanitation (p<0.01,29.9 times) and high sensitivity to allergy (p<0.001,17.07 times), positive family history (p<0.01,2.78 times) were likely to increase the risk of asthma in the population under study. Our study also suggested that house wives are 4.80 times (p<0.05) and inactive individuals are 9.54(p<0.001) times more at risk of developing asthma.

Conclusions: This study indicates that low socio-economic status, positive family history of asthma, higher sensitivity to allergy, inactive life style and indoor environmental risk factors are the potential risk factors for asthma in adult Brahmmin population in Delhi, India.

P43
Environmental and occupational respiratory diseases – 1044. Prevalence of recurrent wheezing in infants in a poor urban city in South Brazil
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World Allergy Organization Journal 2013, 6(Suppl 1):P43

Background: To identify the prevalence of recurrent wheezing in infants in the city of Uruguaiana, RS, Brazil.

Methods: This is a cross-sectional study, part of the EISL (International Study of Wheezing in Infant). The parents or legal guardians of the infant aged 1-15 months attending health centers for immunization were interviewed and administered the EISL questionnaire, a standardized and validated instrument consisting of questions on demographic characteristics, wheezing, respiratory infections and risk factors during the period between January 2008 and July 2010.

Results: Sampled infants (n=1061) had a mean age of 13.09 months with a prevalence of wheezing during their first year of life of 28.56%, 10.37% had 3-6 episodes. They lived in a poor area of the city, with low maternal education level (60,13% had ≥8 years of formal education) with an income < 500 US$ (99,81%). The exposure to prenatal maternal smoking was 9.61%, with 12.63% of maternal smoking and 34.31% of household smoking. The infant born by cesarean section were 26.30% and the mean of breastfeeding of 3-4 months. Maternal history of asthma and rhinitis were 5.02% and 27.50% respectively.

Conclusions: The prevalence of wheezing among infants living in a poor area of Uruguaiana is high. It is necessary to identify if the risk factors of wheezing in this low socio-economic level population differ from environmental stimuli found in developed countries.

P44
Environmental and occupational respiratory diseases – 1045. Skin prick tests and allergen-specific IgE tests for fungus in patients with chronic lower respiratory symptoms
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World Allergy Organization Journal 2013, 6(Suppl 1):P44

Background: Skin prick tests (SPTs) has relatively a good correlation with allergen-specific IgE against house dust mites (HDM) and pollens, whereas their correlation to fungi remains low. We aimed to investigate the correlation between results of serum specific IgE and SPTs for HDM or fungi in patients with chronic lower respiratory symptoms. The clinical difference between serum fungus or HDM-specific IgE-positive and –negative groups was also examined.

Methods: A total of 89 patients underwent both SPT and serum specific IgE test to D. farinae, D. pteronyssinus and 5 fungi (Penicillium notatum, Cladosporium, Aspergillus fumigatus, and Alternaria,Fusarium sp.) with chronic lower respiratory symptoms were included in this study.

Results: SPT and serum specific IgE tests for HDM were positive in 20.2% and 38.2% and for fungi 5.6% and 41.6%. The k statistic for the agreement between SPT and serum specific IgE test about HDM was relatively high (0.425, p<0.001) compared with fungi (k=0.102, P=NS). In patients with negative SPT to HDM, total IgE (741.15 vs. 84.33KU/L) was higher and FEV1 % predicted (76.95% vs. 90.33%) and PC20 (2.57 vs. 1.32mg/ml) were lower in the serum HDM-specific IgE positive group than in negative group (P<0.05). In patients with negative SPT to fungi, total IgE (480.32 vs. 119.67KU/L) was higher in the serum fungi-specific IgE positive group than in negative group (P<0.05).

Conclusions: The rate of successful detection of HDM and fungi using SPT was low compared to serum specific IgE. Thus, serum specific IgE might need to detect HDM and fungus allergies in patients with chronic lower respiratory symptoms.

P45
Environmental and occupational respiratory diseases – 1046. Lung function among the workers exposed to rubber factory in West Bengal
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World Allergy Organization Journal 2013, 6(Suppl 1):P45

Background: Exposure to dust or fumes can cause a variety of lung problems, including chronic airflow obstruction.

Methods: The study was carried out on the 256 workers exposed to dust at the rubber factory. 16 workers with moderate exposure, 240 Workers with high exposure, spirometry (FVC, FEVI) were performed. Information on occupational history, duration of exposure, smoking habits, alcohol consumption, respiratory symptoms (breathlessness, cough and rhinitis) and self reported symptoms with disease were collected. By employing multiple linear regression modeling the potentially confounding effects of age, sex and body mass index were also incorporated into the analysis. Odds ratio were calculated for FVC<80% predicted in different exposure subgroups.

Results: Statistically, significant reduction. FVC, FEVI and PEFR were found when compared to age, small airway obstruction, and also in shortness of breathing. Small airway obstructions were found in dust fume (27.2%), Smoking (30.3%), Alcohol (29.3%). Lung function indices were found to be reduced with increasing duration of exposure to working environment. The FVC of the workers exposed to factory with a mean of 3.6 ± 0.6. The FEVI, for workers exposed with a mean of 2.4 ± 0.6. The mean value of the ratio of FEVI/FVC in exposed workers was 76.8 ± 8.2 there was no statistical difference between these two means.

Conclusions: Due to high ambient dust concentration and the observed adverse effects on lung functions worker exposed to dust have more respiratory symptoms and a grater risk of airflow obstruction. A reduction of dust exposure and secondary preventive measure is advised.
P46

Environmental and occupational respiratory diseases – 1047. Trend of asthma and attention deficit – a 5-year population survey
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World Allergy Organization Journal 2013, 6(Suppl 1):P46

Background: The aim of this study was to investigate the incidence and trend of comorbid conditions of attention deficit developed among asthma patients during 5 years period.

Methods: This study was based on continuous data from the Taiwanese National Health Insurance Research Database which contained 98% of registry files of all 22,600 million populations. Asthma was selected with code 493.xx of the International Classification of Disease, 9th Revision, and Clinical Modification. Asthma case was defined that the diagnosis occurred more than three times within 6 months. A total 139,629 (74,603 in male, 65,026 in female) patients newly diagnosed with asthma in 2003 were enrolled in this cohort and follow-up. Attention deficit was defined as patients with first diagnosis ICD-9 code of 314.xx.

Results: There were 0.3% of asthma patients suffering from attention deficit in year 2003 and increased to 1.0% in year 2008. The male asthma patients suffered from attention deficit increased from 0.46% to 1.69% in, which is more common than females (from 0.12 to 0.40, p<0.001). The male asthma patients had 4-fold risk than females to have this problem. Comparing to non-asthma populations, both genders asthmatic patients presented with almost equivalent risk, though statistical significantly, to have attention deficit (p=0.001).

Conclusions: Asthma patients significantly increased to develop attention deficit, and male patients had increasing trend within 5 years follow-up period.

P47

Environmental and occupational respiratory diseases – 1048. Association of VDR SNPS with allergy asthma in Colombian Caribbean patients. A pilot study
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World Allergy Organization Journal 2013, 6(Suppl 1):P47

Background: VDR gene maps to chromosome 12q, region q13-23 near a SPNs VDR and asthma susceptibility in a sample of asthmatic patients living in a Colombian Caribbean area.

Methods: Blood samples were collected from 37 asthmatics patients and 60 unrelated normal individuals with informed consent. The DNA was isolated from PBL by using a salting out technique. SNPs were selected from dbSNP: http://www.ncbi.nlm.nih.gov/SNP/. Nine VDR polymorphisms were genotyped: FokI (rs228570), Apal (rs797532), BsmI (rs1544410), TaqI (rs731236), rs703842, rs4516035, rs2248096, rs7113916, rs7975322. Total IgE was determined with a commercial ELISA kit. The allergens tested on patients by Prick Test were D Peronysinus, D Farine, B Tropicalis and P Americana, Genotyping was performed using MALDI-TOF mass spectrometry of allele-specific primer extension products generated from amplified DNA sequences (Mas-SARRAY, SEQUENOM Inc).

Results: There was no significant difference between levels of vitamin D and total IgE (p=0.852).

Conclusions: Although a association of the VDR variants to patients with asthma could not be asserted, our results raise the possibility of a susceptibility association in rs797532 BsmI and rs1544410 in this group of Caribbean patient’s population. This is the first work set up in the Colombian population. More data from family studies on this admixed population should be done to validate this possible association.

P48

Environmental and occupational respiratory diseases – 1049. Impacts of air pollution and environmental tobacco smoking on the symptoms of childhood asthma
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World Allergy Organization Journal 2013, 6(Suppl 1):P48

Background: Childhood asthma is one of the most common public health problems in developed communities. It is associated with many environmental factors such as air pollutant exposure, parental smoking, climate condition, and aeroallergens. The aim of this study was to examine the combined effects of environmental tobacco smoking and air pollution on the symptoms of childhood asthma.

Methods: A cross-sectional survey of asthma and allergic diseases in elementary school children was conducted in July 2009. The survey was carried out for all six graders (aged 5-14 years) via parental questionnaires (including the ISAAC core questions) at randomly selected two schools (A and B) which are located in suburban residential area and near industrial complexes, respectively. Data on the lifetime and 1-year asthma symptom prevalence and environmental factors were collected from 2,201 children (School A: n=882, School B: n=1,319) participated in the study. All data were analyzed with SPSS 18.0 and odds ratio was calculated by logistic regression analysis to estimate the combined effects of study factors on Asthma.

Results: Survey results showed that the prevalence rates of asthma symptoms (lifetime/1-year symptoms) were higher for school B (13.8/4.5%) than the rates for school A (9.6/2.8%). The prevalence rates are also relatively higher by 1~2% for a group exposed to environmental smoking (ETS) than the other group. In multivariate logistic analysis, it was found that the significant risk factors for lifetime and 1-year symptom of asthma were maternal history of allergy, age (<10 years), air pollution (AP) (+), ETS (+). The combined effect between AP and ETS were significantly associated with lifetime and 1-year symptoms of childhood asthma.

Conclusions: Our results suggest that living in polluted area and exposure to tobacco smoking are significantly associated with the prevalence of symptoms of childhood asthma.

P49

Environmental and occupational respiratory diseases – 1050. Determination of immunoglobulin E in asthmatic workers with respiratory infections of Al-Baiji oil refinery in Iraq
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World Allergy Organization Journal 2013, 6(Suppl 1):P49

Background: Irritant-induced occupational asthma suspected to occur within few hours of exposure to high concentration of gas, fume or vapour at work in oil refinery establishments lacking safety measures. There was a relationship between asthmatic and bacterial agents causing respiratory infections.

Methods: The qualitative estimation of immunoglobulin E in serum of the patient was based on solid phase enzyme-linked immunosorbent assay (ELISA).

Results: 37% (74/200) of refinery patients and 19.5% (39/200) of nonrefinery hospitalized patients who had a total IgE level up to 100 IU/ml or more were considered as allergic. It was noticed that IgE level among...
refinery allergic patients ranged between 201-728 and 106-3266 IU/ml of refinery and nonrefinery hospitalized patients respectively. Conclusions: The highest incidence of allergy was recorded among refinery patients. The present study revealed that the percentages of 80 and 42 pathogenic strains were isolated from 74 and 39 allergic patients with respiratory infections from refinery and nonrefinery hospitalized patients respectively. The high incidence of asthma and respiratory infections in the oil refinery plant could be due observed lacking of safety measures.

P50

Environmental and occupational respiratory diseases – 1051.

Intractable sneezing – case report

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World Allergy Organization Journal 2013, 6(Suppl 1):P50

Background: Intractable Sneezing (IS) is a relatively uncommon disorder. It has been reported in about 45 cases in literature. We report one such case and how it was managed is described.

Methods: An 11 year old female child was referred to the Allergy clinic in the Otolaryngology department with recurrent spells of sneezing of about 2½ months duration. Each spell consisted of more than 200 sneezes in 25 minutes. The child underwent clinical evaluation by primary care physician and ENT specialist. There was no relief of symptoms with the standard treatment. A thorough clinical and psychosocial history was taken from the child and the parents. Clinical examination and relevant investigations to exclude any organic causes for sneezing were done. Child’s psychological assessment was done by the clinical psychologist.

Results: A final diagnosis of psychogenic Intractable Sneezing (PIS) was made. The psychological history revealed the evidence related to psychological stress. She was not able to cope up with her peer group in the school with respect to academic pressures and expectations because of learning disabilities. A result of the above situation was anxiety. So she was using sneezing as a defense to cope up with stress, so that she could abstain from going to school. The child underwent behavioral and psychotherapy and the parents underwent counseling. There was a complete resolution of symptoms in a period of 4 weeks.

Conclusions: A review of the literature suggests that 38 out of 45 reported cases of intractable sneezing (i.e. nearly 85%) are supposed to be psychogenic in origin. PIS is supposed to be a manifestation of conversion disorder. It is typically seen in children and adolescents and is more common in females. The treatment is basically, psychotherapy with or without anxiolytic medication. PIS is an unusual disorder, but a timely diagnosis of this condition can avoid unnecessary medical trials, parental anxiety and poor school performance as most of the cases are very young.

PS5

Environmental and occupational respiratory diseases – 1053.

Plastic bags – a double edge sword

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World Allergy Organization Journal 2013, 6(Suppl 1):PS5

Background: Plastic is convenient, lightweight, unbreakable and relatively inexpensive. However, there are both environmental and health risk from the widespread use of plastics. Bisphenol A, a chemical that mimics the action of the human hormone estrogen, can leach from polycarbonate plastic. Bisphenol A has been found to stimulate prostate cancer cells 7 and causes breast tissue changes in mice that resemble early stages of breast cancer in both mice and humans. Reusable bags for transport of groceries from the store to the consumer’s home have become popular in recent years. Since these bags are often reused, and used potentially for multiple purposes, the possibility for contamination of food products as well as the consumer’s hands. Most food borne illnesses are believed to originate in the home. Reuse of bags creates an opportunity for cross contamination of foods. Study was to assess the potential for cross contamination of food products from reusable bags used to carry groceries. It is recommended that the public needs to be educated about the proper care of educated about the proper care of reusable bags by printed instructions on the bags or through public service announcements improper cooking or handling of foods. Reusable

P52

Environmental and occupational respiratory diseases – 1054.

Sensitization to storage mites, wheat and yeast allergens in Cuban bakers

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World Allergy Organization Journal 2013, 6(Suppl 1):P52

Background: For many years, bakers have been considered a professional group at risk of developing allergic diseases by factors related to the work environment. In our country, in this employment sector, the frequency of allergic sensitization to dust mites, wheat flour, soy and yeast is not known. This study aimed at assessing the frequency of work-related symptoms and sensitivity to mites and other occupational allergens among bakery workers through skin prick test (SPT).

Methods: A no-matched case-controlled study was performed. The study group included 17 bakery workers in Havana, Cuba, median age 33 (range 18-55 years old), and the control group comprised 14 non-exposed subjects, median age: 28 (range 22-47 years old). Both groups had male predominance. A medical resume and SPT were performed to all subjects.

Results: Of 17 bakery workers, eight had one or more work-related symptoms and the respiratory symptoms were the most reported. The higher sensitization frequency in bakers corresponded to yeast (88.2%), followed by storage and house dust mites, A. siro and Dermatophagoides siboney (a Caribbean species similar to D. farinae) and wheat with 82.3% each one. The least sensitization value was found to D. pteronyssinus (only 47%), in contrast to the response pattern found in the control group where this mite was the predominant sensitizing allergen. The largest wheal diameters were found to A. siro and T. putrescentiae in the bakers group and to D. farinae and B. tropicalis in the control group.

Conclusions: There is a high sensitivity to storage mites and wheat flour and yeast allergens among bakery workers, which can be an important risk factor to consider for their occupational safety.

P53

Environmental and occupational respiratory diseases – 1055.

CD23, TH1/TH2 cytokines in children with bronchial asthma, bronchiolitis and bronchial pneumonia

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World Allergy Organization Journal 2013, 6(Suppl 1):P53

Background: CD23 (FcεRII), is the low-affinity receptor for IgE and considered as a multifunctional cytokine. Soluble CD23 (sCD23) plays an important role in IgE synthesis. The aim of this study was to determine sCD23 and TH1, TH2 cytokines levels in Children with asthma, bronchiolitis and bronchial pneumonia.
Methods: CD23, Histamine release, total IgE and various Th1, Th2 (Th1 cytokine) increased significantly in infection whereas can be

The questionnaire was designed based on the internationally 1056.

& 197±48 μg/m

Urban air pollution (indoor and outdoor) poses a major

PM. pneumoniae

6(Suppl 1):

M. pneumoniae

so. Indoor and outdoor levels of SO

We cultured A549 human epithelial cell line in serum-free

10

M. pneumoniae

6(Suppl 1):

2

concentration was lower inflammatory and (Th1 cytokine) was

Der p

IL-8 levels were highly detected in both RSV-infected cells only (Th3)

infection usually occurred in summer and

chiolitis (1455.52 ± 146.92 pg/mL) when compared to

onary obstruction. However the

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3

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Mycoplasma pneumoniae

1057.

2

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respectively, which is also showed similar results with

Der –

& 274±78 μg/m

g

We analyzed medical records of 78 children, admitted to

Airway is one of the main routes for allergen exposure and

entering airborne allergens through the airway can initiate allergic

responses, resulting in development of allergic asthma. There are various environmental factors that also influence to the airway-mediated immune

responses. Among the factors, respiratory syncytial virus (RSV) enables the condition of the airway to change because RSV infection is common in early life and induce the bronchiolitis. In addition, several studies have been reported that non-immune cells such as airway epithelial cells play a pivotal role in the initiation of allergic responses. The aim of our study is to determine the association between the sensitization of common airborne allergens and RSV infection in airway epithelial cells.

Methods: We cultured A549 human epithelial cell line in serum-free media for a day and RSV was inoculated into the cells. After the infection for an hour, low or high dose of Dermatophagoides farinae (Der f), or Dermatophagoides pteronyssinus (Der p) allergen was treated into media and 24hr later we assessed the concentration of proinflammatory cytokines in media and their mRNA levels.

Results: IL-8 levels were highly detected in both RSV-infected cells only and allergen-treated cells only group. In low dose allergen-treated groups, particularly, IL-8 concentration in media was significantly higher in RSV-infected group than no-infected group. Other proinflammatory and allergy-related cytokines such as IL-6, TNF-a, and TSLP in RSV and allergen-treated groups showed no difference compared with control groups. The other house dust mite allergen, Der p also showed similar results with Der f, increasing IL-8 level in RSV-infected with low-dose allergen treated group.

Conclusions: Our findings showed that IL-8 production in low dose of Der f-sensitized human airway epithelial cells was highly enhanced by RSV infection. We therefore implied that RSV infection may allow the airway epithelial cells to be more sensitive against airborne allergens, leading to augmentation of susceptibility for asthma.

P54

Environmental and occupational respiratory diseases – 1056. Enhancement of sensitivity for human airway epithelial cells to house dust mites by respiratory syncytial virus infection

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World Allergy Organization Journal 2013, 6(Suppl 1)P54

Background: Airway is one of the main routes for allergen exposure and entering airborne allergens through the airway can initiate allergic responses, resulting in development of allergic asthma. There are various environmental factors that also influence to the airway-mediated immune responses. Among the factors, respiratory syncytial virus (RSV) enables the condition of the airway to change because RSV infection is common in early life and induce the bronchiolitis. In addition, several studies have been reported that non-immune cells such as airway epithelial cells play a pivotal role in the initiation of allergic responses. The aim of our study is to determine the association between the sensitization of common airborne allergens and RSV infection in airway epithelial cells.

Methods: We cultured A549 human epithelial cell line in serum-free media for a day and RSV was inoculated into the cells. After the infection for an hour, low or high dose of Dermatophagoides farinae (Der f), or Dermatophagoides pteronyssinus (Der p) allergen was treated into media and 24hr later we assessed the concentration of proinflammatory cytokines in media and their mRNA levels.

Results: IL-8 levels were highly detected in both RSV-infected cells only and allergen-treated cells only group. In low dose allergen-treated groups, particularly, IL-8 concentration in media was significantly higher in RSV-infected group than no-infected group. Other proinflammatory and allergy-related cytokines such as IL-6, TNF-a, and TSLP in RSV and allergen-treated groups showed no difference compared with control groups. The other house dust mite allergen, Der p also showed similar results with Der f, increasing IL-8 level in RSV-infected with low-dose allergen treated group.

Conclusions: Our findings showed that IL-8 production in low dose of Der f-sensitized human airway epithelial cells was highly enhanced by RSV infection. We therefore implied that RSV infection may allow the airway epithelial cells to be more sensitive against airborne allergens, leading to augmentation of susceptibility for asthma.

P56

Environmental and occupational respiratory diseases – 1058. Clinical and diagnostic characteristics of mycoplasma pneumoniae pneumonia in children with lobar pneumonia

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World Allergy Organization Journal 2013, 6(Suppl 1)P56

Background: Mycoplasma pneumoniae (M. pneumoniae) infected lobar pneumonia has increased recently in children in Korea. Objective: To evaluate the clinical and laboratory characteristics of lobar pneumonia infected by M. pneumoniae and to find more sensitive diagnostic tool in children.

Methods: We analyzed medical records of 78 children, admitted to Chungnam National University Hospital and diagnosed with lobar pneumonia by chest X-rays between March 2010 and December 2011. White blood cells, C-reactive protein (CRP), procalcitonin (PCT), specific antibodies to M. pneumoniae, and cold agglutinin (CA) were measured at admission. Children were divided into 2 groups; those with M. pneumoniae infection (group A) and those without (group B). Group A children were also subdivided into 2 categories: those with increased CA (group A1) and those without (group A2).

Results: M. pneumoniae infection usually occurred in summer and autumn. Group A children accounted for 75.6% (59/78) of all cases. The onset age was higher in group A than in group B (P=0.016). WBC counts and PCT values were higher in group B than in group A (P=0.015 and P=0.011). Radiologic findings showed that the lower lobe was most commonly involved without predilection for either side and that pleural effusion was present in 13.6% of all cases. The duration of fever before admission was longer in group A than in group A2 (P=0.019).

Conclusions: The clinical symptoms and signs of lobar pneumonia caused by M. pneumoniae infection were more severe and can be accurately diagnosed using serum PCT values than using CRP values.

P55

Environmental and occupational respiratory diseases – 1057. Correlation between air pollution and respiratory health of school children in Delhi

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World Allergy Organization Journal 2013, 6(Suppl 1)P55

Background: Urban air pollution (indoor and outdoor) poses a major health hazard for city dwellers. Exposure to ambient air pollution may result in respiratory health disorders. The aim of this study was to correlate air pollutant levels to the respiratory health of school children in Delhi.

Methods: The questionnaire was designed based on the internationally valid questionnaires for respiratory illness. The respiratory health survey was approved by the Directorate of Education – Delhi and schools were selected based on land usage pattern i.e. commercial (Chandni Chowk), industrial (Mayapuri) and residential (Sarojini Nagar) areas. Approximately 1800 students (600 / zone) of age 10 – 14 years participated in the survey which included spirometry tests also. Indoor and outdoor levels of SO2, NO2 and PM were also measured in the school premises.

Results: The questionnaire data showed that the students having respiratory disorder symptoms was maximum in Chandni Chowk (66%) followed by Mayapuri (59%) and Sarojini Nagar (46%). Spirometry test results demonstrated that a significant population of subjects in Chandni Chowk (19%) had mild to severe pulmonary obstruction. However the percentage of subjects with such conditions was comparatively less in Mayapuri (17%) and Sarojini Nagar (14%) area. Indoor and outdoor PM10 concentration at schools located in Chandni Chowk, a commercial zone, was observed to be 815±354.45 μg/m³ & 337±55 μg/m³ respectively, which is ten times above the permissible limits. The PM10 concentration was lower in Mayapuri (694.6±322.9 μg/m³ & 274±58 μg/m³), an industrial zone, and was least in Sarojini Nagar (534.2±94.22 μg/m³ & 197±48 μg/m³) which is a residential limit. However, levels of SO2 and NO2 were under the permissible limits in all three areas.

Conclusions: There is a correlation between pollutant levels and symptoms of respiratory illness in children. Commercial zones like Chandni Chowk with high traffic movement and human activities contribute more PM which affects the pulmonary health of children.
P57
Environmental and occupational respiratory diseases – 1059. Lung exposure to TiO2 induces eosinophilic airway inflammation in the rabbits
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World Allergy Organization Journal 2013, 6(Suppl 1):E57

Background: Titanium dioxide (TiO2) nanoparticels (NPs), one of the most abundantly utilized nanomaterials, was widely used in industry, cosmetics, and biomedicine. There have been reported that TiO2 NPs aggravates respiratory symptoms by induce pulmonary inflammation. However, the mechanisms of these effects have not been extensively studied yet. We aimed to investigate inflammation in rabbit lung following an intratracheal instillation.

Methods: To understand lung inflammation after TiO2 NPs exposure, TiO2 NPs were instilled into one lungs of rabbits at fixed dose of 10, 50, 250 ug, respectively. Bronchoalveolar lavage fluid (BALF) was collected before (baseline), at 1 and 24 hr after TiO2 NPs intratracheal instillation. Changes of inflammatory cell counts in BALFs were measured. After BAL processing, lung histological assay were carried out at 24 hr after TiO2 NPs instillation. For lung image analysis, chest computer-tomography scan was performed at 1, 24 hr after instilled TiO2 NPs and normal saline into each lung.

Results: The eosinophil count in BALF were significantly increased at 1 and 24hr after TiO2 NPs instillation. Furthermore, TiO2 NPs induced a dose dependent increase of eosinphils in BALF. No significant differences in any of the other inflammatory cell counts (e.g. neutrophils and lymphocytes) were detected. In the lung tissue, severe eosinophilic inflammation and macrophage apoptosis with hemorrhage was observed at 24hr TiO2 NPs postinstillation. Radiologic finding showed ground glass opacity in both lung at the 1hr after TiO2 NPs and normal saline (control) postinstillation. Although control lung showed complete resolution at 24hr, other lung exposed by TiO2 NPs was persistently showed ground glass opacity until 24hr.

Conclusions: We confirmed that TiO2 NPs induced lung inflammation in rabbits, and this process may be associated with eosinophilic inflammation.

P58
Environmental and occupational respiratory diseases – 1060. Clinical responses to methylprednisolone pulse therapy in children with severe refractory mycoplasma pneumoniae pneumonia
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World Allergy Organization Journal 2013, 6(Suppl 1):E58

Background: Mycoplasma pneumoniae (M. pneumoniae) pneumonia is one of the most common causes of community acquired pneumonia in children. The clinical course is usually self limited and benign. But rarely severe pneumonia could be complicated despite appropriate antibiotic therapy. We determine the impact of methylprednisolone pulse therapy on the severe refractory M. pneumoniae pneumonia in children.

Methods: We evaluated the clinical effects of steroid pulse therapy retrospectively in 12 children with severe refractory M. pneumoniae pneumonia, diagnosed serologically. All of the patients, who showed the respiratory distress, high fever and initial lobar pneumonia consolidation with pleural effusion radiologically, and deteriorated despite of antibiotic therapy were treated with intravenous methylprednisolone pulse therapy in addition to antibiotics.

Results: The average febrile period prior to admission was 4.9±1.7 days and that was 3.7±1.6 days after using antibiotics. We initiated methylprednisolone pulse therapy at a dose of 30mg/kg on the day 1±2.5 of admission. After pulse therapy, the clinical symptoms and signs were improved in all patients without adverse events of steroid therapy. In particular, the high fever was subsided within 0-2 hours after initiation of steroid pulse therapy. The abnormal radiologic findings were resolved on the days 2.6±1.3 and the high levels of C-reactive protein (6.7±5.9mg/dl on admission) was decreased to 1.3±1.7mg/dl on the days 3±0.1 of steroid therapy.

Conclusions: This study showed an impact of 3-day methylprednisolone pulse therapy on severe refractory M. pneumoniae pneumonia in children despite appropriate antibiotic therapy. The steroid pulse therapy is apparently an efficacious and well-tolerated treatment for severe refractory M. pneumoniae pneumonia.

P60
Environmental and occupational respiratory diseases – 1062. The climate and aero allergens in Mediterranean region and allergen sensitivity in allergic rhinoconjunctivitis and allergic asthma patients
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World Allergy Organization Journal 2013, 6(Suppl 1):E60

Background: In this study, we evaluated the profiles of allergic rhinoconjunctivitis and asthma patients annually in a mediterranean coastal city Antalya in Turkey.

Methods: As well as evaluating patients’ allergic clinical status, we also recorded the climate and pollens in the air of city center if any correlation between pollinosis, climatic conditions and allergic disorders. Total and specific IgE levels and skin prick tests (SPT) were evaluated. The meteorological conditions and the pollen count/cm³ in each month of whole year and the concordance of this with the patient’s clinical status were evaluated.

Results: The major causes of allergic rhinoconjunctivitis symptoms were air pollens and house dust. SPT positivity for corylusaevallentia was significant in the age group of >40 years old. SPT positivity for plantagolanceolata, aspergilus fumigatus and d. pteronyssinus was significant in patients younger than 40 years old. Pollen count per cm2 was recorded as 1447.9 over the whole year with a maximum in May and minimum in January. The monthly pollen count for the city during a one year period. Pollens of Giraminea plant known to be very allergic were highly detected between
May and November. Pollution levels are consistent from March 2010 to February 2011 and in Antalya high levels occur mostly from April to June. Thus skin prick test were performed mostly in May/June (~30%). During these months, the meteorological conditions of the city were windy with low humidity without rain and lukewarm temperatures, all of which contribute to high risk conditions for seasonal allergies.

**Conclusions:** The major allergen between April and June was derived from Gramineae; between February and March was Cupressus sp; and between March and June was Pinus sp. These results suggest that the pollination is correlated with allergic conditions and thus SPT might be best performed according to the pollen population.

**P61**


**Aim:** The prevalence of COPD in non-smoking bus drivers of Hyderabad city (AP State Road Transport Corporation).

**Background:** Hyderabad metro has high atmospheric pollution with a mean TSPM 280 mg/cubic meter of air, sometimes as high as 400. Vehicles contribute 50% of the total air pollution in urban areas [1].

**Subjects:** 82 Non-smoking male bus drivers of APSRTC. Buses are non-air-conditioned with open windows.

**Methods:** An occupational-demographic data was obtained and American Thoracic Society – Division of Lung Disease (ATS) Questionnaire administered. Subjects were enrolled between May and September 2012. Spirometry performed using an auto calibrated system (Microlab, Kent, UK) and abnormalities were classified and graded (GOLD Guidelines 2005). The data were statistically treated for correlation between symptoms, spirometric abnormalities and work experience.

**Results:** Age 38±8.75yrs; BMI 23.9±2.8

COPD was diagnosed in 35 out of 82 (42.6%) based on spirometry. COPD was *mild* in 16 (45%), "moderate" in 18 (51.4%) and "severe" in 1 (2.8%). 13 of 30 subjects with work experience of >10 years had COPD. 22 of 52 subjects with work experience of <10 years had COPD (Fishers exact test (p<0.01).

The spirometric indices demonstrated difference between Group A i.e. drivers with >10 years experience and Group B <10 years. FEV1 was lower in Group A vs. Group B (2.49±0.65 Vs 2.73±0.49; p=0.06). PEF(R) (5.42±2.11 Vs 6.48±1.91; p=0.02), FEV6, FEV1/FEV6, FEF2575, post bronchodilator reversibility were lower in Group A vs. Group B though statistically not significant.

**Symptom profile:** shortness of breath in 35 (cough in 12 (14.6%), morning sputum in 15 (18%), wheeze in 6, recurrent sinusitis in 7 (8%).

**Conclusion:** The present sample study of non smoking bus drivers in an urban area of India using ATS questionnaire and spirometry is, perhaps, the first to the best of our knowledge. About 40% of the subjects had COPD. Environmental preventive measures required.

**Reference**

**P62**

**Mechanisms of asthma and allergic disease – 1064. Interleukin 31 (IL 31) serum levels in atopic dermatitis patients Noor Suryani Mohd Ashari1*, Siti Nur Syyhaha1, AR Azraniz1, I Zulrushydi2 Universiti Sains Malaysia, Malaysia; Hospital Raja Perempuan Zainab II (HRPZ II), Malaysia World Allergy Organization Journal 2013, 6(Suppl 1):p62**

**Background:** Atopic dermatitis is a common chronic skin disorder which is a subset of atopy. Atopy refers to a genetic predisposition to respond immunologically to allergens which are generally harmless, causing over production of immunoglobulin E (IgE) antibodies. IgE synthesis is dependent on the activation of CD4+ Th2 subset and their secretion of cytokines including IL 4 and IL 13. This study was done to compare between IL 31 serum levels in normal controls and atopic dermatitis patients in Kelantan, Malaysia.

**Methods:** This was a cross-sectional study of 34 samples of atopic dermatitis patients attending the skin clinic of Hospital Universiti Sains Malaysia (HUSM) and Hospital Raja Perempuan Zainab II (HRPZ II), Malaysia. 34 samples of normal controls were taken from healthy people (those who were free from allergic history) in HUSM. The subjects of healthy controls and atopic dermatitis patients were defined through history taking by physician. 5 ml of blood were collected from the normal control subjects and patients. Then, the blood was centrifuged and analyzed for IL 31 using ELISA kits (Human IL 31 Dupset, RnD System). Independent T-test was used to compare the level of serum IL 31 between normal/control subjects and patients with atopic dermatitis.

**Results:** The result showed that there was no significant difference in IL 31 serum levels between non allergic (174.89 ± 33.08, n=34, p=0.082) and atopic dermatitis patients (16499.46 ± 9243.56, n=34). However, there was a trend towards a higher IL 31 serum levels in atopic dermatitis patients.

**Conclusions:** The results of this study suggest that although the level of IL31 serum levels was higher, there was no significant difference in IL 31 serum levels between atopic dermatitis patients and non allergic control.

**P63**

**Mechanisms of asthma and allergic disease – 1065. Association between level of IL 31 and IL 33 and puritus in Malaysian allergic patients Noor Suryani Mohd Ashari1*, Siti Nur Syyhaha1, AR Azraniz1, I Zulrushydi2 Universiti Sains Malaysia, Malaysia; Hospital Raja Perempuan Zainab II, Malaysia World Allergy Organization Journal 2013, 6(Suppl 1):p63**

**Background:** Generally allerg refers to an exaggerated immune response and a reaction that causes symptoms including puritus in a predisposed person, which in turn can cause inconvenience or a great deal of misery. The immune responses were regulated by cytokines. This study was done to determine the association between IL 33 levels and puritus in patients with allergic diseases.

**Methods:** This was a comparative cross sectional study. Cases were patients having allergic diseases such as atopic dermatitis (AD) attending the skin clinic of Hospital Universiti Sains Malaysia (HUSM) and Hospital Raja Perempuan Zainab II (HRPZ II), Malaysia, allergic rhinitis (AR) attending ENT clinic in HUSM and atopic asthma (AA) attending chest clinic and pediatric clinic in HUSM. The patients were chosen from the history taking by the physician. The blood was centrifuged and analyzed for IL 33 using ELISA kits (Human IL 33 Dupset, RnD System). Independent T-test was used to compare the level of serum IL 33 between those with and without history of puritus.

**Results:** A total number of 210 allergic patients were included in this study. Majority of the patients were female (64.8%) and non smokers (82.5%). The result showed there was no significant difference in the mean level of IL 33 serum in non puritic (mean of 254.71, SD of 906.80) and in pruritic allergic patients (mean of 1219.61, p=0.156). There was also no significant difference in the mean level of IL 33 serum (p=0.241). However, the levels was higher in pruritic patients (mean of 6168.25; SD 30552.07) than in non puritic patients (mean of 3058.09, SD 15227.97).

**Conclusions:** The results of this study suggest that there was no significant association between puritus and the level of serum IL 31 and IL 33 in Malaysian allergic patients.

**P64**

**Mechanisms of asthma and allergic disease – 1066. Ceruloplasmin oxidase activity in allergic asthma and allergic rhinitis Arzu Didem Yalcin1*, Saadet Gumuslu2, Gazem Genç3, Ati Bisgin1, Fatma Yildiz1, Aysegul Kargi4, Reginald M Garzynskil, Tukek II, Antalya, Turkey, 2Universitatis Sains Malaysia, Malaysia; 3Hospital Raja Perempuan Zainab II (HRPZ II), Malaysia, allergic rhinitis (AR) attending ENT clinic in HUSM and atopic asthma (AA) attending chest clinic and pediatric clinic in HUSM. Allergic rhinitis and atopic asthma.**

**Methods:** Ceruloplasmin oxidase activity in allergic asthma and allergic rhinitis Arzu Didem Yalcin1*, Saadet Gumuslu2, Gazem Genç3, Ati Bisgin1, Fatma Yildiz1, Aysegul Kargi4, Reginald M Garzynskil, Tukek II, Antalya, Turkey, 2Universitatis Sains Malaysia, Malaysia; 3Hospital Raja Perempuan Zainab II (HRPZ II), Malaysia, allergic rhinitis (AR) attending ENT clinic in HUSM and atopic asthma (AA) attending chest clinic and pediatric clinic in HUSM. Allergic rhinitis and atopic asthma.

**Results:** The result showed there was no significant difference in IL 33 serum levels between non allergic (174.89 ± 33.08, n=34, p=0.082) and atopic dermatitis patients (16499.46 ± 9243.56, n=34). However, there was a trend towards a higher IL 31 serum levels in atopic dermatitis patients.

**Conclusions:** The results of this study suggest that although the level of IL31 serum levels was higher, there was no significant difference in IL 31 serum levels between atopic dermatitis patients and non allergic control.
Background: The known functions of ceruloplasmin oxidase activity (COA) include copper transportation, iron mobilization, antioxidant defense and involvement in angiogenesis and coagulation. The role of ceruloplasmin oxidase involving the interaction of oxidant and anti-oxidant balance in allergic diseases is still unknown. It was previously reported that synthesis of ceruloplasmin was stimulated by interleukin-1 in normal and copper-deficient rat models concluding that ceruloplasmin is dependent for oxidase activity. Moreover, the copper ions had been suggested as an explanation for the sensitivity of asthmatic individuals by their biologic effects of inhaled particulate air pollution. In vivo experiments on finding the cytokines involved in acute-phase protein response showed that there are three major cytokopes: interleukin-1, beta, 6 and TNF-alpha. Our study was designed to examine the changes in COAs in severe persistent asthma-allergic rhinitis, new diagnosed allergic asthma-allergic rhinitis and allergic rhinitis patients.

Methods: The study included 20 age- and sex-matched healthy individuals as control group (group I); group II was including 15 newly diagnosed allergic asthma - allergic rhinitis; group III was including 15 patients with severe persistent asthma - allergic rhinitis and in the fourth group there were 20 patients with allergic rhinitis. Group III was divided in two groups, severe persistent asthma-allergic rhinitis who were pre- (III-A) and post-treated (III-B) with omaluzumab. Group IV was divided to two groups, pre- (IV-A) and post-treatment (IV-B) with specific subcutaneous immunotherapy modalities. All the post-treatment measurements were 12 months after the therapy. All the patients were assessed by the skin prick test, high sensitive C-reactive protein (hs-CRP) and COA.

Results: hs-CRP and COA levels were measured in all groups. There were significant differences between group I and groups II-A, III-B, IV-A and IV-B; group II and groups III-A, III-B, IV-A and IV-B; group III-A and groups III-B, IV-A and IV-B; group III-B and groups IV-A and IV-B; and group IV-A and IV-B. Interestingly, there was a correlation between the hs-CRP and COA levels in Group III-A.

Conclusions: Our data suggest that hs-CRP and COA levels might be an indicator of an inflammation and important in revelation of patients with allergy related diseases, especially of asthma patients.

Conclusions: The steroid medication increased the incidence of the infection thereafter.

P66
Mechanisms of asthma and allergic disease – 1069. Down regulation of IL-13 secretion in mononuclear cells by a beta-adrenergic blocker
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World Allergy Organization Journal 2013, 6(Suppl 1):P66

Background: Beta-adrenergic blockers such as propranolol have been commonly used for treatment of several cardiovascular complications such as arterial hypertension and arrhythmias. Anti-inflammatory effects of propranolol have also been reported. Interleukin-13 (IL-13) (a Th2-type cytokine) is a mediator of airway inflammation and increases in immediate-type allergy. In this study the effect of propranolol on IL-13 secretion in human peripheral blood mononuclear cells (hPBMCs) have been investigated in vitro.

Methods: HPBMCs were used in this study. The cells were cultured in complete RPMI medium and then incubated with different concentrations of propranolol (4 x 10^-4 - 4 x 10^-10 M) for 24 hours. The level of IL-13 secreted in the cell culture supernatants was measured with the enzyme-linked immunosorbent assay (ELISA) kits (R&D systems).

Results: Propranolol significantly and dose-dependently reduced IL-13 production in hPBMCs, compared to untreated control cells.

Conclusions: According to the results of this study, propranolol considerably decreased the IL-13 expression in HPMBCs. Propranolol with its inhibitory effect on IL-13 production may be useful in alleviating the IL-13-induced respiratory inflammation in related diseases such as chronic obstructive pulmonary disease (COPD) and asthma. Therefore propranolol along with its chronic long-term usage in cardiac problems, might have potential implication in inflammatory disorders.

P67
Mechanisms of asthma and allergic disease – 1070. Genetic mechanisms of immune imbalance in allergic inflammation
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World Allergy Organization Journal 2013, 6(Suppl 1):P67

Background: At the present time is considered an established fact that at every stage of the immunological response to free radicals and their derivatives, antioxidant enzymes perform a regulatory function and may help limit or activation of immune responses. In this regard, of interest to identify the functionally significant variant genotype polymorphism Ille-105/Val-105 GST1, which can contribute to and interfere with the functioning of the immune system in allergic diseases.

Methods: A total of 91 patients with various forms of allergic diseases and healthy individuals of Uzbek nationality. Verification of the diagnosis of allergic diseases in various organs and tissues was carried out according to the WHO International Classification (ICD-10). Analysis of the polymorphic variants of the gene GSTT1 was performed by polymerase chain reaction of DNA synthesis (PCR) thermocycler and RFLP analysis followed by polyacrylamide gel electrophoresis. Determination of lymphocyte immunophenotype CD3+, CD4+, CD8+, CD16+, CD19+, CD23+, CD95+ performed with monoclonal antibodies and the level of lg classes A, M, G by radial immunodiffusion.

Results: In our studies revealed that in the group with genotype Ille/Ille patients registered declines in CD3+, CD8+ and CD16+ up to 33,6 ± 0,45%, 15,6 ± 0,88% and 15,6 ± 0,88%, respectively compared with a group of people who did not have this genotype. Registered a significant increase in IgG level in patients with allergic inflammation, with the genotype homozygous and heterozygous genotype Ille-105/Ille-105 Ille-105/Val-105 compared with the homozygous genotype Val-105/Val-105 (p<0,01 in both cases). Expressed lower levels of IgA was associated with the presence of genotype Il/Il patients (p<0,05). Significant differences are manifested decreased content of CD95+, depending on the gene polymorphism Ille-105/Val-105 GSTT1 studied patients reported in patients with genotype Ille-105/Val-105 GSTT1.
The identified association Ile-105/Val-105 GSTn1 with LPS stimulated CCL20 was an associate and CD48, a CD2-family surface receptor expressed on immune cells. We provided evidence of Der p2 internalization and MD2 expression and demonstrated that mCD48 expression in asthmatics was significantly increased on inhaled bronchodilators, untreated AR and AD patients, and non allergic non asthmatic controls was collected. Leukocyte fraction was isolated and stained using Abs against CD48 and specific markers for each cell type (T cells, B cells, neutrophils, monocytes, eosinophils, basophils and NK cells). Results were analyzed by FACS. sCD48 was detected using a specific ELISA.

Conclusions: Our results suggest that both the mCD48 and sCD48 may serve as novel biomarkers for asthma. sCD48 may regulate the allergic response and provide a new potential target for the suppression of asthma. Further research must be done in order to evaluate CCL48 expression and release throughout the course of the different forms of asthma and its expression and function in the airways.

Mechanisms of asthma and allergic disease – 1073. Image analyses of Der p2 and MD2 in epithelium
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Background: House dust mites can cause airway inflammation. Its major allergen Der p2 causes inflammation with functions mimicking myeloid differentiation-2 (MD2). The epithelium activated by Der p2 and its relationship with LPS-promoted MD2/TLR signaling remained obscure.

Objective: To provide image analyses of Der p2 and MD2 in epithelium.

Methods: Both nasal polyps and BEAS-2B were used to examine the internalization of Der p2 in epithelium. The upregulation of MD2 was determined by messenger RNA (mRNA) and protein expression, and confirmed by amino acid sequencing. The cytokine secretions of Interleukin-6/Interleukin-8 (IL-6/IL-8) from epithelium were measured. The effects of Der p2 on BEAS-2B were further investigated by LPS-promoted MD2/TLR signaling and cytokine secretions, and evaluated by antibodies of TLR and inhibitors of transcription factor.

Results: The expression of MD2 was increased in epithelium of nasal polyps and BEAS-2B after rDer p2 treatment. After co-immunoprecipitation with anti-Der p2, immuno-reactive MD2 could be identified. Der p2-EGFP could localize in endoplasmic reticulum (ER). In the presence of rDer p2, the secretions of IL-6/IL-8 by BEAS-2B were trivial but augmented by LPS and reduced by anti-MD2. When BEAS-2B was cultured with rDer p2 in conjunction with LPS, the mRNA expression of IL-2 and IL-6/IL-8 were increased. The increments were downregulated by Mitogen-Activated Protein Kinase (MAPK) inhibitors, dexamethasone, calcitriol and neutralizing antibody of TLR2.

Conclusions: We provided evidences of Der p2 internalization and MD2 upregulation in epithelium. The synergistic effects of Der p2 and LPS on IL-6/IL-8 secretions were through TRLR2/MAPK. MD2 upregulation could serve as an indicator for Der p2-induced airway inflammation.

Mechanisms of asthma and allergic disease – 1074. Prebiotics in infants for prevention of allergic disease and hypersensitivity
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Background: Prebiotics (promote growth of ‘healthy’ bacteria) added to infant feeds have the potential to prevent sensitisation of infants to dietary allergens.

Methods: Pb from asthmatic (taking only inhaled bronchodilators), untreated AR and AD patients, and non allergic non asthmatic controls was collected. Leukocyte fraction was isolated and stained using Abs against CD48 and specific markers for each cell type (T cells, B cells, neutrophils, monocytes, eosinophils, basophils and NK cells). Results were analyzed by FACS. sCD48 was detected using a specific ELISA.

Conclusions: Our results suggest that both the mCD48 and sCD48 may serve as novel biomarkers for asthma. sCD48 may regulate the allergic response and provide a new potential target for the suppression of asthma. Further research must be done in order to evaluate CCL48 expression and release throughout the course of the different forms of asthma and its expression and function in the airways.
Methods: Standard methods of the Cochrane Neonatal Review Group were used. Searches were updated October 2011. Randomised and quasi-randomised controlled trials that compared a probiotic to control were included.

Results: Three studies enrolling 1315 infants and reporting outcomes of 1126 infants (85%) were included. Several ongoing studies and completed studies with no reported allergy results were identified. Overall, one study reported a significant reduction in asthma (134 infants; RR 0.31, 95% CI 0.14, 0.96; RD -0.13, 95% CI -0.25, -0.01; NNT 7.7) but no significant difference in urticaria (134 infants, RR 0.15, 95%CI 0.02, 1.16) to 2 years. Meta-analysis of subjects found a significant reduction in infant eczema (1126 infants, RR 0.64, 95%CI 0.44, 0.94; RD -0.04, 95%CI -0.07, -0.01; NNT 25) although there were moderate heterogeneity between studies.

In subgroup analysis, individual studies reported a significant reduction in asthma and eczema to 2 years - in infants at high risk of allergy fed an extensively hydrolysed formula; and a reduction in infant eczema in low risk infants fed a cow’s milk formula. The studies reporting reductions in asthma or eczema used GOS/FOS combinations, one with added acidic OS, at a concentration 0.8 g/100ml of oligosaccharide.

Conclusions: Further evidence is required before a probiotic can be routinely recommended for prevention of allergy. A well powered, independent trial is required to answer this question.

P74
Mechanisms of asthma and allergic disease – 1077. Differential expression and roles of MMP-2, MMP-9, MMP-13, TIMP-1, and TIMP-2 in allergic rhinitis
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World Allergy Organization Journal 2013, 6(Suppl 1):P74

Background: Allergic rhinitis (AR) and asthma share many characteristics, but structural changes are observed far less often in AR as compared to asthma and also that in nasal polyps. Matrix metalloproteinases (MMPs) can decompose the extracellular matrix and regulate cell infiltration. In order to understand the role of MMPs in AR, we analyzed the expression of MMPs and their inhibitors, tissue inhibitors of metalloproteinases (TIMPs), in allergic nasal mucosa after natural allergen exposure in patients with SAR-JCP, which may further elucidate the molecular mechanisms underlying SAR.

Methods: Microarray analysis revealed that the expressions of 16 genes related to seasonal allergic rhinitis by microarray analysis were significantly altered in nasal epithelial cells during allergen exposure. Among these 16 genes, four genes including ITLN1 (Intelec1 expression) were significantly up-regulated during pollen seasons. Experiment using human nasal epithelial cells revealed that Intelec1 expression was induced by IL-4 and IL-13 stimulation.

Results: The present study identified alteration of genes during natural allergen exposure in patients with SAR-JCP, which may further elucidate the molecular mechanisms underlying SAR.

Reference:

Conclusions:
investigated platelet activation 
espressed the IL-17A receptor. 
olvins, resolvin D1 and resolvin D2. 
The expressions of platelet P-selectin, P2Y12 and soluble p-selectin 
chronic rhinosinusi 
Fifty asthmatic patients and 20 healthy controls were enrolled 
The inflammasome is a novel protein complex that stimulates 
product (RV-induced chemokines such 
epidemiological study suggested that interactions between sulfur dioxide 
SO3) is a product of sulfur dioxide (SO2). 
inhaled sulfur dioxide can be easily hydrated to yield sulfur dioxide in the respiratory tract. Sulfur dioxide is one of the most important air pollutants that can adversely affect the respiratory system. Rhinovirus (RV) is a major cause of common cold and is a major risk factor responsible for the exacerbation of asthma and chronic obstructive pulmonary disease. An epidemiological study suggested that interactions between sulfur dioxide and viral infections exacerbate respiratory disease. However, little is known about the mechanism underlying these interactions. We investigated the effects of sulfur dioxide on the production of RV-induced chemokines such as interleukin-8 (IL-8); regulated on activation, normal T-cell expressed and secreted (RANTES); and interferon-gamma inducible protein-10 (IP-10) in airway epithelial cells in vitro.

Methods: A549 airway epithelial cells were pretreated with 2,500 μM sulfur dioxide for 6 h at 37°C and infected with RV-7 at 1 × 106 UI tissue culture infectious dose 50% (TCID50)/mL for 2 h at 33°C. The medium was replaced with a virus-free medium, and the cells were incubated for 48 h after sulfur dioxide treatment. Production and mRNA expression of IL-8, RANTES, and IP-10 in these harvests were assessed by ELISA and real-time PCR.

Results: RV induced the production and mRNA expression of IL-8, RANTES, and IP-10 in the A549 cells. Sulfur dioxide did not affect the viability of A549 cells or RV replication under our experimental conditions. When the cells were pretreated with sulfur dioxide prior to RV infection, production and mRNA expression of RV-induced IL-8, RANTES, and IP-10 were enhanced with no effect on cell viability or RV replication.

Conclusions: Our results suggest that sulfur dioxide may potentiate the activity of RV-induced diseases by increasing the production of IL-8, RANTES, and IP-10.

Mechanisms of asthma and allergic disease – 1081. Relevance of IL-17A to eosinophil accumulation and mucosal remodeling in chronic rhinosinusitis and nasal polyps

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World Allergy Organization Journal 2013, 6(Suppl 1)P78

Background: Although chronic rhinosinusitis (CRS) is a multifactorial disease in a heterogenous group of diseases, with different underlying etiologies and pathophysologies, Japanese patients with CRS with nasal polyps are known to show two distinct phenotypes, i) tissue eosinophilia characterized by Th2-polarization (Ahmed & Ikeda, 2005) and marked expression of eotaxins (Yao, Ikeda, et al., 2009) and ii) poorly expressed eosinophilia characterized by Th1-shifted immunity and prominent expression of IL-8 (Suzuki & Ikeda, 2002). Methods: A new paradigm of Th17 has been applied to the recruitment of eosinophils and the remodeling of the nasal polyps of CRS (Saitho, et al., 2010). On the other hand, IL-17 is known to restore neutrophil recruitment resulting in reduced bacterial burden in the lower airway. We found no significant difference in the bacterial features of the maxillary sinuses between eosinophilic and neutrophilic CRS with nasal polyps (Hirotsu, Ikeda, et al., 2011). Thus, underlying pathogeneses of both eosinophilic and neutrophilic polyps could be attributed to the presence of bacteria acting through different mechanisms.

Results: The fibroblast, one of the main cell types making up nasal polyps, is actively involved in the accumulation of the extracellular matrix and is thought to be a target cell of various cytokines. Subcultured fibroblasts established from human polyp tissues expressed the IL-17A receptor. Simultaneous quantification of 27 kinds of cytokines and chemokines in culture supernatants was performed with a human multiplex cytokine assay system. There were different patterns of basal and IL-17A-mediated secretion of several cytokines and chemokines between the fibroblasts cultured from the eosinophilic and non-eosinophilic polyps. Recent progress
in our laboratory found a significant correlation between IL-17A and MUC5AC positive cells, suggesting a relevance of IL-17A to the mucosal remodeling in eosinophilic-dominant pathology (Kusunoki et al., 2012). Furthermore, antioxidant systems such as Cu-Zn superoxide dismutase and heme oxygenase in the sinonasal mucosa were significantly suppressed in eosinophilic CRS (Kawano et al., 2012).

Conclusions: IL-17A and its derivatives may play a central role in pathogenesis and regulation of eosinophilic dominant pathology in CRS.

**P79**

Mechanisms of asthma and allergic disease – 1083. CD23, Total IgE and Th1/Th2 cytokines in asthma patients

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World Allergy Organization Journal 2013, 6(Suppl 1)P79

**Background:** CD23 (FceRII), is a low affinity receptor for IgE, likely to influence IgE production and inflammation in allergic diseases. The aim of this study was to determine sCD23 and cytokine levels in asthma patients.

**Methods:** Soluble CD23, total histamine release, total IgE and Th1, Th2 cytokines were determined in blood samples of patients with asthma (50) and age and sex matched healthy volunteers (without signs of asthma) (n=20).

**Results:** Serum sCD23 mean±SE was significantly increased (P<0.05) in asthma (581.16 ± 35.72 pg/mL) when compared to controls (429.49 ± 31.29 pg/mL). Similarly, serum IgE mean±SE (154.03 ± 33.24) and blood histamine (46.7 ± 7.23) levels were increased significantly (P<0.01) in patients with asthma, while IFN-γ, a Th1 cytokine, was significantly lower (P<0.05) in asthma (2.32 ± 0.65) than in controls (9.45 ± 1.58). Pearson’s correlation coefficient showed a significant (P<0.05, r=0.50) association between sCD23, IL-5 with serum IgE concentration, however, IFN-γ was not correlated with IgE. Serum IL-4 and CD23 in buccal mucosa and stool samples were below detectable levels.

**Conclusions:** Our observations provide evidence on increased CD23 and cytokine levels in asthma patients.

**P80**

Mechanisms of asthma and allergic disease – 1084. Localization and up-regulation of CysLT2 receptor in perennial allergic rhinitis

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World Allergy Organization Journal 2013, 6(Suppl 1)P80

**Background:** The cysteinyl leukotrienes (CysLTs) are lipid mediators that have been implicated in the pathogenesis of allergic rhinitis. Pharmacological studies using CysLTs indicate two classes of receptors named CysLT1 and CysLT2 receptor antagonists currently used to treat asthma and allergic rhinitis. We have previously reported the localization of CysLT1 receptor by using immunohistochemistry and in situ hybridization. To clarify the expression of CysLT2 receptor in human nasal mucosa, we investigated the expression and the localization of CysLT2 receptor in human nasal mucosa by means of Western blot analysis and immunohistochemistry.

**Methods:** Human turbinates were obtained by turbinectomy from 12 patients with nasal obstruction refractory to medical therapy. CysLT2 receptor expression on nasal mucosa was studied by Western blot analysis and immunohistochemistry. Also, to investigate the possible modulation of CysLT2 receptor expression, human umbilical vein endothelial cells (HUVECs) were stimulated with IL-4 or IL-13, and CysLT2 receptor expression were evaluated by Western blot analysis.

**Results:** About 40kDa band was detected in human turbinates by western blot analysis using anti-CysLT2 receptor antibody. The expression level of CysLT2 receptor protein was marked in patients with nasal allergy than in patients with non-allergic rhinitis. The immunohistochemical study revealed that both vascular endothelial cells and vascular smooth muscles showed intense immunoreactivity for CysLT2 receptor. IL-13 enhanced the levels of CysLT2 receptor protein in HUVECs.

**Conclusions:** The results suggest a primary role for CysLT2 receptor as the vascular responses in upper respiratory tract, and vascular CysLT2 receptor expression can be regulated by Th2 cytokines.

**P81**

Mechanisms of asthma and allergic disease – 1085. Safety and tolerability of escalating doses of house dust mite peptide antigen desensitization

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World Allergy Organization Journal 2013, 6(Suppl 1)P81

**Background:** House Dust Mite (HDM) accounts for 20-25% of the allergic rhinoconjunctivitis disease burden worldwide. Previous studies have shown immunotherapy using peptides from Fel d 1 can induce tolerance in cat allergic subjects. This study identified T-cell epitopes derived from HDM allergens and evaluated their safety and efficacy in a clinical study.

**Methods:** Potential T-cell epitopes were identified by algorithm, screened for ability to stimulate T-cell responses in ex-vivo blood samples from HDM allergic subjects and tested to confirm they did not cause basophil histamine release. A second group of HDM allergic subjects attended a challenge where Conjunctival Provocation Test (CPT) response and Early (EPSR) and Late Phase Skin Response (LPSR) were measured. Subjects were randomised to one of 5 cohorts of 10 subjects. In each cohort 8 subjects received HDM peptide antigen desensitisation (PAD) using the identified T-cell epitope mixture and 2 subjects received placebo. The first cohort received 4x0.03nmol 4 weeks(wk) apart; successive cohorts received 4 administrations 4wk apart of 0.3, 1, 3 and 12nmol, respectively. EPSR, LPSR and CPT were re-measured 18-22wk after starting treatment.

**Results:** HDM-PAD was safe and well tolerated with no Serious Adverse Events. The largest number of Treatment Emergent Adverse Events (TEAEs) occurred in the 0.03 nmol group and the least in the 3nmol group. The most commonly reported TEAEs in subjects who received HDM-PAD were nasopharyngitis, influenza, gastroenteritis and nausea. There were no changes in mean FEV1 on dosing days for any dose of HDM-PAD or placebo. Subjects treated with four of the five HDM-PAD doses showed changes from baseline in CPT score at 18-22wk of between -16.7% to -41.4%, compared with no change for placebo. A statistically significant median %change from baseline in CPT score of -36.7% (p=0.0257 vs placebo) and the largest change in EPSR (median %change -39.19%) and LPSR (median %change -51.19%) was observed after 3nmol HDM-PAD.

**Conclusions:** HDM-PAD is safe and well tolerated when given as 4 intrastral injections 4wk apart, at doses up to 12 nmol in HDM allergic subjects. Reductions in EPSR, LPSR and CPT after HDM-PAD indicate the identified T-cell epitopes have biological activity and merit further evaluation for treatment of HDM allergy.

**P82**

Mechanisms of asthma and allergic disease – 1086. Bacteria-derived extracellular vesicles as an important causative agent for asthma and COPD

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World Allergy Organization Journal 2013, 6(Suppl 1)P82

**Background:** Many bacterial components in indoor dust can evoke inflammatory pulmonary diseases. Bacteria secrete nanometer-sized vesicles...
Mechanisms of asthma and allergic disease – 1087. Serine protease activity of per a 10 is required to activate airway epithelial cells

Methods: EV were prepared by sequential ultrafiltration and ultracentrifugation from indoor dust collected from a bed. Innate and adaptive immune responses were evaluated after once or 4 weeks airway exposure of EV, respectively.

Results: Vesicles 50-200 nm in diameter were present (102.5microgram [based on protein concentration]/g dust) in indoor dust, and inhalation of 1microgram of these vesicles for 4 weeks caused neutrophilic pulmonary inflammation. Additionally, polymyxin B (an antagonist of endotoxin, a cell wall component of Gram-negative bacteria) reversed the inflammation induced by the dust EV. Indoor dust harbors *Escherichia coli* -derived vesicles; airway exposure to the vesicles for 4 weeks induced neutrophilic inflammation and emphysema, which were partially eliminated by the absence of IFN-gamma or IL-17. Interestingly, serum dust EV-reactive IgG1 levels were significantly higher in atopic children with asthma than in atopic healthy children and those with rhinitis or dermatitis. Moreover, serum dust EV-reactive IgG1 levels were also elevated in adult asthma or COPD patients than in healthy controls.

Conclusions: EV in indoor dust, especially derived from Gram-negative bacteria, appear to be an important causative agent in the pathogenesis of asthma and/or emphysema.

Mechanisms of asthma and allergic disease – 1088. Increased serum sTRAIL and 1,25-dihydroxyvitamin D(3) level in patients with non-small cell lung cancer was investigated.

Methods: Consecutive 18 adenocarcinoma and 22 squamous cell carcinoma patients of non-small cell lung cancer referred to our institute were included in this study. There were 12 men and 6 women, ages ranged from 38 to 97 years, with adenocarcinoma and average of 60.5 years. And there were 20 men and 2 women, ages ranged from 46 to 80 years, with squamous cell carcinoma and average of 64.95 years. Curative resection was performed for all patients. Serum levels of sTRAIL and 1,25-dihydroxyvitamin D(3) were measured in the samples of time of diagnosis.

Results: Circulating sTRAIL levels of NSCLC patients were significantly higher than the control group. Although there was no correlation between patient survival and sTRAIL levels, the high sTRAIL levels in adenocarcinoma patients were correlated with age and cigarette smoking. Interestingly, the sTRAIL level of healthy individuals was correlated with serum 1,25-dihydroxyvitamin D(3).

Conclusions: Serum sTRAIL concentrations changed significantly during NSCLC perpetuation and correlated with age and smoking in adenocarcinoma. However, it seems that the concentration of this protein has no critical value as a prognostic factor and no effect on survival rate in NSCLC.
Eosinophils were isolated from peripheral blood of 6 mild asthmatic and normal controls. ASM cells were incubated with eosinophils or eosinophil membranes and ASM proliferation was estimated using thymidine incorporation. The mRNA expression of extracellular matrix (ECM) in ASM cells was measured using quantitative real-time PCR. The effect of eosinophil-derived proliferative cytokines on ASM cells was determined using neutralizing antibodies. The role of eosinophil derived Cytokine Leukotrienes in enhancing ASM was also investigated.

**Results:** Co-culture with eosinophils significantly increased ASM cell proliferation. However, there was no significant difference in ASM proliferation following incubation with eosinophils from asthmatic versus normal control subjects. Co-culture with eosinophil membranes had no effect on ASM proliferation. Moreover, there was no significant change in the mRNA expression of ECM proteins in ASM cells following co-culture with eosinophils when compared with medium alone. Interestingly, blocking the activity of Cysteinyl Leukotrienes using antagonists inhibited eosinophil-derived ASM proliferation.

**Conclusions:** Eosinophils enhance the proliferation of ASM cells. This role of eosinophil does not seem to depend on ASM derived ECM proteins nor on Eosinophil derived TGFβ or TNFα. Eosinophil seems to induce ASM proliferation via the secretion of Cysteinyl Leukotrienes.

**P87 Mechanisms of asthma and allergic disease – 1091. Eosinophil nasal impact over the lung function tests in patients with moderate to severe persistent allergic rhinitis**

Purpose: To examine the impact of nasal eosinophilia in patients with moderate to severe persistent allergic rhinitis, focused on FEV1, FVC and the presence or not of reversibility.

**Methods:** We included patients at age of 7 years or more, with diagnosis of moderate/severe persistent allergic rhinitis that were evaluated between March of 2010 and June of 2011 at our Regional Center. All patients were submitted to an spirometry, nasal cytology and a quantitatively nasal eosinophilia measured by optical microscopy. Study design: one center, observational, descriptive and transversal.

**Results:** 90 patients were included, 73 of the patients didn’t present reversibility and 53.4% were men. The reversibility was significantly greater when associated with the presence of eosinophilia, by a quantitative analysis as is by crossings analysis (P=0.004 and 0.003). The eosinophilia count by a quantitative analysis in relation to the FEV1 and the FVC did not show statistical significance (P=0.116 and P=0.49). There was no difference between the relation of the implicated aeroallergen type and the nasal eosinophilia or the reversibility. The time of evolution with the grade eosinophilia and the presence of reversibility did not showed statistical significance.

**Conclusions:** The allergic rhinitis is a complex disease that involves also lower airway, finding confirmed by the presence of reversibility and a tendency to diminish the basal parameters of the spirometry. We did not find significant difference between the time of evolution neither the type of aeroallergen involved with the presence of reversibility or the amount of nasal eosinophilia.
OVA-sensitized BALB/c mice were treated with human anti-VCAM-1 mAb or isotype control Ab before intranasal OVA challenge. We evaluated airway hyperresponsiveness (AHR) and cell counts in bronchoalveolar lavage (BAL) fluid, measured inflammatory cytokines, and examined histopathological features, including VCAM-1 immunohistochemistry.

**Results:** The human anti-VCAM-1 mAb bound to human and mouse VCAM-1 molecules and inhibited adhesion of human leukocytes in vitro. AHR and inflammatory cell counts in BAL fluid were reduced in mice treated with human anti-VCAM-1 mAb as compared to a control Ab. The levels of interleukin (IL)-5 and IL-13, and transforming growth factor-β in lung tissue were decreased in treated mice. Human anti-VCAM-1 mAb reduced goblet cell hyperplasia and peribronchial fibrosis. In vivo VCAM-1 expression was decreased in treated group.

**Results:** Human anti-VCAM-1 mAb can attenuate allergic inflammation and pathophysiological features of asthma in OVA-induced murine asthma model. This data suggested that human anti-VCAM-1 mAb could be an additional anti-asthma therapeutic medicine.

**P90**

**Mechanisms of asthma and allergic disease – 1094.** Pre-clinical characterization of RP3133, a novel and potent CRAC channel inhibitor for the treatment of respiratory disorders

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**World Allergy Organization Journal 2013, 6(Suppl 1):P90**

**Introduction:** Calcium release activated calcium channels inhibitors have a potent role in treatment of autoimmune disorders mediated dysregulated T-lymphocyte and mast cell functioning. Herein, we describe the pre-clinical of RP3133, a novel and potent CRAC channel inhibitor with scope for development as a clinical candidate for asthma.

**Methods:** Inhibition of CRAC channel activity in Jurkat cells, cytokine release from human whole blood or PBMC, and mast cell degranulation were estimated. In vivo efficacy of the compound was determined in experimental models of asthma in guinea pigs including PAF or ovalbumin induced eosinophil infiltration into lungs ovalbumin induced histamine release from mast cells, and airway hyperresponsiveness.

**Results:** RP3133 significantly inhibited calcium entry into Jurkat cells (38 nM) besides reducing IL-4 (<550 nM) and IL-5 (<750 nM) release from human whole blood and PBMC. Additionally, the compound suppressed IgE induced mast cell degranulation at nanomolar concentrations (139 nM). Oral administration of RP3133 in guinea pigs resulted in a dramatic reduction in eosinophil infiltration in an acute model of PAF-induced allergic asthma (ED50 = 0.2 mg/kg/p.o) as well as in an experimental model of ovalbumin-induced chronic airway inflammation (ED50 = 2.5 mg/kg/p.o). Additionally, RP3133 caused a significant reduction (P<0.01) citric acid, histamine, or methacholine induced airway resistance in sensitized guinea pigs. Consistent with in vitro findings, the compound caused a significant inhibition of mast cell degranulation manifested by a reduction in histamine release.

**Conclusions:** Results demonstrate the potential of RP3133 as an anti-inflammatory agent as evidenced from pre-clinical data. Toxicological evaluation of the molecule is currently in progress.

**P91**


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**World Allergy Organization Journal 2013, 6(Suppl 1):P91**

**Background:** To show that Amdosol, a non-steroid synthetic compound, in an ointment form, can effectively control the signs and symptoms of Chronic Atopic Dermatitis (CAD) in 2-3 weeks without causing any side effects. Amdosol ointment (AO) contains Amdosol a white crystalline chemical compound, in white petrolatum. Clinical and animal studies have shown that AO has no side effects.

**Methods:** Animal study: 12 healthy albino rabbits were subjected to Draize Skin Test. Twice daily applications of AO on intact abraded skin of rabbits, up to 2gm/Kg wt for a week. None of the rabbits showed any erythema or eschar formation and no irritation. Ref: Study done at M.S. Ramaiyah Drugs and Allied Products Testing Center, Bangalore.

**Clinical study:** Ten patients of CAD selected for study.

**Selection criteria:** 1. Personal and family history.
2. Appearance of the skin: Dry itchy red skin, swelling, blistering, oozing, crustling & scaling.
3. Typical distribution of lesions.
5. Associated Allergies – Asthma, All-Rhinitis

Prior to the present study, all patients were treated with Steroid ointments with no relief.

**Dosage and administration:** Twice daily application of AO on affected parts of the patients for 2-3 weeks. Total of 30-60gms of AO was used on each patient depending on severity and extent of lesions. No other drugs - oral or topical, or particular diet was advised.

**Results:**
- No recurrence or side effects observed in all the patients.
- Systemic absorption of Amdosol was not detected in man.

**Conclusions:** Amdosol a non-steroid ointment effectively controlled signs & symptoms of Chronic Atopic Dermatitis (CAD) and healed the lesions in 2-3 weeks. Importantly AO has no side effects unlike steroid ointments presently in use to treat CAD. AO is effective in the treatment of CAD of any aetiology. Amdosol is not only anti-inflammatory, but also has antibacterial and antifungal property. Studies performed with AO indicate that it is in the super-high range of potency compared with other topical steroid ointments. Amdosol ointment can possibly revolutionize the treatment of Chronic Atopic Dermatitis.
Conclusions: Patients with allergy to drug or food have 5.8 times risk of developing anti-tuberculosis drug induced hepatitis or skin reaction during standard regime for tuberculosis.

Reference

P93
Allergic diseases of the skin and drug allergies – 2003. Augmented telomerase activity and reduced telomere length as a disease maker in parthenium induced contact dermatitis patients
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World Allergy Organization Journal 2013, 6(Suppl 1):P93

Background: Parthenium dermatitis is a chronic inflammatory disease with activated T-lymphocytes that recognize the antigens and undergo proliferation and differentiation. T-cells have a pathogenic role in many inflammatory diseases. Telomeres are specialized repeats at the end of chromosomes that protect it from degradation, end-to-end fusion and important for the integrity. Till date there is no report on telomerase activity and TRF length in the lymphocytes of parthenium dermatitis. The aim of our study was to observe the involvement of Tα11 & Tα12 t type responses and to measure telomerase activity and telomere length in PBMC, CD4+ and CD8+ T lymphocytes in parthenium dermatitis patients.

Methods: The study cohort consists of 50 patients of parthenium dermatitis confirmed by patch testing, 22 follow up cases in remission and 40 age matched healthy controls. Tα11 (IL-2 & IFN-γ) and Tα12 (IL-4 & IL-10) cytokines were measured by ELISA. Telomerase activity was measured by telomere repeat amplification protocol by PCR-ELISA and telomere length by TeloTAGGGTelomere Length Assay Kit.

Results: The mean concentration of Tα11 cytokines were increased significantly (p < 0.001) as compared to controls whereas it was decreased in case of Tα12. In follow up remission cases levels of Tα11 cytokines were significantly (p < 0.05) decreased but change in Tα12 cytokines level were insignificant (p > 0.05) when compared with untreated cases. Significantly (p < 0.05) elevated levels of telomerase activity and reduced telomere length was observed in PBMC, CD4+ and CD8+ T cells of parthenium dermatitis patients as compared to healthy individuals. In post-treatment remission cases mean telomerase activity was significantly (p < 0.05) reduced whereas change in telomere length was insignificant, as compared to pre-treatment cases.

Conclusions: The higher concentration of Tα11 cytokines strengthens the hypothesis of chronic stimulation of T cells in this inflammatory disease. Elevated telomerase activity and reduced TRF length might support the understanding of mechanisms in pathogenesis of parthenium dermatitis that are characterized by the recruitment of T lymphocytes. The augmented telomerase activity in pre-treatment cases and reduced activity in case of remission signifies that this might be established as a potential diagnostic/ prognostic marker for parthenium dermatitis in future.

P94
Allergic diseases of the skin and drug allergies – 2004: Clinical and immunologic characteristics of allergens-specific immunotherapy in children with atopic dermatitis
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World Allergy Organization Journal 2013, 6(Suppl 1):P94

Background: The aim was to determine the dynamic of clinical symptoms and saliva concentrations (SC) of IL-4, IL-13, IFNγ in children (Ch) with atopic dermatitis (AD) in the setting of background therapy (BT) and accelerated parenteral allergen-specific immunotherapy (APAI) with house dust mite allergens (HDMAs).

Methods: The study included a total of 33 Ch with non-acute AD. The mean age at enrollment was 7.2±2.1. The APAI has been provided for 36 months (M) according to accelerated regimen by parenteral introduction of HDMAs (2 times/daythrough 6 h), along with BT. SC of IL-4, IL-13, IFNγ were measured using ELISA at 1, 3, 6, 12 and 36M after treatment initiation.

Results: The efficacy after 12M of APAI was 78.7–84.8% depending on disease severity. The “excellent” result after APAI course was achieved in 21.2% Ch with AD, “good” in 57.6% Ch, “satisfactory” in 9.1% Ch, and there was no therapeutic effect in 12.1% Ch. There was reduction in the number, duration and severity of AD exacerbations observed in 2/3 Ch, which allowed the subsequent reduction of BT. As early as at 6 M there was a 1.5 times decrease of hospitalization number (p<0.05) as compared to the pre-treatment year. After the 1st M of APAI in Ch with AD there was no significant decrease of SC of IL-4, IL-13 and no increase of saliva IFNγ level either (p>0.05). There was no normalization of SC of IL-4 and IL-13 during first 6 months in Ch with severe AD as well, though their levels decreased at an average of more than 1.5 times. 12 M of APAI provided duplication of local SC of IFNγ. This saliva IFNγ increase in Ch with AD on the background of APAI was accompanied by decrease of specific IgE againstHDMa (r=−0.73).

The pre-APAI immune disorder formula was IL-43+IL-132+IFNγ3-IgE3+. After termination of treatment course withHDMa it has changed for IL-42+IL-132-IgF1-IgE2+.

Conclusions: The results showed that pathogenetic therapy contributes to reduction of SC and inhibits immune inflammation by down regulating the pro-inflammatory cytokine IL-4 and IL-13 production and activating IFNγ synthesis. Thus the accelerated parenteral APAI is effective in Ch with AD.

P95
Allergic diseases of the skin and drug allergies – 2005. Common causes of allergic contact dermatitis in Kuwait
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World Allergy Organization Journal 2013, 6(Suppl 1):P95

Background: Allergic contact dermatitis is caused by a variety of reagents.

Methods: We looked into the eliciting reagents causing allergic contact dermatitis among patients referred to a skin allergy clinic in Kuwait.

Results: Total of 153 patients with contact dermatitis were enrolled. Each patient was patch tested using (TRUE Test). The patch was removed after 48 hours and read after 96 hours. A positive reaction was scored according to the standard scoring system recommended by the international group. Mean age was 39.9 (SD 13.84) years old. Females were 78 (51%). Majority were Kuwaiti patients 76.5%. Occupation enquiry showed that 57.5% of patients had a desk job, while 23.5% were housewives, and 11.8% were students. Hand contact dermatitis was the most common indicator 45.1% for testing, followed by body and eyelid dermatitis, and hair dye 20.9%, 7.2, and 7.2% respectively. History of contact to jewels or perfumes was only 1%. There was no previous history of contact dermatitis in 50.1%. History of atopy was only 7.2%.

Conclusions: The nature of Allergens eliciting contact dermatitis in Kuwait is surprisingly similar to that of the western countries, in which hair dyes reagents and metals are a leading sensitizer.

P96
Allergic diseases of the skin and drug allergies – 2006. Cord blood 25-hydroxyvitamin D3 and allergic disease during infancy
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World Allergy Organization Journal 2013, 6(Suppl 1):P96

Background: There has been growing interest in vitamin D insufficiency as a predisposing factor for allergy development based on immunoregulatory properties and epidemiological studies. The aim of this study was to
investigate the association between vitamin D exposure in utero and allergic outcomes in the first year of life.

**Methods:** Cord blood (CB) vitamin D was measured in 231 high risk infants from an Australian prospective birth cohort. CB 25(OH)D3 concentration was analysed in relation to maternal vitamin D intake and the development of infant eczema, allergen sensitization and IgE-mediated food allergy.

**Results:** Maternal intake of supplemental vitamin D was significantly correlated with CB 25(OH)D3 concentration (rho = 0.244, p = 0.003) while dietary vitamin D did not influence CB levels. There was significant seasonal variation in CB 25(OH)D3 concentration suggesting that sunlight exposure was an important determinant. Lower CB vitamin D status was observed in infants that developed eczema (p = 0.018), and eczema was significantly more likely in those with concentrations < 50 nmol/L compared with >75 nmol/L (OR 2.66; 95% CI 1.24 – 5.72; p = 0.012). This association remained significant after adjustment for multiple confounding factors. The associations between CB 25(OH)D3 concentration and allergen sensitization, IgE-mediated food allergy and eczema severity (SCORAD) were not significant.

**Conclusions:** Reduced vitamin D status in pregnancy may be a risk factor for the development of eczema in the first year of life, reinforcing the need to explore the role of vitamin D exposure during development for disease prevention.

**P97 Allergic diseases of the skin and drug allergies – 2010. Intradermal skin testing with cefazolin regardless of the history of hypersensitivity to antibiotics**

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**World Allergy Organization Journal 2013, 6(Suppl 1):P97**

**Background:** There have been no standard methods to predict the hypersensitivity to cephalosporin. The relationship between cephalosporin hypersensitivity and history of beta-lactam hypersensitivity is not clear. This retrospective study is to evaluate the reliability of routine prophylactic skin test with cefazolin in general population and the relationship between results of cefazolin skin testing and the history of beta-lactam hypersensitivity.

**Methods:** The medical records of patients who underwent skin testing to cefazolin from January 2010 to January 2011 at Bundang Seoul National University Hospital, South Korea were evaluated. Cefazolin was injected intradermally with the concentration of 0.3 mg/ml without negative control. Skin testing to negative control was done for some of the patients who showed the positive results in cefazolin skin testing. History of beta-lactam hypersensitivity is taken from the statements of patients. Immediate adverse reactions after cefazolin injection were evaluated by searching key words including urticaria, itching, hypersensitivity, or anaphylaxis within 3 days after start of cefazolin in electronic chart and searching the consultations to allergy specialists or dermatologists after cefazolin injection. And then the medical records of searched patients were reviewed by an allergist.

**Results:** There were 13,153 cases of skin testing with cefazolin during the 13 months. Positive rate of cefazolin skin tests without negative and positive controls was 1.4%. Among 81 patients with history of suspicious beta-lactam hypersensitivity, 7 patients (9.9%) had positive results, as compared with 176 patients (1.3%) of patients without such history (9.9% vs 1.3%, P < 0.0001). Among 19 patients who showed positive skin testing to cefazolin and then tested with negative control, 14 (73.4%) patients were proved as false positive with reactivity to normal saline. Among 1,152 patients examined for skin testing to cefazolin more than twice during 13 months, 21 patients (1.8%) showed different results in serial skin tests to cefazolin.

**Conclusions:** This study suggests that routine prophylactic skin testing to cefazolin without negative control for all patients seems unreliable but prophylactic testing for patients with the history of beta-lactam hypersensitivity could be helpful, although the large prospective study is needed.

**P98 Allergic diseases of the skin and drug allergies – 2011. Is the impact of atopic conditions on children and adolescent health related quality of life? Results from a population-based cross-sectional study**

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**World Allergy Organization Journal 2013, 6(Suppl 1):P98**

**Background:** Eczema, hay fever and asthma are global health problems. The three conditions have been linked to decreases in health-related-quality-of-life (HRQoL) in adults and children/adolescents. Research also suggests an association of the three conditions with mental health, which in turn is related to HRQoL decreases.

**Methods:** The impact of occurrence of the three conditions within the past four weeks on HRQoL was analysed in a population-based sample (N = 6518) of children and adolescents aged 11 – 17. All analyses were adjusted for other atopic conditions, sociodemographic and clinical variables and stratified for mental health as measured by the Strengths and Difficulties Questionnaire (normal n = 5697, borderline n = 609, abnormal n = 193).

**Results:** Eczema (p = 0.015) and hay fever (p = 0.020) within the past four weeks were significantly associated with decreased HRQoL after adjusting for all other variables when no mental health abnormalities were present. No significant associations between these two atopic condition and HRQoL were observed in the groups with borderline or abnormal mental health, respectively. No impact of asthma in any of the groups was observed.

**Conclusions:** While the results suggest mental health to have a modifying effect on the relationship between some atopic conditions and HRQoL caution needs to be exercised in interpreting the results as the groups with borderline or abnormal mental health were comparably smaller than the group with normal mental health. In the group with normal mental health small effects were more likely to become significant than in the other two groups.
P100
Allergic diseases of the skin and drug allergies – 2013. Longitudinal analysis of fecal microbiota of infants followed-up for eczema till 2 years of age
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World Allergy Organization Journal 2013, 6(Suppl 1):P100
Background: Studies have suggested that selective microbial targets prevail in the fecal microbiota of infants with eczema. This study aims to evaluate and compare the composition of fecal microbiota of infants who developed eczema by 2 years of age and healthy controls.
Methods: Children with eczema at 2 years old (n=26) and their matched (for gender, mode of delivery and feeding in first 6 months) healthy controls (n=20) were selected from the placebo group of a cohort of at-risk infants participating in a randomized double-blind placebo controlled trial on the protective effects of supplemental probiotics (first 6 months) on eczema and allergies. Children with eczema were subclassified into atopic eczema (n=12) and non-atopic eczema (n=14). Molecular evaluation of fecal microbiota was conducted using Fluorescence in Situ Hybridization-Flow Cytometry (FISH-FC) for fecal samples collected at 3 days, 1, 3, and 12 months. Probes were selected to target Eubacterium rectale-Clostridium cocoides group (Erec482), Clostridium leptum subgroup (Clep866 and the corresponding competitor probes), Bacteroides-Prevotella group (Bac303), Bifidobacterium (Bif164), Atopobium group (Atoc291), Lactobacilli Enterococci group (Lab158), Enterobacteriaceae family (Enter1432) and Clostridium perfringens (Cperf191). Linear mixed model was used to evaluate the longitudinal differences (i.e. 4 time points) of bacterial targets while adjusting for gender, mode of delivery, feeding up to 6 months, and allergic rhinitis and wheezing within the eczema group at 2 years of age.
Results: Longitudinal analysis over four time points showed that higher relative abundance of Enterobacteriaceae [coefficient (B): 1.10, 95% confidence interval (CI):0.175-2.033, adj p=0.022] in children with eczema by 2 years of age. Similar observations were made when eczema group was subanalyzed into non-atopic and atopic eczema, where higher relative abundance of Enterobacteriaceae [B:1.357, 95%CI: 0.382-2.332, adj p=0.008] and [B:1.165, 95%CI: 0.221-2.109, adj p=0.019] were observed respectively as compared to healthy controls. Relative abundance of Clostridium perfringens were also higher when subanalyzed for non-atopic [B:0.572, 95% CI:0.009-1.144, adj p=0.050] and atopic eczema [B:0.000451, 95% CI:0.0001-0.0007, adj p=0.012] compared to healthy controls.
Conclusions: Our data suggests that relative abundance of selective microbial targets particularly Enterobacteriaceae and Clostridium perfringens in the fecal microbiota of infants influence the development of eczema in early childhood.

P101
Allergic diseases of the skin and drug allergies – 2014. Predictive value of clinical history in suspicion of quinolones hypersensitivity
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World Allergy Organization Journal 2013, 6(Suppl 1):P101
Background: Quinolones are antibiotics increasingly used over the last decade and consequently hypersensitivity reactions to these drugs are ever more described. However, not all reactions are due to the drug. Therefore, we analyze the predictive value of clinical history of quinolones hypersensitivity (QH) from our database.
Methods: A retrospective- prospective cohort study was developed including all patients with history of QH consulting and tested during the last 10 years. All in vivo investigation followed the ENDA (European Network of Drug Allergy) recommendations and we considered them the reference to calculate the predictive value of history of QH.
Results: We studied 78 patients, 55 (70%) female, the mean age was 50 years. Urticaria (26%) and maculo-papular exanthema (20%) were the most frequent manifestations; anaphylaxis was reported in 27% of cases. Ciprofloxacin (36%), Ofloxacin (20%) and Levofloxacin (18%) were the most frequent suspected drugs. Forty-one (52%) patients presented the manifestations in the first hour after the intake of the drug. The diagnosis was confirmed in 30 (39%) patients, 24 (80%) were by drug provocation test (DPT). The concordance between the symptoms referred in the clinical history and the manifestations of positive DPT was of 71%. Positivity occurred in 20 (67%) patients who experienced immediate reactions and in 10 (29%) with non-immediate reactions. The specificity of the clinical history of QH was 15% and its positive predictive value (PPV) was 42%. The PPV for those who experienced urticaria was 43% and for maculo-papular exanthema, 25% while it was 70% for the patients who reported anaphylaxis.
Conclusions: The accuracy of the clinical history of anaphylaxis due to quinolones showed to be higher than for other clinical patterns, but overall the PPV of the clinical history of QH demonstrated to be insufficient for the diagnosis and a drug allergy work up is needed.

P102
Allergic diseases of the skin and drug allergies – 2015. Randomized controlled, double blind trial of topical twice weekly fluticasone propionate maintenance treatment to reduce risk of relapse in mild or moderate atopic dermatitis in children
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World Allergy Organization Journal 2013, 6(Suppl 1):P102
Background: One of the most troublesome features of atopic dermatitis (AD) is its chronic relapsing nature. The long-term efficacy and potential of corticosteroids to reduce or prevent relapses have only partially been addressed, especially in children. This study was designed to compare an intermittent dosing regimen of fluticasone propionate (FP) cream 0.05% (twice per week) with its vehicle base in reducing the risk of relapse in paediatric subjects with stabilized AD.
Methods: A 9-month randomized, double blind Maintenance Phase (DMP). They were randomly allocated to receive FP treatment success (SCORAD<5 or SCORAD<5 compared to healthy controls. Relative abundance of Enterobacteriaceae [coefficient (B): 1.104, 95% confidence interval (CI):0.175-2.033, adj p=0.022] in children with eczema by 2 years of age. Similar observations were made when eczema group was subanalyzed into non-atopic and atopic eczema, where higher relative abundance of Enterobacteriaceae [B:1.357, 95%CI: 0.382-2.332, adj p=0.008] and [B:1.165, 95%CI: 0.221-2.109, adj p=0.019] were observed respectively as compared to healthy controls. Relative abundance of Clostridium perfringens were also higher when subanalyzed for non-atopic [B:0.572, 95% CI:0.009-1.144, adj p=0.050] and atopic eczema [B:0.000451, 95% CI:0.0001-0.0007, adj p=0.012] compared to healthy controls.
Conclusions: Our data suggests that relative abundance of selective microbial targets particularly Enterobacteriaceae and Clostridium perfringens in the fecal microbiota of infants influence the development of eczema in early childhood.
relapse distribution. The study protocol was approved by the Ethics Committee and all patients’ parents provided their written informed consent. 

Results: Fifty-four patients (29 girls) entered the OSP (23 mild AD) and 49 (26 girls) continued into the DMP. Mean age was 5.5 (SD2.8) and 5.1 (SD2.3) yrs for FP and vehicle groups, respectively. Four patients withdrew from the DMP (two in the FP group and two in the vehicle group). Patients treated with FP twice weekly had a 2.7 fold lower risk of experiencing a relapse than patients treated with vehicle (relative risk 2.72, SE1.28; p=0.034). FP was also superior to vehicle for delaying time to relapse (Mean 108.4 SD32.5 and Mean 77.4 SD54.6, respectively). 

Therapy with both treatments was well tolerated. 

Conclusions: This long-term study shows that twice per week FP provides an effective maintenance treatment regime to control AD through a significantly reduction of the risk of relapse in children with mild and moderate AD.

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P103

Allergic diseases of the skin and drug allergies – 2016. Ranitidine treatment in preterm infants and the prevalence of atopy at two years of age

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World Allergy Organization Journal 2013, 6(Suppl 1) P103

Background: Acid suppression treatment has been linked to an increased incidence of allergy in adults. We evaluate how ranitidine, widely used off-label to treat gastro-esophageal reflux symptoms in neonates, may impair peptic digestion, increasing the risk of sensitization to digestion-labile food antigens and thus increasing the prevalence of atopy.

Methods: We carried out a retrospective review of preterm infants of between 26 and 37 weeks gestation admitted over a two-year period between April 2008 and March 2010. Those preterm infants treated with the H2-receptor antagonist ranitidine for more than seven days were identified. A control group of preterm infants who did not receive treatment was selected by matching gestation, birth weight and disease severity using a validated scoring method. We analysed both maternal data (mode of delivery, use of intrapartum antibiotics, prolonged rupture of the membranes, sepsis) and neonatal data (birth weight, gestation, interventions, sepsis, type of feeding and neonatal complications). Information concerning the development of atopy in children in both groups, as well as any family history of atopy, was obtained through a simple questionnaire.

Results: There were 38 infants in the group treated with ranitidine (exposure group) and 37 in the control group. There was no significant difference in perinatal characteristics and neonatal morbidity between the two groups. The prevalence of atopy was 39% in the exposure group and 47% in the control group (p = 0.27). Subgroup analysis showed the prevalence of milk allergy was 17% in both groups and Non Significant (NS); the prevalence of atopic eczema was 18% (exposure) vs 45% (control) (p < 0.001); and the prevalence of recurrent wheeze or asthma was 13% (exposure) vs 11% (control) (NS). Prevalence of other food allergies was very low and comparable. No difference in the family history of atopy was observed.

Conclusions: Ranitidine treatment in preterm infants did not increase the overall prevalence of atopy at two years of age but a significantly lower prevalence of atopic dermatitis was observed in the group treated with ranitidine.

P104

Allergic diseases of the skin and drug allergies – 2017. Rapid desensitization for delayed reactions to chemotherapy and monoclonal antibodies

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World Allergy Organization Journal 2013, 6(Suppl 1) P104

Background: Drug desensitization is the induction of temporary clinical unresponsiveness to drug antigens to which patients have presented severe hypersensitivity reactions (HSR). Rapid desensitization in patients suffering immediate hypersensitivity reactions with chemotherapeutic agents and monoclonal antibodies have been widely described and have shown to be successful. Non-immediate hypersensitivity reactions with other drugs have usually required desensitization with several days’ protocols to achieve total doses.

Methods: Thirty-eight desensitization procedures were performed in 5 patients with a 12-13 step, 6-hour protocol. All patients had developed a delayed maculopapular rash with the use of chemotherapeutic and/or biological agents. Three patients were pretreated with corticosteroids, paracetamol and antihistamines before each desensitization procedure.

Results: All the 38 desensitizations undertaken were successfully completed (25 with Temozolomide, 4 with Bendamustine, 4 with Rituximab and 5 with Infliximab). We observed HSR during 8 (21%) of desensitizations, including 5 immediate exanetra and 3 delayed local macular exanexa. Two patients were treated with corticosteroids and anti-histamines after the desensitization protocol to avoid more delayed HSR.

Conclusions: Rapid desensitization protocols are safe and effective in getting over delayed HSR to chemotherapeutic and monoclonal antibodies and allow patients with severe diseases to continue their treatment.

P105

Allergic diseases of the skin and drug allergies – 2018. Risk factors for hypoproteinemia in infantile atopic dermatitis

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World Allergy Organization Journal 2013, 6(Suppl 1) P105

Background: Hypoproteinemia is one of complications of severe atopic dermatitis. The aim of this study was to investigate the risk factors for hypoproteinemia in atopic dermatitis.

Methods: Seventy seven patients with atopic dermatitis were enrolled, who visited pediatric allergy clinic of Busan St. Mary’s Medical Center from January 2005 to January 2012. Infants with serum protein level was lower than normal range for age were classified to Group A (n=27) and normalto Group B (n=50). Age, sex, family history of allergy, and SCORAD score were studied. We examined platelet count, CRP, eosinophil count, serum albumin and protein, also serum ECP, total IgE, and allergen specific IgE by immuno CAP system (Phadia AB, Uppsala, Sweden). We identified skin wound culture and mycoplasma infection.

Results: Group A (Atopic dermatitis with hypoproteinemia) had higher SCORAD score, eosinophil count, CRP, ECP, and total IgE, and lower albumin than control group. Serum protein had statistically significant correlations with SCORAD score, eosinophil count, albumin, total IgE and number of sensitized allergens, but had not with CRP and ECP. 

Conclusions: The lower serum protein, the more severe atopic dermatitis. Our study suggests that the risk factors for hypoproteinemia in infantile atopic dermatitis were high SCORAD score, eosinophil count, total IgE, and number of sensitized allergens, and low albumin.

P106

Allergic diseases of the skin and drug allergies – 2019. Higher doses for heavy hives

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World Allergy Organization Journal 2013, 6(Suppl 1) P106

Background: Nonsedating antihistamines are recommended as first line treatment for patients with urticaria.

Methods: In our study, 30 patients with chronic urticaria for at least six weeks were enrolled after an informed written consent. Out of 30 patients 16 were females and 14 were males, in the age group of 16 yrs to 55 yrs (average age 33 yrs).

Patients with urticaria activity score (UAS) of 3 or more than 3, were started on tablet levocetirizine in a dose of 10 mg at bedtime at the onset of the treatment.

Out of 30 patients only 5 patients were symptomatic at the end of one week and were started on 20 mg of levocetirizine. Three out of 5 patients were...
asymptomatic after starting higher dose of 20 mg at the end of 2nd week with reduction in UAS. Twenty eight out of 30 patients showed good response and decrease in the UAS within two weeks, with higher dose of levocetirizine. However 2 patients showed no response to treatment even with 20 mgs of levocetirizine.

Average UAS at 0 week was 4.767, it came down to 1.8 at the end of one week. At the end of two weeks UAS was 1.4. At the end of 4 weeks average UAS came down to 0.4, showing a marked downward trend with high doses of levocetirizine given at the very onset of the disease. Therefore patients with higher UAS at the time of presentation should be started on a higher dose of levocetirizine at the onset of the treatment for better symptomatic relief and suppression of the disease within one week.

Results: According to the findings in our study use of a higher dose of non sedating antihistamine in patients with UAS of 3 or more than 3 at the very start of the therapy brings about a better control and rapid suppression of the symptoms, suggesting the need for “higher doses for heavy hives.”

Conclusions: We suggest higher doses for heavy hives.

**P107**

**Allergic diseases of the skin and drug allergies – 2020. The association between DRESS and the diminished numbers of peripheral B lymphocytes and natural killer cells**

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World Allergy Organization Journal 2013, 6(Suppl 1):P107

**Background:** Drug reaction with eosinophilia and systemic symptoms (DRESS) is a drug-induced, severe multiorgan system reaction whose exact pathogenesis remains unknown. This study aimed at evaluating specific changes in peripheral blood lymphocyte subtypes associated with DRESS during antibiotic treatment.

**Methods:** We analyzed six patients with DRESS. A complete blood count and peripheral blood lymphocytes immunophenotyping were carried out at symptom onset and at follow-up visits. Acute-phase reactants and liver enzymes were measured in all patients. Other tests — viral serology, serum immunoglobulin levels, and skin tests were performed when possible.

**Results:** B-cell counts were low in all patients at the onset of DRESS, and natural killer (NK) cells were low in all cases excepted. Due to recovery, B-cell numbers were within a normal range in five patients. In one, there was even a 10-fold increase in B-cell counts, although the level was mildly low after 3 months. NK-cell numbers were within a normal range in three patients. The mean numbers of B cells and NK cells were significantly higher in the second samples compared to the values on admission. Serum IgA and IgM levels were low in one patient. The drug provocation test was positive with cefotaxime in one patient. Viral serology, performed on five patients, was negative.

**Conclusions:** A decrease in B-cell and NK-cell counts was the most consistent finding associated with the onset of antibiotic-induced DRESS in our patients. This immunologic alteration might be a useful predictor of DRESS development.

**P108**

**Allergic diseases of the skin and drug allergies – 2021. Efficacy of montelukast as add-on therapy in patients with chronic idiopathic urticaria**

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World Allergy Organization Journal 2013, 6(Suppl 1):P108

**Background:** Treatment of chronic idiopathic urticaria (CIU) can be difficult with antihistamines only and therefore we assessed (1) efficacy of montelukast as add-on therapy, and (2) if any clinical features or laboratory markers were associated with a response to montelukast.

**Methods:** Patients who received montelukast for CIU between 2008-2011 (4-year period) were retrospectively identified from clinic letters. Clinical features of duration of urticaria, medication use, autoimmunity and laboratory investigations that included basopenia and mean platelet volume on full blood count, complement levels, specific IgE, autoimmune serology [antinuclear antibody (ANA), thyroid peroxidase antibodies, serum histamine releasing antibody (using donor basophils, positive >18.5%)] were collected and analysed. The primary end point was adequate control of urticaria without additional therapy. Patients with features of urticarial vasculitis and those who required corticosteroids or immunosuppressants were excluded. Nonparametric statistical data were calculated using GraphPad Prism software.

**Results:** 28 patients (11 males, 17 females; age means ±SD 36.5±15.4 years) received montelukast and the average duration of urticaria was 3.5 years. Six patients had autoimmunity (5 diabetes, 1 hypothyroidism); 24 patients (86%) were on anti-H1 (cetirizine 10mg/fexofenadine 180mg) and anti-H2 blockers (ranitidine 150mg) when montelukast was started. 13 patients (46.4%) responded to montelukast; the means ±SD age 31±13.98 years of 9 males and 4 females (age means ±SD 35±14.99 years) who responded was non-significant (2-sided unpaired t test p value 0.6498). Duration of anti-H1 use (<1 year vs >1 year) between males/females and response to montelukast was also non-significant (p value 0.4887). One patient responded to montelukast and fexofenadine only. Two patients required short course of steroids for urticarial flare while on montelukast. 9 patients continue to remain on montelukast. 17 patients had basopenia, 9 high mean platelet volumes, 2 had positive ANA, 4 positive specific IgE, C3/C4 levels tested in all 23 patients were normal, 4 had positive histamine release antibody test and 3 with thyroid peroxidase antibodies. 6 patients had montelukast related side effects: nausia (1), dyspepsia (1), depression (1) and worsening urticaria (3).

**Conclusions:** Montelukast as add-on therapy with anti-H1/anti-H2 blockers was effective in almost half of patients with CIU. No clinical features or laboratory markers were associated with response to montelukast.

**P109**

**Allergic diseases of the skin and drug allergies – 2022. Consensus statement on management of urticaria in India**

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World Allergy Organization Journal 2013, 6(Suppl 1):P109

**Background:** Urticaria, a heterogeneous group of diseases, often cannot be recognized by its morphology. Due to non-specific and non-affordable diagnosis, management of urticaria, especially chronic urticaria, is very challenging. This guideline includes definition, causes, classification and management of urticaria. Urticaria has a profound impact on the quality of life and causes immense distress to patients, necessitating effective treatment. One approach to manage urticaria is identification and elimination of the underlying cause(s) and/or eliciting trigger(s), while the second one is treatment aimed at providing symptomatic relief. This guideline recommends use of second-generation non-sedating H1 antihistamines as the first-line treatment. The dose can be increased up to four times to meet the expected results. In case patients still do not respond, appropriate treatment options can be selected depending on the cost.

First-generation antihistamines can interfere with rapid eye movement (REM) sleep and impact on learning and performance. New GA/LEN/EDF/EAACI/WAO guidelines do not recommend the use of these sedating antihistamines for the routine management of CU as the first-line agents. Second-generation antihistamines should be considered as the first-line symptomatic treatment for urticaria because of their good safety and tolerability profile. Second-generation antihistamines in higher doses have been shown to be effective in control of chronic spontaneous urticaria. This has been verified in a study using fourfold higher than recommended doses of desloratadine, fexofenadine, levocetirizine and rupatadine.

**Methods:** Approach to chronic spontaneous urticaria.

**Results:** See Results Diagram in Figure 1.

**Conclusions:** Four-fold updosing of antihistamines is recommended in urticaria management by Indian consensus statement.
Non sedating H1-Antihistamine (nsAH) ↓
If symptoms persist after 1 week
nsAH updosing (up to 4x) ↓
If symptoms persist after 1-4 weeks ↓
Add Leukotriene antagonist or change nsAH ↓
Exacerbation: Systemic Steroid (for 3–7 days) ↓
Add Ciclosporin A, Methotrexate, H2-antihistamine, Dapsone, Omalizumab. Auto-serum therapy

Figure 1 (abstract P109) Results Diagram

P110
Allergic diseases of the skin and drug allergies – 2023. Sulfamethoxazole/trimethoprim induced leukocyte count decreased in 79-year-old female patient

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World Allergy Organization Journal 2013, 6(Suppl 1):P110

Background: This report was received from a physician via Medicines and Medical Devices Agency of Serbia on 2012-Feb-08.

Methods: Case report

Results: A 79-year-old female patient was taking Trimosul (INN: sulfamethoxazole / trimethoprim) 400 mg / 80 mg tablets 2 tablets twice daily from 2012-Jan-05 to 2012-Jan-09 for urinary tract infection. On 2012-Jan-09 her total leukocyte count decreased. The suspected drug was withdrawn and her leukocyte count gradually increased. The patient had no previous history of any drug allergy. Laboratory test showed low level of folic acid 1.5 ng/mL (ref. values 2.7-3.4 ng/mL). Concomitant medication was Farin (INN: warfarin) 1 mg daily for pulmonary embolism since 2012-Jan-02 and Ranisan (INN: ranitidine) 150 mg twice daily for gastritis since 2011-Dec-27.

Conclusions: This case was classified as serious. The causal relationship between sulfamethoxazole / trimethoprim and the suspected adverse reaction was assessed as possible related based on the temporal association and the known safety profile of the drug. The suspected adverse reaction is listed according to the current Reference Safety Information (RSI). This case does not change the overall benefit-risk balance of the medicinal product.

P111
Allergic diseases of the skin and drug allergies – 2024. Auto-serum therapy in autologous serum skin test positive patients of chronic spontaneous urticaria

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World Allergy Organization Journal 2013, 6(Suppl 1):P111

Background: Chronic spontaneous urticaria (CSU) patients demonstrate functional autoantibodies against high affinity receptors of IgE (FcεRI). Autologous serum skin test (AST) is mostly used in chronic spontaneous urticaria to show its auto-reactivity. ASST positive patients represent a severe group which can be benefited from autoserum therapy (AST). So, aim of our study is to evaluate the efficacy of autoserum therapy in ASST positive patients.

Methods: AST was performed on 20 ASST positive patients (M/F = 12/8; age range = 19–45 years; duration of the disease = 6 months to 5 years). ASST was done by injecting patients own serum and normal saline as control in a dose of 0.05 ml and readings were taken after 30 minutes. A wheal and flare response of more than 1.5 mm diameter was considered as positive. ASST positive patients were given autoserum therapy in a dose of 0.05 ml/kg intramuscularly once a week for 9 weeks. To evaluate the response we studied urticaria activity score (UAS), dermatology life quality index (DLQI) and disease severity by the no. of antihistamines used.

Results: We found that out of 20 ASST positive patients 9 patients had significant response in terms of decrease UAS and antihistamines used with improvement in DLQI, 6 patients had moderate response and 5 patients had poor response.

Conclusions: Auto-serum therapy is effective in significant no. of ASST positive patients.

P112
Allergic diseases of the skin and drug allergies – 2026. Immunologic evaluation of the patients with cefaclor hypersensitivity

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World Allergy Organization Journal 2013, 6(Suppl 1):P112

Background: Cefaclor is the most common cephalosporin to induce anaphylaxis. We evaluated immunologic findings of cefaclor hypersensitivity. Methods: 36 patients with a history of immediate reactions to cefaclor were enrolled from Ajou University Hospital and Asan Medical Center, South Korea. Those with immediate hypersensitivity reactions to cefaclor were defined by a certain clinical history with or without specific IgE to cefaclor by immunocAP system. Serum specific IgE, IgG1 and IgG4 levels to cefaclor-HSA conjugate were measured by ELISA, and compared with those of ImmunoCAP system. The binding specificity was evaluated by ELISA inhibition test.

Results: Anaphylaxis (group I, 80.6%) was the most common phenotype, followed by urticaria (group II, 19.4%). There were no significant differences in clinical characteristics, such as age, sex and atopy status between group I and II. The serum specific IgE to cefaclor by ImmunoCAP was found in total 29 (80.6%) patients, 24 (82.8%) in group I and 5 (71.4%) in group II with no significant according to clinical parameters. The prevalence of serum specific IgE, and IgG1, IgG4 to cefaclor-HSA conjugate by ELISA tended to be higher in group I (51.7%, 53.6%, 20.7%) than in group II (14.3%, 14.5%, 0%), although these differences were not
statistically significant. Serum specific IgG4 to cefaclor-HSA conjugate was observed only in group 1. 10.3% patients in group I had high specific IgG1 to cefaclor-HSA conjugate with no specific IgE. Significant associations were found between specific IgE and IgG1 or IgG4 antibodies (p < 0.001, p < 0.004). ELISA inhibition tests showed significant inhibitions by both free cefaclor and cefaclor-HSA conjugate.

Conclusions: Most common manifestation of immediate hypersensitivities to cefaclor was anaphylaxis in which IgE mediated response is the major pathogenic mechanism. Detection of serum specific E and IgG subtypes to cefaclor-HSA conjugate may be useful to diagnose cefaclor anaphylaxis. The IgG subtype-mediated response was suggested in some cases of cefaclor anaphylaxis.

P113
Allergic diseases of the skin and drug allergies – 2027. Successful treatment with intravenous immunoglobulin and prednisolone pulse therapy of toxic epidermal necrolysis and Stevens-Johnson Syndrome
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World Allergy Organization Journal 2013, 6(Suppl 1):P113

Background: SJS-TENS pathogenesis is not completely explained and its immunological symptoms are similar to graft versus host disease so; it is possible to say that SJS-TEN is a disorder of the cell-mediated immunity. We report a first case of patient with intracranial tumors who developed a cutaneous adverse drug reaction during lansoprazole and prophylactic anticonvulsants treatment.

Methods: Our patient is a 64 year-old female, who had glioma and had been on post-op anticonvulsants therapy. On the 3rd day after she had an operation, lansoprazole was added to the therapy. After the first lansoprazole dose erythematous dusky red macules were occurred in extremities and trunk and on the following day confluent purpuric lesions tended to run together in 95% of the whole body including scalp and, oral and genital mucosa. Nikolsky's Sign was positive on the skin. Body temperature was 38.4°C with heart rate of 146 beats/min. GlasgowComaScale was E1M1e, pupillary light reflex was 2/2+/+. SCORTEN was calculated as 5 and her biopsy resulted as TEN.

Results: As a treatment, firstly fluid and electrolyte homeostasis and skin lesions were maintained. For daily nutritional requirements total parenteral nutrition was supplied. Human albumin and IVIG in dose of 400mg/kg were usedand pulse steroid therapy. She was discharged from the hospital on the 23rd day and followed in the clinical immunology unit after 2 months.

Conclusions: On six day intensive care unit serum STRAIL level was 302 pg/mL and in blister fluid soluble TRAIL level was 603 pg/mL. We found that the amounts of soluble TRAIL were higher in TEN blister fluids than in serum at the same time and after two months. TRAIL and TWEAK were secreted by CD1a+ and CD14+ cells present in the blister fluids we studied. This result suggest that TRAIL could also be a mediators of keratinocyte cell death in SJS-TEN.

P114
Allergic diseases of the skin and drug allergies – 2028. Vitamin D insufficiency in dress syndrome
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World Allergy Organization Journal 2013, 6(Suppl 1):P114

Background: Vitamin D deficiency (VDD) is widespread and on the increase. A few reports showed VDD has been implicated cutaneous symptoms such as rash and urticaria/angioedema and drug reaction with eosinophilia and systemic symptoms (DRESS). We evaluated the association of serum 25-hydroxyvitamin D3(25(OH)D3) and DRESS.

Methods: 36 patients diagnosed as DRESS were prospectively collected from September 2010 to April 2012. The diagnostic criteria in this study was used from our previous report.

Results: Study patients consisted of 16 men (44.4%) and 13 women (55.6%). The most common causative drugs were antibiotics (17, 47.2%) and anticonvulsants (9, 25%), followed by non-steroidal anti-inflammatory drugs (5, 13.2%), antituberculosis drugs (4, 11.1%), undetermined agents (4, 9.9%), others (2, 5.6%) and undetermined (2, 5.6%). The mean serum 25(OH)D3 level of the total subjects was 11.96 ± 10.27 ng/mL. Thirty-five patients (97.2%) had low vitamin D levels; 19 were severe VDD (<10 ng/mL, groupA), and 16 vitamin D insufficiency (10-30 ng/mL, groupB). The mean serum 25(OH)D3 level of each group was 7.02 ± 1.65 ng/mL and 14.46 ± 3.56 ng/mL respectively. There were no significant differences in sex, age, culprit drugs, organ involvements and the use of systemic steroids between two groups, except admission days (106.21 ± 89.66 vs. 37.56 ± 40.43, p=0.034). The level of serum 25(OH)D3 was inversely correlated with admission days (r=-0.387, p=0.02).

Conclusions: Vitamin D insufficiency was noted in patients with DRESS. Further studies are needed in large samples and to evaluate the vitamin D roles in drug hypersensitivity.

P115
Allergic diseases of the skin and drug allergies – 2029. Prevalence and factors of food allergy among school-age children in Southern China
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World Allergy Organization Journal 2013, 6(Suppl 1):P115

Background: Food allergies (FA) is influenced by genetic and environmental factors. The aim of the present study was to investigate the prevalence and factors of FA among school-age children in southern China.

Methods: 5836 children aged 7–12 years living in Guang Zhou, China participated in this study. A cross-sectional parent questionnaire survey was conducted. Families with 189 children confirmed as FA (according to self report and doctor’s diagnosis) and other 213 randomly selected health children completed a standardized questionnaire related to respiratory and food allergic symptoms, family history of allergic diseases, smoking history, environmental exposure, and eating behaviors. They underwent skin-prick tests (SPTs) with 24 common food allergens and aeroallergens. Blood samples were collected from 186 children with FA and 207 health child for peripheral blood eosinophilic (EOS) analysis and specific IgE (slgE) measurements against 27 common food allergens and 6 aeroallergens.

Results: A total of 5542 out of 5836 questionnaires (94.96%) were returned. 3.41% children were reported to have FA and were also ever diagnosed as FA by doctor. The five leading allergic foods were shrimp (24.26%), crab (14.85%), cow’s milk (8.91%), chicken eggs (7.42%) and fish (5.29%). The most commonly reported symptom was a skin rash (63.28%), followed by upper respiratory symptoms (37.5%). There was no significant difference between children with FA and health children on EOS level (p>0.05). Either SPTs or slgE analysis showed that the main allergic foods were shrimp (p<0.05) and crab (p<0.05). Earlier age (<8 years), family history of allergic diseases, frequently migrating during infancy, often exposed to smoke environment, frequently eating beef suet and parents with higher education were associated with increased risk of SPT and slgE positivity. However, earlier going to nursery (2 years old) used decreased the risk of SPT positivity.

Conclusions: The prevalence of FA confirmed on self-report and doctor’s diagnosis was 3.41% in southern China. The most common causative food were shrimp and crab. Earlier age (<8 years), family history of allergic diseases, frequently migrating during infancy, often exposed to smoke environment, frequently eating beef suet and parents with higher education are risk factors for food allergen sensitizations, whereas earlier going to nursery (2 years old) may be the protective factor.
P116
Allergic diseases of the skin and drug allergies – 2030. Validation of cephalosporin skin test for predicting immediate hypersensitivity: interim analysis
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World Allergy Organization Journal 2013, 6(Suppl 1):P116

Background: Cephalosporin is one of the most commonly used beta-lactam antibiotics globally, and also a major offending agent of drug hypersensitivity along with penicillin. Cephalosporin skin test has been widely used in most hospitals in Korea. However, the validity of this test for prediction of immediate hypersensitivity has still not been well studied. Therefore, we conducted this study to determine the predictive validity of cephalosporin skin test prior to administration. Methods: We prospectively conducted intradermal skin test with selected 1st, 2nd, and 3rd generation cephalosporins: cefazol, cefotetan or cefamandol, ceftriaxone or cefotaxime or flomoxef, respectively. After skin test, one of the tested cephalosporins was intravenously administered for preoperative prevention of infection under careful observation, regardless of the skin test results. Results: We recruited 1,125 patients who needed the use of preoperative cephalosporins. Eighty five patients (7.5%) showed positive skin test to at least one cephalosporin. However, none of these patients showed immediate hypersensitivity reactions. Two patients who showed generalized urticaria and itching sense had negative skin test. The test showed sensitivity of 0%, specificity of 92.4%, negative predictive value of 99.8%, and positive predictive value of 0%. Conclusions: Routine skin test of cephalosporin prior to its administration is not valid for predicting immediate hypersensitivity with low sensitivity and positive predictive value. This study is currently ongoing for enrollment of larger study group.

P117
Allergic diseases of the skin and drug allergies – 2031. Effectiveness of autologous serum therapy in patients of chronic urticaria: a randomized, single-blind, controlled trial
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World Allergy Organization Journal 2013, 6(Suppl 1):P117

Background: Chronic urticaria (CU) is a vexing problem to clinicians and patients alike. Search for newer modalities which can reduce pill burden is a felt need. The scope of Autologous serum therapy (AST) thus needs evaluation. Methods: Patient blind, parallel group, randomised, controlled study of two study arm. 54 patients were given AST (GroupA) and control group of 57 patients given injection normal saline (placebo) (GroupB). AST/Placebo was given every week for 9 weeks and then followed-up for another 3 weeks. Levocetrizine was advised to be taken SOS in both groups. AU was diagnosed by autologous serum skin test. Urticaria total severity score (TSS) and Bengali version of Dermatologic life quality index (DLQI) was used as primary efficacy variable. Mann-Whitney U test and Freidman ANOVA followed by post hoc Dunn’s test was used for analysis. Results: TSS was comparable (p>0.05) at baseline in Group A (17.74±0.44) and Group B (17.31±0.66). TSS showed significant improvement (p<0.001) from baseline 7th week (12.56±2.24) onwards in group A and 8th week (13.29±5.01) onwards in group B which continued till end-of-treatment visit. Between group comparison showed significant improvement (p<0.001) 4th week onwards which persisted till 12th week. DLQI showed significant improvement (p=0.006) in Group A than Group B at the end of study. Both AU and non-AU patients showed comparable (p>0.05) improvement of TSS. Conclusions: AST shows promise in treatment of urticaria regardless of the autoimmune nature.

P118
Allergic diseases of the skin and drug allergies – 2032. Epidemiological study of a specific unit of drug allergy diagnosis - 20 years experience
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World Allergy Organization Journal 2013, 6(Suppl 1):P118

Background: To determine the allergy incidence to drugs in patients visited in our unit with a clinical history suggestive of allergic hypersensitivity to one or more drugs. Our area of influence is the whole region of Catalonia, North-East of Spain. Methods: We use our own method of diagnosis; keeping in mind the limitations in our medical practice such as a difficult anamnesis; few standardised skin tests for most substances; and the scarce reliability of the in-vitro tests. The provocation test was the gold standard of the definitive diagnosis. Results: 33750 patients have been studied in 20 years; each patient has undergone an average of 1.4 tests 68% of them being female and 32% male. Conclusions: A positive result was found in 20% of the studied cases; 8% of these related to placebo. The most studied drugs have been the beta lactamates (59%), non-steroid anti-inflammatories (NSAIDs) (30%), local anesthetics (10%), others (10%).

P119
Allergic diseases of the skin and drug allergies – 2033. Metronidazole skin testing associated with systemic reaction
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World Allergy Organization Journal 2013, 6(Suppl 1):P119

Background: Type I hypersensitivity reaction to metronidazole and its skin testing are rarely reported. A 69 year old lady had laporoscopic cholecystectomy on 27th September 2010. Post surgery, IV ciprofloxacin 400mg and metronidazole 500mg were infused at 8:00 pm. Within 30 minutes, she experienced pruritus and noted erythema on her left forearm followed by urticaria over upper limbs and chest. She reported mild shortness of breath and dizziness. There was no hypotension or angioedema. This was her first such reaction to drugs. Both antibiotics were stopped and IV hydrocortisone and oral chlorpheniramine prescribed. She was referred to our allergy service for suspected allergy to either ciprofloxacin or metronidazole. On assessment, she had received antibiotics on several occasions in the past and had reacted to ceftriaxone with pruritic maculopapular rashes. She had consumed metronidazole in June 2009 and ciprofloxacin in June 2009 and July 2010. A clinical diagnosis of Type I allergy to metronidazole was made. Methods: She underwent skin prick(SPT) followed by intrademal(ID) testing in February 2011. Results: At about 11.50 am, immediately after ID reading (test solution at 5mg/ml concentration), she complained of generalized pruritus including at the intradermal site. The ID reaction was an erythema of 8x8 cm compared to diluent which was 4x5cm at this highest concentration. The wheals were 3x4 mm for both. ID at 1:10 and 1:100 had not produced any erythema nor significant wheal. SPT was negative at up to 5mg/ml of metronidazole, Examination revealed erythema on forehead, urticaria (1x4cm) on left flank and a small urticaria on right flank. There was no dyspnea. Chest auscultation and vital signs were normal. She was given IM phehergan 25 mg and all lesions resolved by 1.45 pm. Conclusions: We describe a case of metronidazole anaphylaxis with systemic reaction on skin testing although the ID reaction by criteria would have been considered negative. This case is a reminder that all proper precautions must be taken in skin testing.

P120
Allergic diseases of the skin and drug allergies – 2035. Allergen control in management of chronic urticaria/angiœdia (CUA) in Kenya, East Africa
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World Allergy Organization Journal 2013, 6(Suppl 1):P120
A retrospective study on effect of allergen control is reported in 258 patients with CUA attending the allergy clinic over 5 years. The anaphylactic cases were excluded but no other selection was done. Full clinical data, atopy and diet result of skin prick test (SPT) for tropical aeroallergens (TAA) and local diets were recorded including information on use of food additives. The patients were followed up for evaluation of symptom scores and need for drugs for at least 5-6 months during which prophylactic usage for drug treatment was discouraged. The patients with microscopic AA reactions, they were educated about the distribution and practical control measures with handouts in English and Kiswahili to be followed after 5-6 weeks to evaluate the progress. The food allergy cases underwent open elimination dose related food rechallenged (OFC) for confirmation before advising rehabilitation. The results showed 221 (85.8%) of patients were adults with M:F ratio 1:1.7. 120/258 (46.5%) has clinical atopy but 20 others only had family members with asthma. Multiple aeroallergen sensitivity is common which was not a problem in relation to control measures. 110/258 (42.6%) reacted to house dust mite (HDM) 80/258 (31%) to mold, 35 (13.6%) to grass/weed pollen, 28 cases (10.9%) to cockroaches and 19 (7.4) to pets 28/258 (10.8%) had food allergies which may be under reported as many patients detect them. The pattern of food allergies were 7 for cow milk, 6 for beef, 5 for eggs, 4 for red beans, 2 for goat meat and 1 for chicken, 1 for fish, 1 for eggs and 1 for banana. 22/258 (8.5%) CUA from over indulgence in food additives which occurred more often in single patients 18-36 years old. In 30/258 (11.6%) there were other clinical causes such as 6 with intestinal parasites, 4 with HIV, 4 with aspirin + NSAID sensitivity, 1 with thyroectomy and 2 with hypothyroidism and 4 with poorly controlled diabetes 2 with CT disease, 4 with serious stress.

P122 Food allergy and anaphylaxis – 2037. Emergency department management of insect-sting allergic reactions in a community hospital in the United States

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Background: A general consensus on the definition and clinical diagnostic criteria for anaphylaxis has been reached and recommended national and global guidelines for its management have been published. However, few studies in the United States have examined the extent to which emergency management of insect-sting allergic reactions adheres to these guidelines. The objective of this project was to evaluate the management of insect-sting allergic reactions, including those resulting in anaphylaxis, in a community hospital emergency department in order to measure adherence to the published national guidelines.

Methods: This project involved the retrospective review of all records of patients who were treated for acute allergic reactions to insect venom (ICD-9-CM diagnosis code 989.5) in the emergency department of a community hospital between April 2009 and April 2011.

Results: A total of 133 records were identified between April 2009 and April 2011. Of these, 81 patients experienced local reactions while 52 were systemic reactions. Of the 52 patients experiencing systemic reactions, 45 were classified as anaphylaxis as defined by the NIAID-FAAN criteria. Of the 45 patients classified as anaphylaxis, 6 patients received epinephrine administered by the emergency medical services (EMS) before arrival and an additional 10 received epinephrine while in the emergency department, such that 35% of patients received epinephrine. Other recommended interventions included H1 antihistamines (64%), H2 antihistamines (60%), and corticosteroids (80%). A prescription for self-injectable epinephrine at the time of discharge was documented for 33% of patients with anaphylaxis. None of the patients had documentation of referral to an allergy specialist.

Conclusions: In a community hospital emergency department in the United States, adherence to the national guideline-recommended management of patients presenting with insect-sting-related anaphylaxis is low. Intensive efforts and creative programs to educate physicians and other healthcare professionals in identification and proper management of anaphylaxis are necessary to improve treatment. Development of an electronic record template for quick identification of symptoms and corresponding recommended management may help improve adherence to national guidelines.

P123 Food allergy and anaphylaxis – 2038. Insect and sting allergy

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World Allergy Organization Journal 2013, 6(Suppl 1):P123

Background: Insect and sting allergy in immunocompetent populations. A comparison.

Methods: Observation made in different subsets of population who had insect and sting allergy (bees, wasps, scorpions, mosquitoes parasites etc).

1) Immunocompetent population in the developing world engaged in farming and related activities regularly exposed to all gradient of allergens like dust molds, dander, pets, etc and when they are exposed to insect and mosquito bites, bees and wasps stings even scorpion bites they suffer to a lesser extent.

2) Immunocompromised population in the developed world far away from natural gradient of exposure of nearly all the allergens and when they are exposed to scorpion bite or bees and wasps stings there are reports of fatal reactions and even mosquito and insect bites causes serious wheal and flare reaction, this observation was made specially on the second generation of children from parents of Indian origin now living in USA and other affluent countries, where there is minimal exposure to all the allergens.

Results: Based on the observation made on nearly 2 lakh patients it was observed that there is a direct relationship of levels of exposure to all the
natural allergens and the immunotolerance achieved by this natural exposure or natural immunotherapy.

Conclusions: After above mentioned observations we reached to the conclusion that exposure to natural gradient of allergens, insect bites mosquito bites is troublesome for the immunocompromised populations who follow avoidance of exposure to allergens as a rule and this is a disaster for them there are many deaths reported due to the above mentioned exposure, at the same time the immunotolerant population which is exposed to all sorts of allergens insect bites mosquito bites bees and wasps stings suffers to a lesser extent.

P124
Food allergy and anaphylaxis – 2039. Bioinformatics evaluation of new proteins in genetically engineered organisms and novel foods for potential risks of food allergy and celiac elicitation

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Background: Proteins introduced into foods through genetic engineering must be evaluated for potential risks of food allergy (FA) or if derived from grain, potential elicitation of celiac disease (CD). The evaluations are based on Codex Alimentarius guidelines (2003). Novel food ingredients may also be evaluated. Amino acid sequence comparisons are recommended to identify proteins that should be screened further by serum IgE tests for food allergy (FA) or T cell proliferation for potential CD eliciting proteins prior to use in foods.

Methods: The www.allergenonline.org database was established in 2004 and updated annually. Criteria were defined by a panel of recognized allergy experts who also review updates annually based on published evidence the proteins are allergenic or are from an allergenic source and bind IgE specifically allergic individuals. Users enter an amino acid sequence for comparison against the database. The new celiac database was constructed by reviewing major publications of native, mutaeador deamidated peptides derived from gluten and suggested as elicitors of CD. Both are available at no cost for public use.

Results: Version 12 of the allergen database (February 2012) includes 1603 sequences from 603 taxonomic-protein groups associated with IgE mediated allergy. References are provided for each group and sequences can be searched for matches exceeding regulatory criteria. The new experimental celiac database was constructed and released in February 2012 and includes 1016 published peptide sequences from 68 glutens of wheat, barley, rye or oats that are associated with celiac disease.

Publications were evaluated regarding reported T cell proliferation from PBMC or clones from MHC Class II DQ 2.5 or DQ 8 restricted CD subjects. Criteria for inclusion of sequences in both databases and appropriate uses are described online. Criteria, simple to follow sequence comparison instructions and interpretations are illustrated.

Conclusions: The two databases provide efficient and simple tools to evaluate candidate food proteins that might pose a risk of eliciting FA symptoms or CD in affected individuals. Proteins that do not exceed criteria have a small likelihood of eliciting FA or CD in sensitized consumers. Proteins that exceed criteria should be evaluated further or not used in new foods.

P125
Food allergy and anaphylaxis – 2040. Nutritional status and dietary intake in children with cow’s milk allergy

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World Allergy Organization Journal 2013, 6(Suppl 1)P125

Background: Poor different acceptance of milk-free formulas in the diet of children with allergy to cows’ milk (CMA) poses the risk of nutritional deficiencies especially calcium, vitamin D and iron and also can lead to malnutrition.

Methods: Sixty children aged 2-5 years were divided into two groups: group I - 40 children with CMA, group II-20 healthy controls. In children diagnosed with allergy to cow’s milk, milk free diet was recommended. Dietary intake and nutritional status were assessed at six-monthly intervals: at the beginning of the study and after 6 and 12 months of observation. Nutritional status of children was assessed with anthropometric traits and indices (i.e. Body Mass Index) and selected biochemical parameters were performed.

Results: Despite of differences in the average concentration in the serum of children with both groups of proteins, albumin and iron, their values ranged of standards for age, as well as the assessed value of other biochemical parameters. At the beginning of the study BMI z-score of 75% of children in group I and 80% in group II ranged between -1,0 to +1,0 whereas BMI z-score in 25% of group I and 20% of group II between -2,0 and -1,0. After 12 month follow-up in 91,5 % of children of group I and 88% of group II BMI z-score was between -1,0 to +1,0 while in 8,5% of children in group I and 12% in group II between -2,0 to -1,0.

Conclusions: Nutritional status of children with CMA assessed by body mass index, and selected biochemical tests was normal. In children during 12 month of period of the study, positive changes in dietary habits were observed. Children with CMA should remain under pediatric and dietician care in order to monitor their nutritional status and diet. Nutrition care is also indicated for children on a traditional diet.

P126
Food allergy and anaphylaxis – 2041. Rush oral immunotherapy for severe food allergy: one year follow up

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World Allergy Organization Journal 2013, 6(Suppl 1)P126

Background: Prevalence of severe food allergy with high risk of anaphylaxis has been increasing and daily restricted diet and fear of accidental anaphylaxis are great burden on the patients. Oral immunotherapy (OIT) may be a hope for the cure but has not been established at present. We performed OIT for severe food allergy with a unique protocol aiming to achieve the dosing of high amount during rush phase.

Methods: One hundred and one children with egg, milk and/or wheat allergy were enrolled in the study. OIT protocol was consisted of initial rush phase following maintenance phase. Goals of dosing during rush phase were one half-boiled egg, 200ml of milk, one serving of wheat as a staple food for egg, milk and wheat allergy, respectively. Seventy-nine patients (since some patients received more than one OIT, number of OITs were 59 for egg, 43 for milk and 12 for wheat) who reached 12 months of maintenance were analyzed.

Results: Percentages of cases who achieved the goal dosing were 84.5%, 78.4% and 87.5% in egg, milk and wheat OITs, respectively, during rush phase. At one year of maintenance, 92.7% of patients on egg OIT ingested one boiled-egg or half-boiled egg, 77.8% on milk OIT ingested 200ml of milk and 85.7% on wheat OIT ingested one serving of wheat as a staple food. However, 1 patient with milk OIT and 1 with wheat OIT returned to complete elimination because of suspected eosinophilic esophagitis and frequent anaphylaxis, respectively. Allergen-specific IgE and basophil activation were significantly decreased and allergen-specific IgG<sub>4</sub> was significantly elevated after rush OIT in most patients including failure cases.

Conclusions: Our rush OIT brought desensitized state in most patients with severe food allergy. Further investigation is necessary to clarify the factors to predict the prognosis of OIT.

P127
Food allergy and anaphylaxis – 2042. High rates of egg reactivity in infants with eczema randomised to receive egg under 6 months of age

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World Allergy Organization Journal 2013, 6(Suppl 1)P127
Background: Egg allergy is highly prevalent in children with eczema, however there is little known about the establishment of sensitization and clinical reactivity in infants under 6 months of age.

Methods: 49 infants between the ages of 4-5 months were randomised to (5.2%) derate to severe eczema with SCORAD introduction of egg, including severe ories and clinicians be aware of the (Blo t 10 [19.4%vs0%], Pen m 1 [33.3%vs5.3%], Pen I 1 [27.8% (22.2%) compared to 31 deidentified subjects with tIgE 1000-5000 kU/L (Group A) and Positive allergic reactions occurred in 16/49 (32.6%) infants who In order to minimize the effect of non-specific IgE binding Litopenaeus vannamei by ImmunoCap from undiluted and 4' 2045. Highly elevated IgE antibodies at (one sample t-test, p<0.05). The Group1A results:

Results: Positive allergic reactions occurred in 16/49 (32.6%) infants who received the pasteurized raw egg powder. Skin reactions were the most common symptom with skin rashes (peri-oral redness and exacerbation of eczema on face or body) in 15/16 (93.7%) infants, as well as urticaria and/or angioedema in 11/16 (68.7%) each. Of less frequency were gastrointestinal (GI) symptoms (31.2%), and respiratory symptoms: 2/16 (12.5%). Severe reactions were observed in 2/16 infants (18.7%) with one infant with FPIES and one case of anaphylaxis. Reactions occurred within 60 minutes in 12/16 (75%) infants, with seven reactions (43.7%) presenting immediately within 5 minutes. Later onset between 1-3 hours occurred in 4/16 infants (25%), with two cases experiencing severe GI symptoms. Delayed reactions after three hours of ingestion were not observed in this group. There were no differences in background characteristics of the infants who reacted compared to those who did not react to the egg powder, including family allergic history, infant medical history, feeding practices, or exposure to other children.

Conclusions: Infants with eczema under 6 months of age are at high risk of allergic reactions with their ‘first’ introduction of egg, including severe symptoms of FPIES and anaphylaxis. This highlights the need to understand the much earlier events leading to food sensitisation.

P128

Food allergy and anaphylaxis – 2043. Poor dilutional linearity of food allergy specific IgE measurement by immunocap in samples with high total IgE

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Background: In order to minimize the effect of non-specific IgE binding when checking for specific IgE (sIgE) to foods, it is recommended that automatic dilutions should be performed on samples with total IgE (tIgE) >20,000 kU/L to avoid false positives. We sought to determine the linearity of specific IgE measurement in serially-diluted samples with total IgE >1000 kU/L.

Methods: 31 deidentified subjects with tIgE 1000-5000 kU/L (Group A) and 10 subjects with tIgE >5000 kU/L (Group B) had sIgE measurement for egg, milk, wheat, peanut, and soybean by ImmunoCap from undiluted and 4 serial two-fold dilutions using manufacturer supplied diluent. Myeloma IgE was prepared at an initial dilution of 1:28 and then 7 serial two-fold dilutions were performed. tIgE percentage recovery was calculated by multiplying measured tIgE by the dilution factor for that sample and dividing this result by the measured tIgE in neat serum. The same calculation was applied to sIgE.

Results: sIgE was detectable in varying concentrations for all foods in the myeloma sample and remained detectable across a range of dilutions. For Group A, mean tIgE recovery from diluted samples ranged from 120% (1.2 dilution) to 85% (4 dilution). Egg sIgE was the only analyte for which mean recovery was <100%. Mean percentage recovery was increased significantly for peanut, soy, and wheat (one sample t-test, p<0.05). The effect of serial dilutions on sIgE recovery for Group B was more variable.

Conclusions: Our results raise potential issues with sIgE measurement in the setting of high tIgE as sIgE was detected in all myeloma samples which should have no allergen-specific reactivity. In Group A, there is a trend for over-recovery with serial dilutions for all allergens except egg. The variability of percentage recovery between different allergens and also between different subjects for the same allergen strongly suggests both sample and assay-specific factors are contributing to these findings. It is therefore important for laboratories and clinicians to be aware of the potential limitations of sIgE measurements in patients with tIgE >1000 kU/L. Laboratories should evaluate the linearity of their own assay before routinely measuring and reporting sIgE results from diluted samples.

P129

Food allergy and anaphylaxis – 2044. Component resolved allergen sensitization profiles in shrimp allergy in the tropics

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Background: Shellfish allergy is one of the commonest food allergies in the tropics. Dermatophagoides farina e vaccine-associated anaphylaxis three hours of ingestion were not observed in this group. There were no differences in background characteristics of the infants who reacted compared to those who did not react to the egg powder, including family allergic history, infant medical history, feeding practices, or exposure to other children.

Conclusions: Infants with eczema under 6 months of age are at high risk of allergic reactions with their ‘first’ introduction of egg, including severe symptoms of FPIES and anaphylaxis. This highlights the need to understand the much earlier events leading to food sensitisation.

Methods: Serum allergen-specific IgE of 105 subjects were quantified using ImmunoCAP and ImmunoCAP ISAC biochips. The subjects were classified based on a convincing clinical history and food challenge testing (FC) (dose=70g) to Penoeus monodon and Litopenaeus vannamei. Group1A: Either SA with FC positive to either shrimp (n =22) or SA admitted to emergency departments for severe reactions but no FC performed (n=14) (total n=36); and Group1B: Reported SA with FC negative (n=31). Group2: Shellfish tolerant DM sensitized controls (n= 38).

Results: All 105 subjects but one were sensitized to at least one of 3 DM tested (Dermatophagoides pteronyssinus, Dermatophagoides farinae, Blomia tropicalis), with highest sensitization rates to Blo t 1 followed by Der f 1. Group1A had higher rates of sensitization to tropomyosin compared to Group1B (Der p 1 [33.3%vs9.7%], Pen m 1 [33.3%vs9.7%], p<0.037); and to Group2 (Blo t 10 [19.4%vs0%], Pen m 1 [33.3%vs5.3%], Pen l 1 [27.8% vs5.3%], Lit v 1 [22.2%vs5.3%], p<0.05). Sensitization to Lit v 2 were higher in Group1A (22.2%) compared to Group1B (6.5%) and Group2 (5.2%) (p<0.093). The sensitization rates to Lit v 3, 4 were low (<10%). A positive test for a combination of shrimp (ImmunoCAP 24)+any tropomyosin+any shrimp allergens gave the highest sensitivity(81.8%) to distinguish FC positive from negative subjects but had a low specificity of 24.1%. The specificity was highest (93.1%) when using a positive test for Der p 10 or any shrimp tropomyosin, but sensitivity was low (31.8%).

Conclusions: Tropomyosins are highly cross reactive across species and is significantly associated with SA in the tropics. ISAC Immunocap improved the accuracy to detect FC+ve SA.

P130

Food allergy and anaphylaxis – 2045. Highly elevated IgE antibodies to vaccine components in influenza vaccine-associated anaphylaxis in Japan

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World Allergy Organization Journal 2013, 6(Suppl 1):P130

Background: Anaphylaxis after vaccination is rare but significant problem since it may be fatal without prompt treatment. Proper diagnosis and identification of the causative agent is critical for management and prophylaxis of the anaphylaxis. Influenza vaccine-associated anaphylaxis (IVA) has been related to egg allergy since influenza vaccines are produced
in embryonated eggs. However, patients with IVA do not always have egg allergy. In 2011-12 season, increase in incidence of IVA was reported from one manufacturer in Japan (approximately, 1 in 1.4 million doses in regular years and 1 in 0.4 million doses in 2011).

Objective: To identify the cause of the anaphylaxis events in 2011-12 in Japan.

Methods: We collected serum and blood specimens of IVA cases within 2 months after the events from all areas of Japan. The diagnosis was confirmed based on the Brighton collaboration case definition of anaphylaxis of level 1 and 2. Eighteen cases of confirmed IVA and age-matched 7 control subjects with the similar vaccination history were examined. Specific IgE to each component, namely A/H1, A/H3 and B, of the trivalent vaccines distributed for 2011-12 season from several vaccine manufacturers was measured with ELISA. Antigen-induced basophil activation was evaluated by measurement of CD203c expression with flowcytometry. Effects of additives to the vaccine preparations on the CD203c expression were also examined.

Results: No patients with IVA had egg allergy. Specific IgE antibodies to A/H1, A/H3 and B were significantly elevated in patients with IVA than in controls. No differences in IgE antibody titers among components or products from different manufacturers were identified. Influenza vaccine component-induced CD203c expression in basophils were also highly enhanced in IVA and no response was observed in controls. Since the IVA cases segregated in patients who received phenoxethanol-containing vaccines, effect of the preservative on basophil activation was examined and enhancement with phenoxethanol, not with thimerosal, of the response was observed in some cases.

Conclusions: The results suggest that the recent IVA in Japan was caused by specific IgE antibodies to influenza vaccine components and that phenoxethanol may have modified the reaction. Measurement of vaccine-component-specific IgE and basophil activation is useful for diagnosis of vaccine-associated anaphylaxis.

P131 Food allergy and anaphylaxis – 2046. Cloning and characterization of the gene for acidic thaumatin-like protein, an important allergen from sapodilla plum (Manilkara zapota)

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Background: Allergic reactions to sapodilla ingestion are rare; a 21 kD protein was recognized as an allergen in sapodilla extracts by IgE-immunoblot [1]. Further, the allergen was identified as a basic thaumatin-like protein (TLP) by its N-terminal sequence (ATFDIQNWC-) and isoelectric point. The major purpose of this study was to identify additional allergens from this tropical fruit.

Methods: A case of oral allergy syndrome to sapodilla and custard apple was investigated following approval by Institutional Ethics Committee. Sapodilla allergy was confirmed by diagnostic tests (SPT and allergen-specific IgE). Sapodilla proteins were separated on SP-Sepharose by adsorption at pH 4 followed by step elution at pH 5 (SP1), and with increasing NaCl (0.1 M (SP2) and 0.2 M (SP3)). Forward primers and nested reverse primers specific to the SP1 component were designed based on its N-terminal sequence and conserved regions of homologous plant TLPs. PCR was performed using sapodilla (cv. cricket ball) leaf genomic DNA as template.

Results: SPT and allergen-specific IgE were positive. ELISA revealed that IgE from allergic serum recognized two 21 kD proteins – one in the SP1 pool and the other in the SP2 pool; the 21 kD protein in SP2 was identified as basic TLP. The N-terminal sequence of SP1 component was found to be ATFDVQFTQSTGASA5PQGGKQQL– which was identified as an additional TLP. Sequence analysis of overlapping PCR products revealed an almost full-length gene (603 bases; GenBank accession JN624813.1) corresponding to acidic TLP (residues 8–207 of sapodilla acidic TLP and lacking the N-terminal 7 residues). Phylogenetic analysis shows that sapodilla acidic TLP is evolutionarily related to the allergenic TLPs from olive and kiwi fruits, all belonging to the order Ericales.

Conclusions: A partial gene coding for sapodilla acidic TLP representing 97% of the mature sequence has been cloned. Sapodilla acidic TLP has weak β-1,3-glucanase activity and is an important allergen belonging to the TLP family of pollen and fruit allergens [2].

References

P132 Food allergy and anaphylaxis – 2047. Anaphylaxis to topically applied sodium fusidate on abrasions

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World Allergy Organization Journal 2013, 6(Suppl 1):P132

Background: Fusidic acid is a bacteriostatic antibiotic that is effective primarily on gram-positive bacteria such as Staphylococcus species and Corynebacterium species. It is often used topically on skin, but also is given systemically as tablets or injections. Allergic contact dermatitis or urticaria has been reported as side effect of fusidic acid, but anaphylaxis to topically administered fusidic acid have not been reported yet.

Methods: Clinical history was thoroughlly assessed, and oral challenge test was done to confirm the drug-induced anaphylaxis.

Results: A 16-year-old boy visited outpatient clinic due to further evaluation of anaphylaxis. He suffered abrasions on his arms during exercise and was treated with topical ointment containing sodium fusidate on the abrasions. Within 30 minutes, he developed urticaria and eyelid swelling, followed by cough and respiratory difficulty. His symptoms were relieved by emergency treatment in nearby hospital. In order to investigate the etiology, oral provocation with fusidate was performed. After 125 mg (1/2 tablet) of sodium fusidate was administered, he developed cough and itching of the throat in 30 min, followed by chest discomfort and urticaria. Forced expiratory volume in 1 second (FEV1) dropped from 4.09 L at baseline to 3.50 L after challenge, although wheezing was not heard over his chest. After management with inhaled bronchodilator via nebulizer, chest discomfort was relieved and FEV1, rose to 3.86 L. He was recommended not to use fusidate especially on the abrasions.

Conclusions: Herein we report the first case of anaphylaxis by topical fusidic acid on the abrasions.

P133 Food allergy and anaphylaxis – 2049. Evolution of food allergy in a high risk population: the Canadian asthma primary prevention study (CAPPS)

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Background: Food allergy is on the rise. It is often assumed that allergy in early life to milk and egg often resolves whereas this is less frequent with peanut.

Methods: CAPPS is a high risk allergy and asthma birth cohort. 545 families were enrolled during pregnancy in Winnipeg and Vancouver, Canada. Study participants were prenatally randomized into a multifaceted modified diet, lifestyle and environment intervention group or control group. Questionnaires were completed prenatally and when the children were assessed by a Pediatric Allergist at 1, 2, 7 and 15 years of age. All patients included skin testing to common inhalant and ingestant (milk, egg and peanut) allergens. A positive skin test was defined as having a mean wheal diameter ≥3mm.

Results: At age 1, 3.4% (16/474) of children were sensitized to milk, 9.1% (43/474) to egg and 5.3% (25/474) to peanut. At age 15, 1.6% (5/321) were sensitized to milk, 1.9% (6/321) to egg and 10.9% (35/321) peanut. At age 15, 100% of children sensitized to milk and egg at age 1 were no longer...
sensitized to those foods. Interestingly 64% (16/25) of the children sensitized to peanut at age 1 outgrew sensitization to peanut at age 15. New food sensitizations developed between the ages of 1 and 15. Sensitization to peanut at age 1 does have an increased risk of sensitization to peanut at age 15 (OR=9.4, 95% CI 3.6-25.0). However, sensitization to peanut at age 2 has the greatest likelihood of persistence (OR=35.8, 95% CI 14.0-91.9). At age 15, 5.6% of those tested (18/322) had developed sensitization to peanut after age 7 while 3% (10/322) of those sensitized at age 7 to peanut were no longer skin test positive. Similarly from age 7 to 15, 1.6% (5/322) became sensitized to milk and 1.6% (5/322) became sensitized to egg.

Conclusions: Food sensitization to milk, egg and peanut decrease over time. The greatest likelihood for persistent peanut sensitization is seen with a positive skin test at age 2. Risk factors for new sensitization and factors associated with the loss of sensitization need to be defined.

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P134

Food allergy and anaphylaxis – 2051. Economic burden of anaphylaxis in the United States

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World Allergy Organization Journal 2013, 6(Suppl 1)P134

Background: Although the prevalence of allergy and incidence of anaphylaxis are rising globally, there exists a paucity of data as to the economic burden of anaphylaxis. This inquiry reports the estimated magnitude of national fiscal outlays (direct and indirect) in the United States (US), and intensity of demand by health service area.

Methods: We employed Monte-Carlo simulation, a decision-analytical framework parameterized by stochastic and deterministic components, to yield a national (US) burden of illness profile for anaphylaxis. Findings are based on the US population in 2010, and are reported in 2010 dollars (US).

The prevalence of the at-risk population by type of exposure (food; insects; medication; latex), resulting use of health services (direct costs), and death, were discerned from national survey data from the US National Center for Health Statistics, and the medical literature. Indirect costs included lost productivity (earnings), for both patients and caregivers, and mortality. The methodology used in this study is applicable on an international basis.

Results: In 2010, the estimated US population at risk for anaphylaxis ranged between 3.7 and 48.7 million (median = 14.4 million). The estimated incidence of anaphylaxis ranged between 50,446 and 657,330 (median = 211,874). Direct expenditures ranged between $288 million and $3.7 billion (median = $1.2 billion). Indirect expenditures ranged between $145 million and $1.9 billion (median = $690 million). The point-estimate for direct expenditures for epinephrine was $524 million. Net of the point-estimate for direct expenditures of epinephrine, and accounting for biphasic anaphylaxis, both direct and indirect expenditures far exceeded the expenditure of equipping at-risk patients with epinephrine autoinjectors.

Conclusions: The extent of under-diagnosis and under-reporting of anaphylaxis in the US precludes an exacting measure of the burden of illness. Our results suggest the burden of illness due to anaphylaxis in the US is far greater than previously reported. Similar results may apply internationally.

P135

Food allergy and anaphylaxis – 2052. Vitamin D insufficiency is associated with challenge-proven food allergy in infants

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Background: Epidemiological evidence has shown pediatric food allergy is more prevalent in regions further from the Equator, suggesting vitamin D insufficiency may play a role in this disease. We investigated the role of vitamin D status in infantile food allergy.

Methods: A population sample of 5,276 one-year-old infants underwent skin prick testing to peanut, egg, sesame and cow’s milk/shellfish. All of those with a detectable wheal, and a random sample of skin prick test negative participants, attended a hospital-based food challenge clinic. Blood samples were available for 577 infants (344 with challenge-proven food allergy; 74 sensitized but tolerant to food challenge; 159 negative both on skin prick and food challenge). Serum 25(OH)D levels were measured using liquid chromatography tandem mass spectrometry. Associations between serum 25(OH)D and food allergy were examined using multiple logistic regression, adjusting for potential risk and confounding factors.

Results: Infants of Australian-born parents, but not of parents born overseas, with vitamin D insufficiency (<50 nM/L) were more likely to be peanut (aOR 12.22, 95% CI 2.55, 58.61, p=0.002) and/or egg (aOR 7.26, 95% CI 2.52, 20.91, p<0.001) allergic than those with adequate vitamin D levels. Those with vitamin D insufficiency were more likely to have multiple (≥2) than single food allergies (aOR 16.29, 95%CI 4.07, 65.27 vs aOR 2.72, 95%CI 0.45, 16.23 respectively) independent of eczema status.

Conclusions: These results provide the first direct evidence that vitamin D sufficiency may be an important protective factor for food allergy in the first year of life.
P137
Food allergy and anaphylaxis – 2054. Easy-to-use severity grading system for treatment of symptoms induced by oral food challenge훈연계 і⼿연계, 노유하 온양기, 박다라, 태 순식, 이시하 와코, 이윤 톱케, 키요타케 오구라, 쿠사토히로 이리카, 사카라 사토, 타كات수코 키타마, 타케리 시마, 모리무쓰 토미카와, 야코다 시마, 모토히로 이바사와
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World Allergy Organization Journal 2013, 6(Suppl 1):P137
Background: The purpose of this study is to establish grading system for the evaluation of systemic reactions (SR) at oral food challenge and to investigate relationship between severity of SR using the grading system and the treatment.
Methods: From June 2008 to June 2012, the severity of SR was assessed at double-blind placebo-controlled food challenge test (DBPFC) to evaluate if they were candidates for rush oral immunotherapy or not. The medical records of 342 patients who showed positive reaction at DBPFC were analyzed. A hundred and forty-one were allergic to hen’s egg, 156 to milk and 45 to wheat. We modified the grading system proposed by Sampson in 2003 to enhance the convenience at clinical practice. It was proposed to indicate “severity of SR for each organ system, i.e., skin, gut, mucosa, gastrointestinal tract, respiratory tract, cardiovascular, and neurological system. Systemic reactions for each organ were classified as Grade (G) 1 (mild), G2 (moderate), and G3 (severe). The severity score was based on the organ system mostly affected. We examined relationship between the severity score and its treatment during DBPFC.
Results: Average age of patient was 9.1+/-2.7y. Induced symptoms at each organ system were as follows; respiratory tract: 73%, mucosa: 68%, skin: 62%, gastrointestinal tract: 62%, neurological system: 15%, and cardiovascular system: 8%. The number of patients who showed G1, G2, and G3 was 70, 190 and 82, respectively.
Percentages of patients who used antihistamine, corticosteroid, b2 stimulant inhalation, intramuscular adrenaline were as follows; 16% (Grade1), 77% (Grade2) and 94% (Grade 3), 0% 34% 81%, 1% 62% 85% and 0% 0% 89%.
Scores over G2 was significantly increase the frequency of therapeutic intervention (> G2:93% vs. G1:17%, p<0.001, bonferroni test). G3 scores significantly related to intramuscular adrenaline administration compared to that lower than G2 scores (G3:89% vs. lower than G2:0%, p<0.001, bonferroni test).
Conclusions: Most cases of G2 symptoms required medications and G3 symptoms did adrenaline administration. The easy-to-use grading systems according to severity of symptoms proposed here was useful to select the best approach to treat SR at OFC.

P138
Food allergy and anaphylaxis – 2055. Slow specific oral tolerance induction in children with hen’s egg allergy. 3 days on / 4 days off schedule
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World Allergy Organization Journal 2013, 6(Suppl 1):P138
Background: Specific oral tolerance induction (SOTI) therapy has been used for treatment children with food allergy. Patients usually intake food allergens only every day in slow-SOTI protocol, but other protocols have not yet been evaluated.
Objective: The aim of this study is to evaluate the efficacy of SOTI with 3-days on/4-days off schedule per one week for children with hen’s egg allergy.
Methods: Seven children aged 9 months to 6.6 years (median 1.7 years) with hen’s egg allergy were performed open oral food challenge tests with boiled hen’s egg to define the threshold dose. Subjects underwent SOTI in which they intake boiled hen’s egg at home 3 days every week. The dose was increased every 1 to 2 weeks from approximately one fourth of the threshold dose to 60g. Clinical response and immunologic changes before and after SOTI were evaluated.
Results: Six of 7 subjects (85.7%) could intake higher doses of boiled egg more than the threshold doses. It took 30 to 121 days (median 51 days). Serum total immunoglobulin E (IgE) increased from 297 IU/ml (mean of six patients) to 294 IU/ml, egg white-specific immunoglobulin E (sIgE) increased from 10.1 UA/ml to 16.1 UA/ml, ovomucoid sIgE increased from 4.2 UA/ml to 6.7 UA/ml, peripheral eosinophils counts decreased from 550/μl to 472/μl, and wheal size in skin prick test decreased from 4.4mm (mean diameter) to 2.7mm after SOTI.
Conclusions: Three days on/4-days off schedule in slow SOTI is comparable to everyday schedule for patients with hen’s egg allergy.

P139
Food allergy and anaphylaxis – 2056. Clinical cross-reactivity of major food allergens among children
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World Allergy Organization Journal 2013, 6(Suppl 1):P139
Background: There are some reports on cross-reactivity among food allergens based on serological tests. On the other hand, actual frequency of cross-reactivity among food allergens based on clinical symptoms or results of oral food challenge (OFC) has not been reported.
Methods: We sought to clarify information of elimination diets related to clinical cross-reactivity of childhood major food allergens hen’s egg, cow’s milk, wheat, soybean, and peanuts. We reviewed clinical records of patients who had visited to our department from January to December in 2010. One thousand eight hundreds twenty-two patients (1207 males and 615 females) were recruited to this study.
Results: Patients’ profiles were as follows; average age 5y8m +/- 3y8m (mean +/-SD); number of eliminated foods 2.1 +/- 1.4 items per patient. Patients had been diagnosed mostly based on elevated antigen-specific IgE tests. In 1226 patients with hen’s egg allergy, only 2 patients (0.2%) had avoided chicken, 44 (3.6%) salmon roe, and 16 (0.1%) other kind of fish eggs. In 771 cow’s milk allergy patients, 3 patients (0.4%) had avoided beef. In 392 wheat allergy patients, 5 patients (1.2%) had removed other grains such as barley and rye. In 72 soybean allergy patients, 23 patients (31.9%) had removed peanuts, on the other hand, in 445 patients avoiding peanuts, 24 (5.4%) had avoided soybean. Moreover 81 of 445 (18.2%) patients avoiding peanuts had eliminated tree nuts. Seventy-two patients with soy bean allergy had not avoided any other legumes.
Conclusions: Based on definitive clinical symptoms or results of OFC, we could reveal that frequency of elimination diets associated with clinical cross-reactivity of the major food allergens was much lower than that reported by serological tests.

P140
Food allergy and anaphylaxis – 2057. Protecting food allergic consumers and celiac patients in India requires improvements in diagnostic accuracy, patient education, food handling and labeling practices
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Negative 6 (Suppl 1): “Claims of marked increases in the prevalence of food allergy (FA) and celiac disease (CD) are common in the US and EU and increasingly in India where little is known about food allergy. Studies suggest increasing trends, but often lack rigorous definition of symptoms and tests. Reliance on skin prick tests (SPT) or specific IgE alone, without corroborating clinical histories may be misleading. Once diagnosed, patients with FA or CD must avoid eliciting foods, which requires accurate information of food ingredients.

Methods: A screen of suspected pulse-allergic subjects by selected sera on An allergenic protein of kidney bean was purified using anion exchange (Q Sepharose), gel filtration (Superdex 75) and reverse phase (C18) chromatography. Sera were collected from patients with marked positive immunoblotting. Purified protein showed IgE binding to 88% of kidney bean hypersensitive patients’ sera by immunoblotting, thus indicating it to be a major allergen. The purified protein was potent and required 102 ng of homologous protein for 50% inhibition of IgE binding by ELISA whereas with crude extract required 976 ng. A total of 78% kidney bean sensitive patients showed SPT positive reaction to purified 31 kDa allergen. These patients also showed significant histamine release with 10 ng each of extract and purified protein. Mass spectrometric analysis identified the purified protein as lectin (phytohemagglutinin). This protein was identified by PAS staining suggesting this protein as a glycoprotein. But no change in IgE binding was observed after periodate oxidation. Purified protein showed cross reactivity with peanut, black gram and pigeon pea and required 185, 228, and 1300 ng of proteins, respectively for 50% inhibition.

Conclusions: A 31 kDa major allergen of kidney bean was purified from Phaseolus vulgaris. Immunobiochemical characterization revealed its cross reactivity with peanut, black gram and pigeon pea.

P142 Food allergy and anaphylaxis – 2059. Mild symptoms induced by oral food challenge are not always associated with failed challenge results Taro Miura1, Nonyuki Yanagida1, Sakura Sato1, Yumi Koike1, Kiyotake Ogura1, Katsumi Ikura1, Takatsugu Komata1, Akino Shuyuka1, Takanori Imai2, Motohiro Ebisawa3, Morimitsu Tomikawa2 1Department of Allergy, Sagamihara National Hospital, Kanagawa, Japan; 2Department of Pediatrics, National Sagamihara Hospital, Kanagawa, Japan; 3Clinical Research Center for Allergy and Rheumatology, National Sagamihara Hospital, Kanagawa, Japan; 4Department of Allergy, Sagamihara National Hospital, Clinical Research Center, Japan; 5Sagamihara National Hospital, Japan

World Allergy Organization Journal 2013, 6(Suppl 1):P142

Background: Diagnosis of food allergy (FA) is fundamentally based on results of oral food challenge (OFC). In regular practice, we apply open-OFC but not DBPCFC for small children. There seem to be some discrepancy between diagnosis of FA and results of open-OFC. Purpose of this study is to examine correlation between diagnosis of FA and results of OFC.

Methods: 4574 patients (average age 4.0 ± 2.6 years old, male-female ratio 1.89), who had received open-OFC to heated-egg or cow’s milk or wheat from 2005 to 2012, were enrolled to this study. Patients were divided into following 3 categories according to symptoms induced by OFC (primary diagnosis of FA). The “positive” group was patients who showed objective symptoms and “negative” group was patients who had not any symptoms. The third group was defined as “uncertain” who only showed subjective or weak objective symptoms such as slight erythema, mild abdominal pain or isolated cough. Patients with “negative” and “uncertain” group were asked to ingest causative foods or those products at home to confirm whether to induce any symptoms by the intake or not. In several weeks after OFC, we made the final diagnosis based on the information obtained from patients (final diagnosis of FA).

Results: At primary diagnosis of FA, 29.3% (1343 /4574) patients were categorized as “positive”, 51.7% (2362 /4574) patients “negative” and “uncertain” patients 19.0% (869 /4574). At final diagnosis of FA, 518 of 869 (59.6%) in “uncertain” group was judged as “negative”, whereas 61 of 2362 (2.9%) in “negative” group were decided as “positive” and needed avoid causative foods.

Conclusions: Although results of OFC are essential for diagnosis of FA, reproducibility of symptoms is important. If patients only show subjective or mild objective symptoms, we need to confirm them regular intake of causative foods.

P143 Food allergy and anaphylaxis – 2060. Oral Food challenges still the most reliable test for a diagnosis of food allergy Meera Thalayasingam1, Michelle Meling Tan, Cesar Breane Labastida, Lynette Shek Pei-Shi 1Department of Paediatrics, National University Hospital, Singapore

World Allergy Organization Journal 2013, 6(Suppl 1):P143

Background: Food allergy in children is increasing in prevalence and severity. To parents this may translate to deliberate food restriction especially to either highly allergenic foods or to unknown foods (food
neophobia). These claims need to be evaluated by a good clinical history and if warranted, skin prick testing and food specific IgE assays. However neither of these is diagnostic of food allergy. Therefore an oral food challenge (OFC) is indispensable in facilitating a diagnosis of true food allergy. The aim of this study is to examine the outcome of OFC based on the reason of avoidance.

Methods: A retrospective chart review of all suspected paediatric IgE-mediated food allergym patients that underwent OFC administered at the Allergy Unit National University Hospital, Singapore during a 2-year period.

Results: A total of 197 challenges were performed in 58 patients. The median ages was 6 years and 58% were male. Atopic co-morbidity eczema was seen in 39.7%, asthma in 24.1% and rhinitis in 20.7% of patients. Forty-four percent of challenges were to foods that were never eaten, 26% of challenges were to foods due to a previous SPT and/or immunoassay results, 16% were to foods thought to have worsened their eczema and only 14% to foods thought to have caused a previous reaction. Previous reactions were reported as cutaneous (9.6%), oral (3%) and perceived anaphylactic reactions in 3%. Forty-three patients underwent multiple challenges. Of the 197 challenges, the majority was to tree-nuts in 54%, peanuts in 10% and shellfish in 8.5%. Of the 10 (5%) positive challenges, reactions were mostly cutaneous (urticaria and angioedema). No episodes of anaphylaxis were reported post challenge and no epinephrine was dispensed. Challenge positive subjects had either positive SPT (wheal > 3mm) or raised serum IgE levels to the specific food that they reacted to during the challenges.

Conclusions: The use of restrictive diets and over-reliance on allergy tests in the absence of a history suggestive of clinical food allergy is of concern. Ninety-five percent of food challenges were negative and consequently these foods were introduced into the diet of most of our subjects.

P144 Food allergy and anaphylaxis – 2061. Clinical symptoms and molecular characterization of hazelnut allergy in Italian children
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Background: Hazelnut allergy is associated with sensitization to PR-10 (Cor a 1) and profilin (Cor a 2), but several other allergens in hazelnut, including Cor a 8 (lipid transfer protein) and Cor a 9 (11S globulin) may be relevant. We targeted this study to the association among different sensitization profiles and symptoms in pediatric hazelnut allergy.

Methods: Thirty-five children (median age: 8.3, range 2.2–14.2 yr) reported with immediate reactions to hazelnut ingestion underwent food challenge (DBPCFC) between April 2007 and May 2012. Skin prick test (SPT), specific IgE determination at ImmunoCAP with whole food allergens and with allergen components at ImmunoCAP ISAC microarray chip were performed. The molecular profile of reactivity was compared to SPT and specific IgE testing. This report focuses on the hazelnut-associated allergens Cor a 1.01, Cor a 1.04, Cor a 8 and Cor a 9.

Results: 16 children (10M, 6F) tested positive (group A) and 19 (16M, 3F) negative (group B) at DBPCFC. On a 3-mm wheal diameter cut-off, 100% were SPT-positive in group A, 47.3% in group B. At ImmunoCAP, 100% returned positive to hazelnut in group A, 78.9% in group B (0.35 kIU/L cut-off). Components detected at ISAC were evaluated in the context of the relevant families: PR-10, LTP and 11S globulins. 56.2% were Cor a.1.1010-positive in group A, 26.3% in group B; 43.7% were Cor a.1.0401-positive in group A, 15.7% in group B; 12.5% were Cor a 8 positive in group A, 10.5% in group B; only one child returned Cor a 9 positive in group A, none in group B.

Conclusions: A strong sensitization to PR-10 was found in hazelnut-allergic children. Compared to the existing caselolds, our proportion of sensitization to Cor a 1 confirms a sensitization profile different from adults. Cor a.8 LTP, described as a marker of severe hazelnut allergy in Mediterranean populations, does not play a major role in our group. Cor a 9 sensitization is exceptional. The association among symptoms and SGE profile should be carefully investigated considering not only the natural history of the patient’s sensitization, but also the clear differences between IgE mediated sensitization and clinically evident food allergy.

P145 Food allergy and anaphylaxis – 2062. Allergic gastroenteropathy in UK children
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Conclusions: To establish the clinical spectrum of food related (allergic) gastroenteropathy in children.

Methods: 30 children with allergic bowel disease were identified from general and paediatric allergy outpatient clinics and studied retrospectively from the bowel as well as other allergy and management point of view.

Results: 24 of the children (80%) exhibited symptoms of gastrooesophageal reflux disease, 28 children (93%) had lower GI symptoms and 23 children (77%) had significant sleep problems. 19 out of the 30 children (63%) had other atopic disorders. The most common food trigger was cows’ milk others included egg, soya, wheat, fish, and nuts. Family history of atopy was seen in 24 children (80%). Skin prick tests were positive in only 7 children (23%) suggesting this is a non-IgE mediated phenomenon. Management of these children included diet exclusion, anti-reflux and anti-allergy medication. 12 children (44%) responded poorly to treatment and required steroids and 8 (30%) required biopsies. In families with more than one child with allergic gastroenteropathy, diagnosis and treatment with anti-reflux, diet exclusion and anti-allergy medication was started much earlier (2m-2yrs) in the younger sibling.

Conclusions: In children the triad of upper and lower GI symptoms, other atopic disorder and a strong family history of atopy suggests a diagnosis of allergic bowel disease (allergic gastroenteropathy). This condition is diagnosed commonly as Gastrooesophageal reflux disease with milk allergy but this fails to recognise the significant mid and lower bowel component in most of these children, which can be considered as an allergic inflammatory bowel disease. It is neither necessary nor essential to biopsy all these children in view of the response to anti allergy and anti inflammatory measures as well as the large number of children with this problem. Biopsies when positive may have eosinophils, hence this may represent the milder end of the spectrum of eosinophilic gastrointestinal disorder (EGID). The management of allergic gastroenteropathy ranges from dietary exclusion, anti-reflux & anti-allergy medication to immunomodulators in severe cases.

P146 Food allergy and anaphylaxis – 2063. Identification of foods causing hypersensitivity/ allergy among school children in two sub-urban schools in Colombo District, Sri Lanka
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Background: In general, different foods and food ingredients are believed to be causing hypersensitivity/allergy among the Sri Lankan population. Global epidemiological observations have revealed lists and levels of hypersensitive foods but proper researches have been carried out in Sri Lanka for identifying food allergens. This study was carried out to obtain statistical data for different food categories causing hypersensitivity in school children in Colombo District, Sri Lanka.

Methods: Descriptive cross sectional study was conducted for adolescents aged between 16 to 19 years selected from two sub-urban schools; Maharagama Educational division, Colombo District during July 2012. Study tool was self administered semi structured questionnaire. Statistical data analysis was performed by using statistical package SPSS 15.

Results: A total number of 452 school children were recruited for the study and 449 had responded thus, response rate was 99.34%. From the respondents 137 (30.3%) had answered ‘yes’ for hypersensitivity reactions on foods, drugs, pollen, dust or any other allergen/agent. Out of the total children hypersensitivity declared individuals, 90 (19.9%) respondents had food specific hypersensitivity.
Foods were grouped into seven categories such as Fruits, Vegetables, Fish and sea foods, Meat and eggs, Milk, Spices and ‘Other foods’. From the hypertensive declared individuals most hypertensive food group was Fruits (58; 42.34%). The second frequent problematic food group was Fish and sea foods (52; 37.98%). Vegetables (40; 29.19%), ‘Other food’ category (29; 21.16%), Meat & eggs (24; 17.5%), Milk (6; 4.37%) and Spices (2; 1.46%) were found to be hypersensitive to the study population in specified percentages.

**Conclusions:** Pineapple (49; 35.7%) was the most hypersensitivity fruit among adolescents studied. Generally in Sri Lanka people tend to believe that peanuts causes adverse reactions in the body and the gathered data supports the belief. Rambutan (*Nephelium lappacuum*) (27; 19.7%) was the next prevalent hypersensitive fruit. Among the vegetables mostly tomato (25; 18.24%) and breed fruit (*Artocarpus altissilis*) (14; 10.21%) and from fish & sea food category, prawns (27; 19.7%), cuttle fish 24 (17.5%), tuna (24; 8.75%) and canned fish (18; 13.13%) were found to be hypersensitive to the study population.

**Methods:** A 15-year-old female presented with generalised urticaria, dyspnea, severe cough, headache, dizziness, and vomiting after singing and dancing for 1 hour and after ingesting grilled pork. Serum specific IgE and skin prick tests were performed. Oral food challenge with boiled pork meat was done. We started boiled pork meat 5g to 160g every 30 minutes. Exercise provocation test before and after pork ingestion were done. We did IgE immunoblotting with patient’s serum by cooked(boiled), and raw pork allergen.

**Results:** Skin prick tests showed a strong positive reaction to pork, whereas the results of the oral food challenge and exercise provocation tests were negative. However, the exercise provocation test after pork ingestion showed a positive reaction manifested by generalized urticaria, cough, mild dyspnea, and 23% decreased peak expiratory flow rate. In IgE immunoblotting, 3 allergens of pork (67 kDa, 90 kDa, and 15 kDa) reacted with patient’s serum by grilled pork allergen.

**Conclusion:** We report a case of pork-dependent exercise-induced anaphylaxis in a patient with sensitization to pork. A patient was instructed to avoid exercise after pork meat ingestion in the future.
Background: Allergic rhinoconjunctivitis is an increasing problem worldwide with significant impact on quality of life and productivity. Sensitivity to cats accounts for 10-15% of the disease burden. Previous immunotherapy studies with two 27aa peptides were unsuccessful as a result of early and late phase responses. Cat Peptide Antigen Desensitisation (Cat-PAD) is a mixture of seven T-cell epitopes (13-17a) derived from Fel d1. This study evaluated safety and relationship between dose, dosing regimen and symptom scores in cat allergic subjects with rhinoconjunctivitis 17-21 weeks (wk) after starting treatment using a standardized allergen challenge in an Environmental Exposure Chamber (EEC).

Methods: In a multicentre, double-blind, placebo-controlled clinical trial, subjects attended an EEC, before and after treatment. 121 subjects were randomised to one of four treatment regimens (Cat-PAD: 4x3nmol 2wk apart, 4x6nmol 2wk apart, 4x3nmol 4wk apart, 8x3nmol 2wk apart) or placebo. Clinical efficacy was assessed by measurement of changes in Total Rhinoconjunctivitis Symptom Score (TRISS) during EEC visits. Safety was assessed by observing subjects in the clinic for 1 hour on each dosing day and capturing adverse events (AE) by direct questioning of subjects at every visit.

Results: There were no Serious Adverse Events. Frequencies of all Treatment Emergent Adverse Events (TEAE) in the Cat-PAD treatment arms were less than in the Placebo cohort with the exception of the 6nmol cohort which trended slightly higher. Analysis of the respiratory system TEAE showed no evidence of any safety signal after treatment with Cat-PAD. Respiratory system TEAEs, including asthma, dyspnœa and wheezing, occurred at a low frequency in both active and placebo groups, with no obvious difference between the groups. Treatment with Cat-PAD showed greater efficacy when dosed over 12-14wk than when dosed over 6wk. 8x3nmol dose showed a statistically significant reduction in symptoms vs placebo (p <0.05) in subjects who attended the main centre for all their visits. The 6nmol dose showed a trend to be superior to the 3nmol dose, albeit tested in a sub-optimal regimen.

Conclusions: Cat-PAD was safe and well tolerated and improved TRSS. Potential for greater treatment benefits by using a higher dose over 12-14wk should be evaluated in future studies.

P152 Immunotherapy – 2069. Multi-center study on the performance characteristics of two skin test devices - Comforten® and Multi-Test II® Roht K Katalı,1, Linda Cox1, Detek Constabel2
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Background: Two multiple test devices, ComforTen (CF10-HollisterStier Allergy) and Multi-Test II (MT-Lincoln Diagnostics), were compared at two allergy clinics. The information generated may assist clinicians in making an informed decision when selecting a skin testing device.

Methods: Subjects at each site (24-AAC/16-NJH) were blind skin-tested on the back with each device in duplicate using a negative control and two histamine positive controls (1 and 6mg/mL). Wheal sizes were recorded (mm) after 10 minutes. After each test, subjects were asked to rate the pain and on two occasions test preference.

Results: Overall, CF10 gave smaller wheals than MT, (combined sites and both histamines 1.95 vs. 3.53, p<0.001). Wheals were also smaller at NJH than at AAC (combined devices and histamines 2.33 vs. 3.16, p<0.001). Comparing device-histamine combinations as described by each company's product insert, i.e. CF10 with 6mg/mL vs. MT with 1mg/mL, wheals were not significantly different (combined centers 4.00 vs. 4.07, p=0.62). The impact of wheal size on sensitivity and specificity to define a positive reaction was examined at 1, 3 and 5mm. Sensitivity increased as the cut-off decreased and trended higher for MT than CF10. Specificity was high (100%) for all cut-off levels at NJH but lower at AAC for MT (80%, 85% and 92%) and CF10 (98%, 98% and 99%). Optimal performance across sites showed that both devices required 6mg/mL histamine but with device specific cut-offs CF10-1mm (sensitivity=93%, specificity=99%), and MT-3mm (sensitivity=94%, specificity=91%). Pain using the two devices appeared to be site-specific. At AAC, there was significantly lower pain using CF10 than there was using MT (0.77 vs. 1.66, p=0.001) while at NJH, there was no significant difference in pain scores. Overall, 57% of subjects showed preference to using CF10, while only 9% preferred MT. The remainder (34%) showed mixed preference.

Conclusions: Both devices produced similar average wheal sizes when used as instructed by the manufacturer with their stated histamine concentration. However optimal results show device specific cut-off criteria using the 6mg/mL histamine control. Differences in operator techniques may account for the observation of some inter-site differences which highlights the importance of training. Studies were funded by grants from Jubilant HollisterStier LLC.
apoptosis induced by TGF-beta1, which overlaps with the pathways of TRAIL.
Analogues of TRAIL could have therapeutic applications for asthma. TRAIL is also seen as the basis for a "miracle" drug for cancer because of its ability to selectively kill cancer cells. Allergic rhinitis is a common health problem affecting the immune system. The homeostasis of the immune system is regulated by apoptosis. In this study, serum circulating soluble TRAIL levels of allergic rhinoconjunctivitis patients before allergen-specific immunotherapy and after the treatment was evaluated.

Methods: Subjects with kidney disease, heart disease, liver disease, diabetes mellitus, cancer status, obesity, (body mass index (BMI) >30 kg/m²) and autoimmune disease were excluded clinically and serologically. The sTRAIL levels of pre- and post-treated allergic rhinoconjunctivitis patients (n=25) were compared to age and sex-matched healthy individuals (n=25). sTRAIL levels were measured by ELISA. The skin prick test (SPT) were recorded before and after treatment.

Results: The sTRAIL levels between the pre-treated and control groups were significantly different (p < 0.0001). SPT was a statistically significant difference between the values of the research group before and after immunotherapy (Grasses mixture, barley mixture, Olea europaea, D. Pteronyssinus, D. farinae).

Conclusions: Allergen-specific immunotherapy treatment significantly reduced the nasal symptom score across all group I patients studied. In this study, SPT was a statistically significant difference between the values of the research group before and after immunotherapy (Grasses mixture, barley mixture, Olea europaea, D. Pteronyssinus, D. farinae). The sTRAIL levels were decreased after allergen-specific immunotherapy as to healthy individuals' levels. Be a marker of efficacy of immunotherapy in allergic rhinoconjunctivitis patients.

P154

Immunotherapy – 2073. Therapeutic effect and higher safety profile for allergic asthma in Cuban patients with sublingual immunotherapy using tropical domestic mite allergen vaccines

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Background: Allergic asthma is a chronic inflammatory disease involving the lung airways, which affects the quality of life, morbidity, and mortality of individuals worldwide. Asthma is associated with increased production of pro-inflammatory cytokines and chemokines, recruitment of leukocytes, and remodeling of the airways. Allergic sensitization to domestic mites and particularly to Dermatophagoides pteronyssinus, Dermatophagoides farinae, and Blomia tropicalis has been described before in Cuba, as strongly linked to respiratory allergy symptoms. The aim of this work was to study the therapeutic effect and safety of allergic vaccines of these 3 mite species (VALERGEN, BIOCEN, Cuba) by subcutaneous route, in asthmatic patients.

Methods: Three Double-Blind Placebo-Controlled clinical trials were performed in 40 patients each, showing asthmatic symptoms and positive predominant Skin Prick Test (SPT) to each mite, respectively. Half of patients received the active treatment consisting of subcutaneous injections with increasing doses, up to 6000 BU. Therapeutic effect was assessed after 6 and 12 months using symptoms/medication diary cards, peak expiratory flow (PEF) measures and skin sensitivity to investigated mites. Adverse reactions were classified using the World Allergy Organization scale.

Results: The treatment reduced significantly (p<0.01) clinical symptoms (38%, CI95%: 33-44) and medication intake (26%, CI95%:21-32) with respect to placebo. The skin sensitivity to the allergens decreased also significantly (p<0.01). The allergen amount needed to induce a positive SPT increased 52-fold. PEF variability decreased also significantly (p<0.05). The treatment was considered effective in 77% of patients. A major advantage as compared to subcutaneous route was a remarked lower frequency of adverse effects. Local reactions were noted only in 0.43% of administrations. No systemic reactions were observed.

Conclusions: Summarizing sublingual immunotherapy using VALERGEN vaccines is effective and safe in mite-sensitive asthmatic patients.
Conclusions: Summing up subcutaneous immunotherapy, using VALERGEN vaccines, is effective and safe for the control and amelioration of the asthma.

**P156**

**Immunotherapy – 2074. Tolerability of sublingual immunotherapy with tropical mite allergen vaccines using different dosing schedules in asthmatic children**

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Background: Immunotherapy with mite allergens is effective both in rhinitis and asthma. However, injection immunotherapy carries a high risk of systemic adverse events, so, the sublingual route (SLIT) is being used more frequently. Efficacy of SLIT in asthma has been widely studied, however, in Cuba, the therapeutic effect of mite vaccines of *Dermatophagoides pteronyssinus* (Dp), *D. siboney* (Ds) and *Blomia tropicalis* was successfully demonstrated only in adults, but not children. This aim is to determine adherence and tolerability of SLIT with mite allergen vaccines using different treatment schedules in asthmatic children.

Methods: One hundred and twenty children (2 to 15 years) with mild to moderate asthma were selected for each treatment schedule. Three dosing schedules were used: (1) maximum of 3 daily drops; (2) max. 5 drops and (3) max. 10 drops, all by sublingual route. Incremental updosage was used for 3 weeks. A maintenance dose of 2000 BU was used once a week for schedule 1 and twice a week for schedules 2 and 3, during 2 months. Standardized House Dust Mite allergen vaccines of *Dermatophagoides pteronyssinus*, *D. siboney* and *Blomia tropicalis* were employed (VALERGEN, BIOCEN, Cuba).

Results: Adherence to treatment was above 90% for the three schemes with no statistically significant difference (p>0.08) among them. The patients tolerated the different dosing schedules without having to change the planned scheme. Only two patients reported local adverse reactions, classified both as grade I (mild tongue itching without medication).

Conclusions: Summarizing, all children tolerated the three schedules similarly and adherence was high.

**P157**

**Immunotherapy – 2075. Towards a pan anti-allergy vaccine**

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**World Allergy Organization Journal 2013, 6(Suppl 1):P157**

Background: Allergy is an increasing autoimmune disease in the developed world. Current consensus is that allergy is the result of a misdirected immune response directed towards ‘seemingly innocuous antigens’. Many of the allergens have similarities with parasite proteins and it is generally accepted that the IgE (immunoglobulin E) response is a normal defense mechanism against parasitic infestations. The conventional treatment of allergy is through pharmacotherapy where corticosteroids are used to reduce the expression of inflammatory proteins; although effective, they do not combat the underlying cause of allergy. Novel immunotherapeutic treatments have been developed that immunize sufferers with anti-IgE antibodies, but this passive immunization strategy is only temporary, and patients need to return for follow-up injections.

Methods: This project reports the development of an active anti-allergy immunotherapies. The synthetic peptide 2FCg2, derived from human IgE, was injected into rats, and followed up by a boost with a chimeric human-dog human IgE, in an attempt to direct the immune system and develop polyclonal antibodies that target a certain epitope in the IgE antibody which would lead to the removal of serum and FcαRI receptor bound IgE.

Results: The experiment resulted in a rat serum with strong antibody titer targeting the 2FCg2 peptide, this serum was also found to target native human IgE, as well as the dog and the horse native IgE antibody. Further analysis showed that the serum antibodies cross linked receptor bound IgE and resulted in cell degranulation and mediator release.

Conclusions: The immunization strategy was successful but did not fully work as predicted. The study does, however, lay significant foundations for future potential anti-allergy vaccine designs.

**P158**

**Immunotherapy – 2076. A controlled study of delta inulin-adjuvanted honey bee venom immunotherapy**

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World Allergy Organization Journal 2013, 6(Suppl 1):P158

Background: Honey bee (HB) venom immunotherapy (HBVIT) reduces the frequency of immediate generalised reactions (IGR) to subsequent sting by only ~ 80% and in the process induces IgM in many subjects. In influenza vaccine studies delta inulin adjuvant enhanced immunogenicity and provided antigen-sparing without any adverse reactions. In an ongoing double-blinded clinical trial we are studying the benefits of inulin adjuvant for HBVIT.

Methods: Following institutional ethics committee approval, 26 subjects with a history of IGR to HB sting were randomized 2:1 to receive Albev (Stallergenes) HBVIT (100 mcg maintenance) by clustered, semi-rush regime with (gp A) or without (gp B) Advax™ inulin adjuvant (Vaxine Pty Ltd). Specific IgE (sIgE) was measured by CAP, and specific IgG1 and IgG4 by ELISA.

Results: Clinicians remain blinded to patient randomization. Two subjects have withdrawn for personal reasons. One subject had two anaphylactic reactions at 3 and 100ug of venom, was withdrawn and on breaking code was in gp B (no adjuvant). Two other subjects had mild systemic reactions. A major difference between groups is apparent in sIgG4 responses. Both groups showed a peak sIgG4 response at 14 weeks (early maintenance HBVIT). In gp A however, the sIgG4 rise started earlier, the peak response was much higher and after 12 months of maintenance HBVIT, sIgG4 levels were ~3 fold higher by ELISA OD (results mean (SEM)); baseline gp A 0.110 (0.032), gp B 0.076 (0.038), peak gp A 0.822 (0.155), gp B 0.326 (0.106), 52 weeks gp A 0.453 (0.223) gp B 0.170 (0.059). sIgE responses showed a wide scatter with a rise from baseline of similar magnitude but occurring earlier in group A, followed by a progressive fall, [ baseline gp A 0.960 (0.171), gp B 0.624 (0.136), peak gp A 1.242 (0.154), gp B 0.808 (0.163), 52 weeks gp A 0.862 (0.243), gp B 0.541 (0.117)]. sIgG1 responses showed a similar pattern.

Conclusions: With the caveat that only surrogate markers have yet been analysed, delta inulin adjuvant appears to enhance the immunogenicity of HBVIT and to favour sIgG4 responses.

**P159**

**Immunotherapy – 2077. Allergen specific immunotherapy in allergic conjunctivitis due to dust mite**

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**World Allergy Organization Journal 2013, 6(Suppl 1):P159**

Background: The safety and the efficacy of allergen specific Immunotherapy by subcutaneous route in perennial conjunctivitis caused by house dust mite were evaluated in 89 patients for 24 months.

Methods: Group of 89 patients diagnosed by ophthalmologist included in study. Patients of allergic conjunctivitis included in this study underwent...
Skin allergy test and specific IgE tests for dust mite allergens. Out of 89 patients 43 received Allergen specific Immunotherapy (SIT) subcutaneous injections with standardized Dermatophagoides farinae (D.F) and Dermatophagoides pteronyssinus (D.p.t) allergen extract. While 46 patients are only treated by conventional treatment by using local steroids and antihistaminic drops. The vaccine was supplied by a commercial company as per the prescription for each patient. The subjects generally received three concentrations of antigens ending with the most concentrated solution. Later on, maintenance immunotherapy was continued with the 1:50 concentration for 24 months. Results were evaluated on 2, 6, 12, 18 and 24 months by using Total Symptom Score (TSS), Local Medication use, Clinical examination grading, Quality of Life evaluation (QOL).

Results: Of the 89 patients included, only 81 completed the study (43 in the Immunotherapy group and 46 in the Non Immunotherapy group). Three out of 43 (6.9%) patients dropped out because of insufficient efficacy in the Immunotherapy group compared to five out of 46 (10.8%) in the non-immunotherapy group. Sum of all four primary end point criteria are scored against five group of efficacy evaluation. No improvement 8 (9.8%), marginal improvement 16 (19.7%), improvement 23 (28.3%) and significant improvement 35 (43.2%). In group of 35 improved patients 26 (74.2%) were received immunotherapy while 9 (25.7%) were dismissed.

Conclusions: Two years treatment with subcutaneous house dust mite immunotherapy significantly reduced symptoms and medication use in allergic conjunctivitis patients. This was associated with a greater subjective improvement and quality of life in patients of perennial conjunctivitis caused by house dust mites.


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Background: Allergen-specific oral immunotherapy (OIT) aims to induce desensitisation and immune tolerance, which should if successful reduce the risk of future reactions to peanuts and peanut-containing foods.

Methods: We performed a systematic review of intervention studies by searching 13 databases and contacting an international panel of experts. Studies were critically appraised using Cochrane criteria.

Results: We identified one RCT with 28 children age 1-16 years (19 in the OIT group and nine in the placebo group). Because of allergic side-effects, three children were withdrawn from the OIT group early in the study. The remaining 16 participants in the OIT group completed the study and ingested a maximum cumulative dose (MCD) of 5000 mg (≈20 peanuts). All 9 participants in the placebo group completed the study, but ingested an MCD of only 280 mg (range, 0-1900 mg, P<0.001). Children in the OIT group had reductions in peanut-specific skin prick tests (P<0.001), IL-5 (P<0.01), and IL-13 (P=0.02), and increases in peanut-specific IgG4 (P<0.01) and Treg cells. Nine children (47%) of the 19 in the OIT group experienced side-effects and two of them required epinephrine treatment.

Conclusions: We found one small RCT judged to be at low risk of bias which showed that peanut OIT can result in desensitisation in children, and that this is associated with evidence of improved immune modulation. This treatment approach was however associated with substantial risk of adverse reactions, although most of these were mild. Thus, peanut OIT cannot currently be recommended as a treatment for the management of patients with IgE-mediated peanut allergy. Larger RCTs are needed investigating the acceptability, effectiveness and cost-effectiveness of safer treatment regimens, particularly in relation to the induction of long-term immune tolerance.

P161 2079. Comparison of house dust mite specific IgE and IgG4 between patients receiving rush immunotherapy and conventional immunotherapy

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Background: When the specific immunotherapy with house dust mite was done in patients who had allergic diseases, change of specific immunoglobulin(IgE) and IgG4 is well known. But, it is not known whether there is change for specific IgE and IgG4 during initial build-up phase and there is difference for antibody between rush immunotherapy group and conventional immunotherapy group during maintenance phase.

Methods: 25 patients who received immunotherapy with Dermatophagoides pteronyssinus and D. farinae were analyzed retrospectively. 14 patients was treated with rush immunotherapy and 11 patients was treated with conventional immunotherapy. The D. pteronyssinus and D. farinae specific IgE, IgG4 was measured at 6, 12, 24, 36 and 48 months, respectively in both groups. Especially, in rush immunotherapy group, specific IgE and IgG4 was measured in 1, 2, 4 days during initial build-up phase to evaluate early change of antibody.

Results: All patients had rhinitis and some had asthma (n=16, 64%) or atopic dermatitis (n=7, 28%). There is no difference in clinical characteristics between both groups. In rush immunotherapy group, the D. pteronyssinus and D. farinae specific IgE reached a peak at 6 months. In conventional immunotherapy group, D. pteronyssinus and D. farinae specific IgE reached a peak at 12 months. Specific IgE in both groups after reaching the peak level gradually decreased. The D. pteronyssinus and D. farinae specific IgG4 in both groups was increased annually but specific IgG4 level was high in rush group than in conventional group. In rush immunotherapy group, there is no significant change in specific IgE and IgG4 during initial build-up phase. Conclusions: When the immunotherapy with house dust mite was performed, in rush group the specific IgE reached a faster peak than conventional group (6 months vs. 12 months). The specific IgG4 was increased annually and was higher in rush group during maintenance phase. In rush group, specific IgE and IgG4 appeared no significant change during initial build-up phase.

P162 Immunotherapy – 2080. Fel d1 derived peptide antigen desensitization results in a persistent treatment effect on symptoms of cat allergy 1 year after 4 doses

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Background: Previously, we identified a series of T-cell epitopes from the major cat allergen Fel d1 and showed these were safe and well-tolerated when administered to cat allergic subjects. In the current study, we evaluated persistence of the treatment effect (tolerance) one year after start of dosing for two treatment regimens with the same cumulative dose.

Methods: Subjects underwent Baseline Challenge in an Environmental Exposure Chamber (EEC) on 4 consecutive days, consisting of 3-hour allergen exposures (Fel d1 50.19±3.70ng/m3). Subjects scored four nasal and four ocular symptoms every 30 minutes each on a scale of 0-3. 202 subjects were randomised to placebo, 8x3nmol Cat Peptide Antigen Desensitisation (Cat-PAD) 2wRev(k/vk) apart or 4x6nmol Cat-PAD 4wk apart. Subjects re-attended the EEC for 4 consecutive days, of 3-hours, 18-22wk after the start of treatment. 50-54wk after commencement of treatment subjects were invited to participate in a blinded follow-on study without further dosing. 89 subjects were enrolled and had a further 4 consecutive days, of 3-hours in the EEC.
Results: 4x6nmol Cat-PAD showed a mean change in the Total Rhinoconjunctivitis Symptom Score (TRSS) at the 50-54wk EEC visit of -6.78±5.71 versus a change of -3.89±5.56 on 8x3nmol and -2.91±5.56 on placebo. The change in TRSS score for 4x6nmol was statistically significantly different to placebo (p=0.01) and 8x3nmol (p=0.03). For the 4x6nmol regimen, the treatment effect at 50-54wk trended higher than that seen at 18-22wk (4x6nmol -5.41±5.80; placebo -2.79±5.28). At the 50-54w week EEC visit treatment with 4x6nmol Cat-PAD showed a mean change in Total Ocular Symptom Score of -3.44±3.05 versus a change of -1.63±2.95 on placebo (p=0.02) and a mean change in the Total Ocular Symptom Score of -3.34±3.05 versus a change of -1.28±2.92 on placebo (p=0.01).

Conclusions: Treatment with four injections of Cat-PAD showed a substantial reduction in patients’ overall TRSS, and the ocular and nasal components of cat allergy symptom scores in the EEC model that persisted one year after the start of treatment. Four administrations of a 6nmol dose was superior to eight administrations of a 3nmol dose and placebo. The treatment effect trended higher at one year than at 18-22wk.

P163
Immunotherapy – 2082. Long term prevention of asthma and rhinitis in children with atopic dermatitis four year after discontinuation of sublingual immunotherapy

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Background: Atopic Dermatitis is a disease with high prevalence in Italy (about 15% of the population). As known, Atopic Dermatitis is often associated with respiratory allergy to mite. We previously showed that sublingual immunotherapy (SLIT) to mite has a beneficial clinical effect in patients with allergic extrinsic Atopic Dermatitis (AD). To investigate the long term effects, we performed a 4-year follow up after the termination of SLIT.

Methods: 46 children with AD, aged 5-16 years and allergic to mite were re-assessed 4 years after discontinuation of a 2-year course of SLIT (or placebo). Methacholine provocation tests were carried out at baseline, after 2 years (when SLIT was stopped) and after 4 years. The development of asthma and rhinitis was assessed by clinical evaluations.

Results: The children who previously had received SLIT had significantly less asthma after 6 years as evaluated by clinical symptoms: odd ratio 3.73 (0.130 vs 0.511; P=0.02) as compared to the former placebo group. In addition, significantly less patients reported an increase in asthma symptom scores P= 0.003. A significant difference in bronchial methacholine scores P=0.003 was found between the two groups (P=0.03), with an overall lower bronchial hyperreactivity in children who previously received active SLIT.

Conclusions: A 2-year course of SLIT to mite provided a long-term clinical effect and prevented the development of asthma in children with allergic extrinsic form of Atopic Dermatitis.

P164
Rhinitis, sinusitis and ocular disease – 2085. Prevalence of allergic rhinitis in urban school children, Jaipur City, India

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Background: The present study is conducted to find the prevalence of Allergic Rhinitis (AR) and its associated co-morbidity in school going children in urban area of Jaipur City, Rajasthan.

Methods: A questionnaire based survey was conducted during November-December 2011 in 2300 school children (4-18 yr). Modified ARIA questionnaire translated in Hindi language containing 20 questions was used. Questions 1-4 were AR defining symptoms, question 5 related to classification (intermittent Vs persistent), questions 6 related to allergens and conditions inducing or aggravating symptoms and question 7-20 were related to co morbidities and family history. We screened questionnaires and those who answered yes to any AR defining symptoms were shortlisted. Children having two or more rhinitis symptoms (blocked nose, running nose, sneezing and nasal itching) in association with minimum 2 identifiable triggers were considered to have allergic rhinitis. Detailed history and physical examination was done by team consisting a pediatrician and ENT specialist in cases wherever diagnosis was in doubt.

Results: Out of 2300 questionnaire forms distributed, 1693 were returned (response rate 73.60%) and 1572 forms were adequately filled (92.85%). Prevalence of AR in different age groups was as follows: 4-8 years 33.87% (167/493), 8-12 years 34.87% (143/410) and in 12-18 years 32.43 % (217/669) with an overall prevalence 33.52% (527/1572). Male: Female of the cohort was 1.9:1. Nasal obstruction was the most frequent symptom (n=256, 48.57 %) followed by running nose (n=174, 33.01%), sneezing (n=127, 24.09%) and nasal itching (n=107, 20.30%). Of these 527 children with AR 35.67% (188/527) children had intermittent symptoms while 64.33% (339/527) had persistent rhinitis. Majority of the children with AR (383/527, 58.06%) had one or more co-morbidity while 116 (22.01%) had 2 or more co-morbidities and only 221 children (41.93%) children had AR without any co-morbidity. The prevalence of different co-morbidities was as follows: Adenoids 119 (22.5%), asthma 101 (19.16%), recurrent or chronic otitis media 125 (23.71%), sleep disturbances in 48 (9.1%), conjunctivitis 41 (7.78%) and laryngitis in 06 (1.13%).

Conclusions: A high prevalence of AR and its co morbidities was observed in school children as compared to previous reports from this area.

P165
Rhinitis, sinusitis and ocular disease – 2086. Nox4 mediates hypoxia-stimulated myofibroblast differentiation in nasal polyp-derived fibroblasts

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World Allergy Organization Journal 2013, 6(Suppl 1)P165

Background: Chronic hypoxia is associated with remodeling in various organs. Reactive oxygen species (ROS) derived from NADPH oxidases (Nox), and TGF-beta1 have been implicated in the pathogenesis of hypoxia-induced remodeling. The aims of this study were to determine in hypoxia-stimulated nasal polyp-derived fibroblasts (NPDF) the effect of hypoxia on the differentiation of myofibroblasts, the role of ROS, the major Nox homolog mediating myofibroblast differentiation, and the role of TGF-beta1.

Methods: Eight primary cultures of NPDF were established from nasal polyps, which were incubated under hypoxic conditions. Reverse transcription polymerase chain reaction for alpha-SMA, Nox1, Nox3, Nox4, Nox5, and fibronectin mRNA was performed. Western blotting for alpha-SMA and fibronectin was done. ROS production was detected using a fluorometer. NPDF were pretreated with ROS scavengers and transfected with siNox4. The TGF-beta1 protein level was measured by ELISA. The effect of treatment with TGF-beta1 type I tyrosine kinase inhibitor SB431542 on myofibroblast differentiation was ob-served.

Results: Hypoxic stimulation of NPDF significantly increased alpha-SMA and fibronectin mRNAs and protein expression. ROS production was increased by hypoxia, and ROS scavengers inhibited myofibroblast differentiation. Nox4 mRNA was the only Nox homolog increased by hypoxia. Transfection with siNox4 inhibited myofibroblast differentiation. TGF-beta1 was secreted endogenously by hypoxic NPDF. SB431542 significantly inhibited myofibroblast differentiation.

Conclusions: Hypoxia induces myofibroblast differentiation of NPDF through a signaling pathway involving Nox4-dependent ROS generation and TGF-beta1. Therapies targeting Nox4 may be effective against remodeling of nasal polyps.
P166 Rhinitis, sinusitis and ocular disease – 2087. Usefulness of impulse oximetry and fractional exhaled nitric oxide in children with eosinophilic bronchitis
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Background: Eosinophilic bronchitis (EB) is a common cause of chronic cough. Although EB shares many immunopathologic features with asthma, it does not show airway hyperresponsiveness or reversible airway obstruction by spirometry. Compared to healthy children without pulmonary disease, we hypothesized that EB patients would demonstrate abnormal pulmonary function and inflammation with impulse oximetry (iOS) and fractional exhaled nitric oxide (FeNO), which are more sensitive tests of these parameters than spirometry.

Methods: A total of 232 children with asthma, 109 with EB, and 115 control subjects were enrolled. We compared pulmonary function parameters and FeNO levels among the three groups. Additionally, we designated a screening cutoff value of FeNO combined with IOS parameters to distinguish EB from the control group, and identify children with EB who have more asthmatic characteristics.

Results: By IOS, the bronchodilator response of the EB and asthma groups increased significantly compared to controls for both reactance at 5 Hz (Δ X5) and reactance area (Δ AX) (P < 0.0001). Cutoff values to distinguish EB from controls were a Δ X5 of -20% (sensitivity, 77.5%; specificity, 49.6%), and Δ AX of -30% (sensitivity, 75.0%; specificity, 46.0%), when the FeNO is 20 ppb.

Conclusions: Reversible airway obstruction in IOS and elevated FeNO levels can be detected in children with EB. This would support that EB in children shows airway characteristics similar to those of asthma, and that a continuum exists between asthma and EB.

P167 Rhinitis, sinusitis and ocular disease – 2088. Evaluation of blood markers for determination of atopy in Indian patients with respiratory allergy
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Background: The cause of allergy-like symptoms may be due to IgE mediated allergy, but also because of other mechanisms. There is a need to find a simple and convenient test to identify/exclude atopy for a correct and proper patient management in patients with respiratory allergies in India.

Methods: 105 patients (18-60 years) with a clinical diagnosis of asthma and/or rhinitis, based only on clinical history and physical examination, visiting an Otolaryngology department in a tertiary hospital were included in the study. Phadiatop, a test with extensive data published in the West showing >90% sensitivity and specificity, was used as the gold standard for atopy. Phadiatop measures IgE antibodies to a balanced mixture of common environmental allergens relevant for the geographical area and the age of the patients (adults). For each patient the result of Phadiatop was compared with: I. Clinical history (Hx), II. Total IgE level (T-IgE) and III. Absolute Eosinophil Count (AEC).

Results: Phadiatop revealed atopy in 69% (72/105) of the patients, which means that approx. 1/3 of the patients diagnosed with IgE-mediated allergy by Hx in fact were not allergic. The sensitivity for atopic disease was 90.3% and 33.3% for T-IgE and AEC, respectively. Among the 33 patients with positive Hx but negative Phadiatop; 7 patients had increased T-IgE level and 6 had increased AEC; however, only one patient with both tests positive. The efficiency of T-IgE and AEC to diagnose atopic allergy was 83.8% and 46.7% respectively, compared with Phadiatop.

Conclusions: Diagnosing patients with allergy-like respiratory symptoms is difficult without using any tests; by Hx only, the allergy diagnosis was overestimated in more than 30% of the cases, which is in agreement with earlier findings. Although valuable, a good clinical history is not definitive. The results from this study suggest that Phadiatop could be a very useful and cost saving initial test in India when differentiating between atopic and non-atopic allergy, but further investigations of the Indian allergen coverage may be needed.

P168 Rhinitis, sinusitis and ocular disease – 2089. Evaluating the quality and content in parasanal sinusitis-related information on the web-sites in western physicians and eastern physicians
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Background: A large amount of information related to parasanal sinusitis is available on the internet; however, little is known about the quality and content of such information. We assessed parasanal sinusitis-related information on web-sites of western and eastern physicians.

Methods: Using the search engine of Naver and Daum, a total of 159 children with asthma, 109 with EB, and 115 control subjects shows airway characteristics similar to those of asthma, and that a continuum exists between asthma and EB.

Methods: A total of 232 children with asthma, 109 with EB, and 115 control subjects were enrolled. We compared pulmonary function parameters and FeNO levels among the three groups. Additionally, we designated a screening cutoff value of FeNO combined with IOS parameters to distinguish EB from the control group, and identify children with EB who have more asthmatic characteristics.

Results: By IOS, the bronchodilator response of the EB and asthma groups increased significantly compared to controls for both reactance at 5 Hz (Δ X5) and reactance area (Δ AX) (P < 0.0001). Cutoff values to distinguish EB from controls were a Δ X5 of -20% (sensitivity, 77.5%; specificity, 49.6%), and Δ AX of -30% (sensitivity, 75.0%; specificity, 46.0%), when the FeNO is 20 ppb.

Conclusions: Reversible airway obstruction in IOS and elevated FeNO levels can be detected in children with EB. This would support that EB in children shows airway characteristics similar to those of asthma, and that a continuum exists between asthma and EB.

P169 Rhinitis, sinusitis and ocular disease – 2091. The MSYPQ: repeatability and applicability to rhinitis/rhinosinusitis
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Background: Sinonasal disease is significantly prevalent in the adult community, this research explores its prevalence within the 11-16 age group in London, UK and in Lahore, Pakistan. Epidemiological assessment was accompanied by assessment of associated complications. The Sino-Nasal Outcome Test-20 (SNOT-20) questionnaire, a disease related quality of life instrument, was modified for use in secondary school children for this project. The Modified SNOT-20 for Young Person Questionnaire (MSYPQ) was used in secondary school children in East London with the result compared to a similar adult survey. An analysis of the repeatability of the MSYPQ was carried out in a sample population of 11-16 years olds from Lahore, Pakistan.

Methods: The pilot project analysed MSYPQ according to and deemed concurrent with EPOS criteria, this confirmed that MSYPQ identifies disease subjects and is a good instrument to assess the effect on quality of life.

The MSYPQ was used in three large East London schools with analysis for disease prevalence, associated symptoms and effects on quality of life. A further comparative study was designed whereby 200 subjects from a secondary school sample (randomly selected and between 11-16 years old) in Lahore, Pakistan were analysed using MSYPQ to assess the prevalence of rhinitis/rhinosinusitis and its associated comorbidities.

Results: The results showed that over 32% of secondary school children in the London sample suffered rhinitic/rhinosinusitis symptoms (cough was the most significant symptom). A similar prevalence of 30% was
found in adults. More than 21% had their quality of life affected by their symptoms and more than 47% took between 2-15 days off school due to symptoms, compared to 25% and 10% respectively in adults. Data analysis from Lahore confirmed that over 25% suffer from rhinitis/ rhinosinusitis with significant associated comorbidities. Its impact on their quality of life and educational performance is substantial.

Conclusions: This analysis confirmed that sinonasal disease is a common problem in the 11-16 year age group; it impacts on quality of life and performances at school. This study also confirms that MSYPO is a reliable and repeatable tool for identifying the prevalence and impact of rhinitis/ rhinosinusitis.

P170
Rhinitis, sinusitis and ocular disease – 2092. The MSNOT-20 questionnaire: repeatability and disease analysis of rhinitis/ rhinosinusitis
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World Allergy Organization Journal 2013, 6(Suppl 1):P170

Background: Sinonasal disease is prevalent and impacts on quality of life, the Modified SNOT-20 (MSNOT-20) questionnaire aims to provide a complete assessment of rhinitis/rhinosinusitis and its impact. Following a pilot study evaluation, the main project assessed the prevalence of rhinitis/rhinosinusitis in a community based survey in Farnborough, UK. A sub group was invited for clinical examination and repeatability of MSNOT-20. Further repeatability was carried out through a study of self-referral patients to the ENT department of Services Hospital, Lahore, Pakistan. This study aimed to identify the current burden of rhinitis/rhinosinusitis in these patients and subsequent disease course.

Methods: Following a successful pilot study comparing disease with non-disease, 2000 postal questionnaires were sent to randomly selected adults. A sub group of the sample was invited to the hospital for clinical examination and for the repeatability of MSNOT-20. The Lahore study looked at 200 patients who completed the MSNOT-20 questionnaire on initial presentation and, over the course of 3 consultations, were assessed for disease response to provided therapy by completing MSNOT-20 at each point. For unresponsive cases to conventional therapy, blood tests were used to identify the aetiology of disease.

Results: The pilot project showed significant differences (p<0.001) between disease and non-disease. Analysis of responses allowed a discriminating score of ≥2 (on a 0-5 scale) being an abnormal response. The Farnborough study identified 32% of respondents (79.8% response rate) as disease with significant correlations between disease domain and the 4 other domains (paranasal [sinus and ear], sleep, social and emotional).

Analysis of the Lahore study found 25% of the self-referral population suffered from rhinitis/rhinosinusitis, 5% of patients had a form of surgical intervention ranging from antral wash out to endoscopic sinus surgery, 2% had associated pathologies in the form of deflected nasal septum, nasal poly or antrochoanal poly.

Conclusions: MSNOT-20 questionnaire has identified a high prevalence of nasal and paranasal problems within the community and in self referrals with significant associated co-morbidity. The MSNOT-20 has proven to be a valid, reliable and repeatable disease specific quality of life questionnaire able to evaluate the presence, severity and assessment of response to treatment.

P171
Rhinitis, sinusitis and ocular disease – 2039. Effect of intranasal steroid on cough symptom in patients with upper airway cough syndrome
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World Allergy Organization Journal 2013, 6(Suppl 1):P171

Background: Upper airway cough syndrome (UACS) with rhinosinusitis is a major cause of chronic cough. Little is, however, known about the effects of medications used for chronic rhinosinusitis on symptom improvement in patients with chronic cough. The objective of this study is to observe outcome difference according to the medications used in patients with chronic cough caused by UACS.

Methods: Medical records of patients, who visited our clinic for chronic cough caused by UACS from Jan 2011 to May 2012, were reviewed retrospectively. Patients with other diseases including bronchial asthma, gastroesophageal reflux disorder, and eosinophilic bronchitis were excluded. The medications and the results of paranasal sinus (PNS) series at 1st visit were evaluated. According to the improvement of cough at 2nd visit, the patients were divided into improved (no or a few cough) and not improved (no or a little improvement) groups. The effects of medications on cough were analyzed by multivariate logistic regression.

Results: The medications at 1st visit were composed of antihistamines, decongestants, antibiotics, leukotriene antagonists, and intranasal steroids. All the patients were treated with antihistamines. The number of patients who used intranasal steroids was higher in improved group than in not improved group. Intranasal steroids were the only medication to improve cough significantly (OR 3.4, 95% CI [1.1-10.2], p=0.033), which was more significant in patients with chronic rhinosinusitis finding on PNS (OR 15.7, 95% CI [2.0-124.7], p=0.009).

Conclusions: Intranasal steroid use may be beneficial to improve cough symptom in patients with UACS, in particular those with chronic rhinosinusitis finding on PNS.

P172
Rhinitis, sinusitis and ocular disease – 2095. Inhibitory effect of Ginsenoside Rg1 on extracellular matrix production via extracellular signal-regulated protein Kinase/activator Protein 1 pathway in nasal polyp-derived fibroblasts
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World Allergy Organization Journal 2013, 6(Suppl 1):P172

Background: Nasal polyps are associated with chronic inflammation of the sinonasal mucosa and are involved in myofibroblast differentiation and extracellular matrix (ECM) accumulation. Ginsenoside Rg1, a compound derived from Panax ginseng, shows antifibrotic and anticancer effects. However, the molecular effects of Rg1 on myofibroblast differentiation and ECM production remain unknown. The aims of this study were to investigate the effect of Rg1 on transforming growth factor (TGF)-β1-induced myofibroblast differentiation and ECM production and to determine the molecular mechanism of Rg1 in nasal polyp-derived fibroblasts (NPDFs).

Methods: NPDFs were isolated from nasal polyps of seven patients who had chronic rhinosinusitis with nasal poly. NPDFs were exposed to TGF-β1 with or without Rg1. Expression levels of α-smooth muscle actin (SMA), fibronectin and collagen type I were determined by reverse transcription polymerase chain reaction, Western blot and immunofluorescent staining. TGF-β1 signaling molecules, including Smad2/3, extracellular signal-regulated protein kinase (ERK), c-Jun N-terminal kinase (JNK) and p38 were analyzed by Western blotting. Transcription factors involved with TGF-β1 signaling, nuclear factor (NF)-κB and activator protein 1 were assessed by Western blot. The cytotoxic effect of Rg1 was measured by an established viability assay.

Results: The mRNA and protein expression levels of α-SMA, fibronectin and collagen type I were increased in TGF-β1-induced NPDFs. Rg1 inhibited these effects. The inhibitory molecular mechanism of Rg1 was involved in the ERK pathway. Rg1 inhibited the transcription factor activation of AP-1. Rg1 itself was not cytotoxic. The ginsenoside Rg1 has inhibitory effects on myofibroblast differentiation and ECM production. The inhibitory mechanism of Rg1 is involved with the ERK and AP-1 signaling pathways.

Conclusions: Rg1 may be useful as an inhibitor of ECM deposition, and ginsenoside Rg1 itself was not cytotoxic. The ginsenoside Rg1 has inhibitory effects on myofibroblast differentiation and ECM production. The inhibitory mechanism of Rg1 is involved with the ERK and AP-1 signaling pathways.

P173
Rhinitis, sinusitis and ocular disease – 2097. Dentomaxilofacial disorders in children with allergic rhinitis
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World Allergy Organization Journal 2013, 6(Suppl 1):P173

Background: Main symptoms associated with rhinosinusitis include sneezing, nasal obstruction, rhinorrhea, facial pain or pressure, and nasal itching. These symptoms may be accompanied by extra nasal manifestations such as: dental disorders, ocular disorders, and ear disorders. Recent studies have shown a relationship between allergic rhinitis and dental disorders. These findings may be explained by the frequency of symptoms and chronicity. The aim of this study was to assess the relationship between allergic rhinitis and presence of orthodontic disorders in children.

Methods: Medical records of patients, who visited our clinic for rhinitis caused by UACS from Jan 2011 to May 2012, were reviewed retrospectively. Patients with other diseases including bronchial asthma, gastroesophageal reflux disorder, and eosinophilic bronchitis were excluded. The medications and the results of paranasal sinus (PNS) series at 1st visit were evaluated. According to the improvement of cough at 2nd visit, the patients were divided into improved (no or a few cough) and not improved (no or a little improvement) groups. The effects of medications on cough were analyzed by multivariate logistic regression.

Results: The medications at 1st visit were composed of antihistamines, decongestants, antibiotics, leukotriene antagonists, and intranasal steroids. All the patients were treated with antihistamines. The number of patients who used intranasal steroids was higher in improved group than in not improved group. Intranasal steroids were the only medication to improve cough significantly (OR 3.4, 95% CI [1.1-10.2], p=0.033), which was more significant in patients with chronic rhinosinusitis finding on PNS (OR 15.7, 95% CI [2.0-124.7], p=0.009).

Conclusions: Intranasal steroid use may be beneficial to improve cough symptom in patients with UACS, in particular those with chronic rhinosinusitis finding on PNS.
Background: Allergic rhinitis is the most common chronic rhinitis and is a major cause of mouth breathing in children. There are few studies on the prevalence of tooth and jaw abnormalities in children with allergic rhinitis.

Methods: Observational, Cross-sectional, comparison study. Approved by University Ethics Committee and were obtained written informed consent by parents and children. We included children from 8 to 14 y, diagnosed with allergic rhinitis with and without asthma. They were evaluated by clinician in Allergy and Clinical Immunology and by expert in Orthodontics. The prevalence of dentomaxillofacial alterations was determinate and the results were compared with a control group. We used Mann-Whitney, Chi-square or Fisher exact statistical test. In addition, there was a risk analysis (OR) for rhinitis. P value <0.005 was statistically significant.

Results: We studied 48 children: 28 in the allergic rhinitis group and 20 in the control group. The age and gender distribution was homogeneous in both groups (p = 0.28). A half of children with allergic rhinitis had asthma-comorbidity. The 83% (n = 41) of the children had never been consulted by a dentist. In comparison with control group the patients with allergic rhinitis had a higher prevalence mouth breathing (71% vs 5%, p = 0.00), compression of the upper jaw (28% vs 0%, p = 0.008), lip incompetence (46% vs 5%, p = 0.002) and snoring (53% vs 5%, p = 0.00). Children with allergic rhinitis were phenotypically characterized by rings (92%, p = 0.03), vertical facial plane growth (25%, p = 0.016), nasal fold (78%, p = 0.00) and retrognathia (17%, p = 0.057). In risk analysis found that mouth breathing increased 47.5 times the risk of allergic rhinitis. Children with persistent rhinitis and asthma had more mouth breathing, snoring and jaw compression than children only with rhinitis.

Conclusions: Children with allergic rhinitis had a higher prevalence of facial, tooth and jaw disorders than children without rhinitis. We recommend a multidisciplinary assessment to identify dentomaxillofacial alterations in this high risk groups and provide early treatment.

P174 Rhinitis, sinuitis and ocular disease – 2098. Exhaled NO may predict development of allergic rhinitis in children with asthma Yeong Ho Rha, Han Seok Ko
Department of Pediatrics, Kyung Hee University Hospital, Seoul, South Korea World Allergy Organization Journal 2013, 6(Suppl 1):P174

Background: As non-invasive parameter of lower airway inflammation, fraction of exhaled nitric oxide (FeNO) concentration has been known to be related with bronchial hyperreactivity in asthma patient. FeNO may be increased in atopy related diseases (e.g. allergic rhinitis) but relationship of FeNO and development of allergic rhinitis in asthma is unknown. The aim of this study was to investigate whether measurement of FeNO in asthma children can predict development of allergic rhinitis.

Methods: Fifty-three children with mild to moderate persistent asthma aged from 5 to 15 years who were measured with FeNO, total eosinophil count and IgE were included. FeNO was measured through chemiluminescence analyzer. Prospectively, the patients were followed after 6 years by interview with questionnaire and FeNO levels of the patient who developed allergic rhinitis (allergic rhinitis group and who do not manifest allergic rhinitis (control group) were evaluated.

Results: There were no difference of peripheral blood total eosinophil count, serum IgE, age, sex, family history, history of atopic dermatitis, or degree of asthma severity between allergic rhinitis group and control group. FeNO was significantly higher in allergic rhinitis group compared to control group (294 vs 24.6 parts per billion (ppb) vs 13.6 vs 11.8 ppb; p = 0.003).

Conclusions: Measurement of FeNO can be a useful tool to predict to predict development of allergic rhinitis in asthmatic children.

P175 Rhinitis, sinuitis and ocular disease – 2100. New approach to treat allergic rhinitis with Vitamin E, cod liver oil and Vitamin C with use of nasal steroidal spray Geetha Ravikiran
Medical Officer, Nabard Regional Office Madhya Pradesh, Bhopal, India World Allergy Organization Journal 2013, 6(Suppl 1):P175

In general practice many of the patients come with a problem of allergic rhinitis and having history of taking medicines like levocetrizine or ceitrizine with or without use nasal steroidal spray but the problem persists since several years with little or no improvements. As per my clinical practice I used some new approach with the conventional prescriptions on more than 50 patients who are having problems of allergic rhinitis for more than 5 years. Supplementing with Vitamin E may help relieve some of the symptoms associated with seasonal allergic rhinitis. Allergic rhinitis is an inflammatory condition of the nose, throat, sinuses, and eyes. People with allergic rhinitis may have eye and nose itchiness, nasal stuffiness, episodes of sneezing, and a runny nose. Ear infections and chronic sinusitis may result from long-standing allergic rhinitis, as the passages to the ears and the sinuses become blocked. Vitamin E is a powerful antioxidant, can calm portions of the immune system that are involved in allergic reactions. Cod Liver oil is high in Vitamins A & D which are natural anti-inflammatory to reduce inflammation of the mucus membranes. Vitamin C reduces inflammation and allergic responses. Fish oil may help to decrease the dryness of the lining of the respiratory tract and retain moisture in the nasal passages. So based on these facts I used a combination of drugs containing Vitamin D, Cod liver oil and High dose of Vitamin B Complex with Monteleukast Sodium & levocetrizine and nasal spray containing Olofpropionate IP with AZelastine Hydrochloride. This therapy gives around >80% relief in symptoms and the frequency of attack significantly reduced. Out of 53 patients 16 have complete relief in three month of therapy than they are switched to multivitamin and multi mineral combinations. Final Conclusion is that in the treatment of allergic rhinitis the role of Vitamins (specially E, C) and Cod liver oil is very significant.

P176 Rhinitis, sinuitis and ocular disease – 2102. The activities of allergy pot as a patient group in Japan: developing treatment guidelines Minako Kuriyama, Mari Shosak
Allergy Pot: Network Supporting Children with Allergy Certified Non-Profit Organization, Japan World Allergy Organization Journal 2013, 6(Suppl 1):P176

Among the 120 million people living in Japan, it is estimated that approximately half of the population is suffering from some kind of allergy, and that there are about 7 million adults and children who are suffering from asthma alone. “Allergy Pot” is a parent group founded in 2002, with the prospect of “disseminating information for a better understanding of allergy in the educational institutions by respecting their situation and working together, to build a basis for a safe educational environment.” We started out from making “Going to School ” booklets, to help the schools and classmates have a better understanding of allergy. We planned, produced, and distributed these booklets, and also made it downloadable from our website. Searching through the internet using the key words “allergy patient group” from either Google or Yahoo websites (from 300 results) shows that there are about 40 patient groups related to allergic diseases in Japan. Most of the allergy patient groups in Japan are self-help groups. Allergy Pot is unique in the sense that it is a group that is continuously sending out messages from the standpoint of patients and patient supporters with the vision and policy that “patient groups are social resources, and our goal is to play our role and contribute in society.” We have gained special recognition by the educational institutions, academic society, administration and citizens for: (1) participating in the process of developing treatment guidelines, (2) being involved not only in allergy related meetings, but numerous administrative meetings related to medical policy making, and for (3) working in cooperation with the Tohoku Medical Megabank Organization to support the reconstruction of Eastern Japan after the earthquake. The history and specific activities of our patient group will be introduced, along with how we have been able to build up a cooperative relationship with the medical and governmental fields, and how we were able to have an influence in the medical administration in Japan. We would also like to discuss the role of patient groups and its possibilities in a country such as Japan, where every citizen is insured under the national health insurance system.
P177
Rhinitis, sinusitis and ocular disease – 2103. Comparative allergen profile in Krishna – Godavari region
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World Allergy Organization Journal 2013, 6(Suppl 1):P177

Background: Krishna(K) and Godavari(G) regions of Andhra Pradesh have high prevalence of allergic diseases due to increasing number of paper mills, stone quarrying, tobacco crops and chili plantations.

Aims and objectives: Primary objective is to determine the prevalence of major allergens in these areas. A Secondary objective is to draw a relation between asthma and allergy in these patient groups.

Materials and methods: Allergy testing in susceptible individuals was done by skin prick test. A total of 100 patients (n=100, K=50, G=50) were included in the study. Detailed history of the patient was obtained by using a model questionnaire. Patients were abstained from taking any antihistamines, antipsychotics, one week prior to the date of procedure.

Skin prick test was done using antigen solutions (total 150 antigens) for pollen, insects & dust. A relationship was drawn on the major allergens prevalent in this area, association of allergic rhinitis & asthma from the test results.

Results: Among the 100 patients, skin prick test was positive in 80 (K=36, G=44) patients for at least one antigen. Of these allergic rhinitis was confirmed in 30 patients (K=13, G=17), Bronchial asthma in 21 patients (K=11, G=10), Rhinitis +Bronchial asthma in 11 patients (K=6, G=5), and 20 patients (K=20, G=18) had no history of either asthma or rhinitis based on their history. House dust mite was found to be the common major allergen prevalent in both regions. Among pollens Adathoda, Azernatum, Cenchrus, Cenchrus, Chenopodium were prevalent in Krishna region. Among insects mosquito allergy was predominant among Krishna region while cockroach allergy was more in Godavari region. Among dust, Paper dust allergy (57% in G vs. 8% in K region) is more in Godavari while Grain dust was more in Krishna region.

Conclusion: 1. House dust mite is the major allergen in both regions.
2. Pollen allergy is highly prevalent in these regions major being Brassica & Adathoda.
3. Paper dust allergy is more in Godavari compared to Krishna due to high prevalence of paper mills in that region.
4. Mosquito allergy is more among Krishna region as it is an area known for stagnant water.

P178
Allied Health – 3001. Does treatment of gastroesophageal reflux disease in patients with allergic rhinitis improve allergic symptoms?
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World Allergy Organization Journal 2013, 6(Suppl 1):P178

Background: Allergic rhinitis is the most type of allergic disease among population. Its accurate treatment is very important for cutting off allergic Marche. In the other hand, gastroesophageal reflux disease (GERD) is one of the most gastrointestinal problems among allergic patients like asthma that it might be the treatment conflict. Despite of asthma, we have a few studies about impacts of GERD treatment on symptoms of allergic rhinitis. In this study we evaluated the correlation of GERD treatment and its effects on improvement of allergic rhinitis.

Methods: This simple randomized single-blind study included 101 patients with moderate to severe allergic rhinitis. Their allergy for aeroallergens was confirmed by skin prick test considered three mm more than negative control. Thirty three of 101 patients (32%) had GERD. For these patients empirically was prescribed 20 mg omeprazole once daily for 6 weeks. Allergic and GERD symptoms evaluated clinically in 5, 10 and 30 days after beginning of treatment.

Results: Our patients included 48 (46.6%) male and 55 (53.4%) female with mean age 28±11.6 years old. Thirty one of 33 allergic patients by GERD (mean age; 32±11.21 years old) after 6 weeks treatment with omeprazole developed significant improvement for GERD symptoms in 5, 10 and 30 days after beginning of therapy. There was no association between allergic symptoms of these patients and rate of anti-allergic drug consumption (P>0.05).

Conclusion: This study showed that there was no correlation between empirical treatment of GERD and improvement of allergic symptoms in patients with allergic rhinitis. However further studies with more sample size might be need.

P179
Allied health – 3002. Aero-allergen sensitivity among patients suffering from bronchial asthma in Bangalore, Karnataka, India
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World Allergy Organization Journal 2013, 6(Suppl 1):P179

Background: Asthma is a serious public health problem throughout the world. The prevalence of asthma has increased in last two to three decades possibly due to change in indoor and outdoor environment. Allergens are one of the many factors which trigger an attack of asthma. Skin prick test is useful in identifying the offending allergen in bronchial asthma.

Methods: The study was conducted at allergy center, Kempegowda Institute of Medical Sciences (KIMS) Hospital & Research center, Bangalore from January 2011 – December 2011. Skin Prick Test was done in 139 patients suffering from bronchial asthma diagnosed based on GINA guidelines. Skin Prick Test was performed using 49 allergens extracts after taking informed consent from the patients. Allergen extracts included 19 pollens, 10 fungi, 5 dusts, 2 dust mites (Dermatophagoides fariniae and Dermatophagoides pteronyssinus), 10 insects and 3 epithelia.

Results: Out of 139 patients who underwent skin prick test, 40% (56) were males and 60% (83) were females. Majority i.e 60% were in the age group of 21-40 years. 43% (60) had family history of asthma/atopy. 80% (111) had allergic rhinitis, 24% (34) had chronic urticaria and 24% (33) had allergic conjunctivitis. Out of 139 patients 100 (71.94%) were sensitive for one or more allergens. The common offending allergens found in the study were dust mites (DF and DP) - 49.28%, dusts - 7.2%, pollens - 6.77%, insects - 6.62%, fungi - 4.53%, epithelia - 1.92%. Comparison of asthmatics between those with positive skin prick test and negative skin prick test was done. Those with positive skin prick test had age of onset <20 years and family history of asthma compared to negative skin prick test patients and found statistically significant (p<0.05).

Conclusion: The most common allergens in bronchial asthma were dust mites followed by dusts and pollens. Identifying possible allergens in asthma patients help in allergen avoidance and immunotherapy in these patients.

P180
Allied health – 3003. The relation of cachexia to the risk of hospitalization with fixed airway obstruction
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World Allergy Organization Journal 2013, 6(Suppl 1):P180

Background: Body mass index (BMI) have suggested to be related with obstructive lung disease. BMI was associated with the extent of emphysema distribution, but has still not been known about the association to degree of airway obstruction. We tried to determine whether cachexia or BMI is risk factor of hospitalization in asthma with fixed airway obstruction.

Methods: 245 asthmatic patients were enrolled. Cachexia was defined as BMI <18. The severity of asthma was classified into grade based on GOLD criteria.

Results: BMI was significantly associated with the severity of airway obstruction. BMI was significantly associated with lung function. The severity
of airway obstruction was significantly associated with the frequency and duration of hospitalization ($P = 0.02$, $P = 0.007$ respectively). The cachexia was not associated with the frequency of hospitalization ($P = 0.21$), while it was significantly associated with the duration of hospitalization ($P = 0.019$).

Conclusions: Cachexia can be a risk factor for the longer duration of hospitalization being independent of degree of fixed airway obstruction.

P181
Allied health – 3004. Pulmonary function tests: A study of 1000 normal children
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World Allergy Organization Journal 2013, 6(Suppl 1):P181

Background: Respiratory infections in children have assumed epidemic proportions in recent years. Although data on pulmonary function tests of Indian children is available, very few studies in North Indian healthy children are available, especially in healthy children from Haryana. In this study, pulmonary function tests of healthy children, studying in schools of Rohtak (Haryana), on a large scale was done.

Methods: The study was conducted on 1000 (500 boys & 500 girls) healthy school-going children of Rohtak (Haryana) of age group 10–14 years, from June 2007 to November 2008. Children having history of acute respiratory infections in preceding 3 weeks, chronic pulmonary symptoms, allergic diseases, thoracic surgery, systemic diseases which affect respiratory system and smokers were excluded from the study. Pulmonary function test was done by using portable spirometer-Spirotab (Medical International Research Instrument). Standard methodology for assessment of lung functions as recommended by American Thoracic Society was used. The parameters recorded in each case included forced vital capacity (FVC), forced expiratory volume in one second (FEV$_1$), FEV$_1$/ FVC % and FEV$_2$-5.75$. Statistical analysis was done using student’s t test.

Results: FEV$_2$-5.75$ showed a significant correlation with age, weight, height, body surface area and body mass index in both males and females except for correlation of FEV$_2$-5.75$ with BMI in females. In males, FVC and FEV, had the best correlation with body surface area followed by weight and age in both males and females. The correlation of FEV$_1$/FVC% with age, weight, height, body surface area and body mass index was not significant. The mean values of all pulmonary function measurements were higher in boys as compared to girls but statistically significant difference ($p=0.001$) was found for FVC and FEV$_1$.

Conclusions: We found positive correlation of FVC, FEV$_1$, and FEV$_2$-5.75$ with age, height, BSA and BMI. There were differences in values obtained in our study and those previously conducted on Indian children, which could be attributed to other factors like, differences in body build, socioeconomic status, pollution, gender, ethnicity, etc.

P182
Allied health – 3006. Homeopathy in treating allergic rhinitis - An interventional pilot study
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World Allergy Organization Journal 2013, 6(Suppl 1):P182

Background: This research aims at exploring the efficacy of homeopathic medicines in allergic rhinitis whose prevalence is increasing at alarming rate throughout the world. India has an estimated number of 15-20 million patients with asthma and 30-80% of these suffer from allergic rhinitis. So, allergic rhinitis is considered as a major chronic respiratory disease due to its prevalence, impact on quality of life, work/ school performance and productivity, economic burden and links with asthma.

Methods: Single arm, experimental, interventional, prospective, non-randomized, before and after comparison pilot study without control was carried on thirty participants suffering from Allergic Rhinitis. The trial was aimed to assess the efficacy of homeopathic remedies, chosen strictly on individualization and symptom similarity, in bringing changes in serum Immunoglobulin E (IgE) level, absolute eosinophil count and allergic rhinitis symptom scores (approved by Institutional Review Board) by comparing the score before medication (baseline) with score after medication.

Institutional ethical clearance was obtained; then thirty four consenting patients were enrolled after screening by eligibility criteria and were allocated to classical Homeopathic treatment, out of which four cases were dropped out and thirty cases were regular. Outcome measures were assessed and analyzed after one year.

Results: After one year of Homeopathic treatment, reduction in serum IgE level (1006.83±395.17 versus 336.5±126.96), absolute eosinophil count (600.33±103.61 versus 302.5±82.21) and symptom score (30.27±5.12 versus 12.83±2.72) were statistically significantly higher (paired t test: $t_9=10.84, p<0.01$; $r = 0.84, 18.17 & 22.37$ respectively; $P = 0.0000$) with 95% confidence level. No adverse effects and/or complications were observed.

Conclusions: Data suggest that individualized Homeopathic treatment may be a useful measure for the patients suffering from Allergic Rhinitis. However Randomized Controlled Trials (RCTs) with larger sample size and longer duration should be undertaken for confirmation of the conclusion.

P183
Allied health – 3007. The biomarker of sublingual immune therapy
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World Allergy Organization Journal 2013, 6(Suppl 1):P183

Background: Allergic rhinitis (AR) is recognized as a major health problem worldwide. Allergen-specific immunotherapy (SIT) is the only available treatment that can alter the natural course of allergic disease. Recent findings in experimental models of allergic rhinitis suggest that complement 3a and 5a regulate the development of maladaptive Th2 and Th17 immunity. We investigated the changes of C3a, C5a, IL-17a in the serum of patients treated by Sublingual immune therapy (SLIT).

Methods: Symptoms were recorded in the allergy diary. The total symptom medication scores were calculated based on each symptoms and medication. We measured the C3a, C5a, IL-17a levels in serum of the 20 identical subjects by ELISA during 5 years.

Results: C3a and IL-17a showed significant decrease year by year during 5 years ($p < 0.01$).

Conclusions: C3a and IL-17a can be objective biomarker for following up the patients of SLIT.

P184
Allied health – 3008. Comparison of anti-allergic effect of pneumococcal conjugated vaccine and pneumococcal polysaccharide vaccine in a murine model of house dust mite allergic rhinitis
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World Allergy Organization Journal 2013, 6(Suppl 1):P184

Background: It was discovered that pneumococcal vaccine can reduce the allergic disease. The purpose of the present study is to evaluate the anti-allergic effect of pneumococcal conjugated vaccine and pneumococcal polysaccharide vaccine in a murine model of house dust mite allergic rhinitis. We also evaluated difference between effect of both vaccines.

Methods: Forty mice were divided into four groups: control, Der f, pneumococcal polysaccharide vaccine (PV), and protein conjugate polysaccharide vaccine (PCV). Allergic rhinitis was induced in BALB/c mice by intraperitoneal sensitization and intranasal challenge with Dermatophagoides farinae (Der f). The allergic symptom after the final challenge was recorded. Interferon (IFN)-γ, Interleukin (IL)-13, and IL-10 levels in nasal lavage fluid (NALF), as well as serum Der f-specific IgE levels were measured. The number of eosiophils in lamina propria was evaluated. The levels of T-bet, GATA-3, and Foxp3 mRNA expression in splenic mononuclear cells were determined by real-time polymerase chain reaction. A comparison of the frequency of CD4 ‘CD25’Foxp3 regulatory T cells in splenic mononuclear cells were made by flow cytometry.

Results: The T-bet mRNA level was lower in the PV and PCV group than Der f group (p< 0.05). The IL-13, GATA-3 mRNA level and serum Der
f-specific IgE and eosinophil were lower in the PV and PCV group than Der f group (p<0.05). Foxp3 mRNA expression in the PV and PCV group was elevated compared to the Der f group (p<0.05). In flow cytometry, the PV group (p<0.05) and the PCV group (p<0.05) had higher percentages of CD4+ CD25+Foxp3+ T cells than the Der f group. In the PV group, the percentage of these cells was higher than that in the PCV group (p<0.00).

Conclusions: These results suggest that the pneumococcal polysaccharide vaccines will suppress the allergen-specific Th2 response and enhanced the induction of regulatory T cells in a model of allergic rhinitis. And the process to work regulatory T cell can be different between the PV and PCV group.

P185

Allied Health – 3009. Comparative assessment of dental caries experience, oral hygiene status, gingival health status, salivary Streptococcus mutans count and Lactobacillus count between asthmatic and non-asthmatic children aged between 5-12 years in Davangere City, Karnataka, India

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Background: To assess and compare the caries experience, oral hygiene status, gingival health status, salivary Streptococcus mutans count and Lactobacillus count between asthmatic children and a healthy control group.

Methods: A cross sectional comparative study was conducted on 5-12 years old, 40 asthmatic and 62 non-asthmatic subjects in Davanagere city. Selection criteria – a) children with diagnosis of asthma as diagnosed by lung function test by the medical officer of the asthma care centre, Bapuji Hospital, Davanagere, who were currently on asthma medication belonging to 5-12 year age group residing in Davanagere city. b) The non-asthmatic case were matched for gender, age, socio-economic status. Relevant and required information regarding demographic characteristics and asthmatic status was obtained. DMFT index and def index were used to assess the dental caries status. Oral Hygiene Simplified Index (OHI-S) and Gingival Index were used to assess the oral hygiene status and gingival status respectively. Parafilm stimulated salivary sample was collected from both asthmatic and non-asthmatic subjects for microbiological analysis.

Results: A significant association was found between asthmatic status and dental caries (p<0.05). There were no significant differences in gingival status and oral hygiene status between asthmatic and non-asthmatic children. The number of S.mutans colonies was significantly different between the two groups (94.1 ± 60 colonies in the study group versus 57 ± 30.5 colonies in the control group; p<0.001).

Conclusions: Asthmatic children had higher caries experience and it increased with duration of asthma. The frequency, duration and type of medication for asthma were not found to have any significant effect. Salivary S.mutans was high in asthmatic children. The number of S.mutans colonies was significantly higher in the asthmatic group (p<0.001).

P186

Basic and clinical immunology – 3010. The RNA-binding protein HuR coordinately regulates GATA-3 and Th2 cytokine gene expression in dose dependent manner

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Background: Naive CD4+ T cells can differentiate into different subsets. Whereas transcriptional regulation of CD4+ T cells is well studied, posttranscriptional control by RNA binding proteins (RBPs) and microRNAs is poorly understood. CD4+ Th2 mediated diseases such as allergen-induced asthma, are driven by GATA-3, IL-4 and IL-13. The RBP, HuR, has been shown to posttranscriptionally regulate many early response genes, including IL-4 and IL-13. GATA-3 contains AU-rich elements (ARE) in its 3’ untranslated region (UTR) which are binding sites for HuR. We first identified GATA-3, IL-4 and IL-13 as HuR targets using RIP-Chip (RNA immunoprecipitation applied to microarrays). We hypothesized that HuR may be coordinately regulating Th2 differentiation.

Methods: We used in vitro and in vivo models, including a HuR over-expression transgenic system, as well as a tissue specific HuR conditional knockout mouse (HuRfl/fl) to ablate HuR in T cells. Additionally, we also used siRNA and lentiviral shRNA to knock-down HuR.

Results: HuR over expression stabilized GATA-3, IL-4 and IL-13 mRNAs, leading to significant increases at both mRNA and protein levels for these genes. Conversely, HuR knock down using lentiviral shRNAs produced opposite results. These findings were confirmed in human lymphocytes, indicating potential clinical relevance to disease. We verified that GATA-3 is a HuR target using a combination of IP and biotin pull downs and defined HuR binding sites. Interestingly, Th2 polarized cells with reduced HuR levels (26%) from conditional HuRfl/fl knock out mice, had significant decreases in IL-4, IL-13 and GATA-3 mRNA but not protein. Surprisingly, CD4+ Th2 polarized cells from homozygous HuRfl/fl mice with pronounced HuR knockdown (93%) showed significant increased IL-4 and IL-13 expression at both mRNA and protein levels but no changes in GATA-3 or IFN-γ. We measured both nascent mRNA transcription and stability for IL-4 and IL-13 mRNAs and found differential regulation.

Conclusions: These data suggest there may be a critical range of HuR protein levels which regulates Th2 differentiation by interacting with different target genes. Further studies defining how RBPs are regulated (e.g. HuR targets) are needed to understand the role of HuR in regulating Th2 differentiation.

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Basic and clinical immunology – 3011. Evaluation of selected parameters of cellular immunity at diagnosis in children with osteosarcoma

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Background: Osteosarcoma is the most frequent primary malignant bone tumour, mainly affects children in the first and second decade of life. Causes of the disease are still unknown and reaction of the immune system on its development is very individual. Specific antigen-dependent cellular immunity plays an important role in this process. Cytotoxic T lymphocytes, NK , NKT and Th2 lymphocytes are engaged directly in destruction of the tumour, helper T lymphocytes and indirectly B lymphocytes are of special importance.

The aim of study was evaluation of selected elements of cellular immunity in children with osteosarcoma at diagnosis level.

Methods: Study was performed on the group of 44 children with osteosarcoma, aged from 6 to 20 years (median: 15.0 years). The control group formed 22 children in the same age (median: 14.5 years) without a diagnosis of neoplastic disease and active inflammatory state. T lymphocytes with their subpopulations, lymphocytes B, NK and NK cells from peripheral blood were analyzed by flow cytometry method. Examinations were performed before the therapy - in diagnostic process.

Results: Lower number of lymphocytes population in children with osteosarcoma compared to the control group was observed. The differences concerned lymphocytes CD3+ (1609.0 vs 3038.0 kom/μL, p<0.001) CD4+ (598.0 vs 1071.0 kom/μL, p<0.001) and CD8+ (386.0 vs 866.0 cells/μL, p<0.001), activated T lymphocytes CD3+HLA-DR+ (39.0 vs 81.0 cells/μL, p<0.025), B lymphocytes CD19+ (205.0 vs 381.0 cells/μL, p<0.005) and NK cells (161.0 vs 339.0 cells/μL, p<0.002).
Conclusions: 1) General analysis of peripheral blood without differentiation of lymphocytes subpopulations is insufficient to determine disturbances which are forming in the immune system of patients with the developing neoplastic disease. 2) The number and percentage of lymphocytes T with their subpopulations, lymphocytes B and NK cells is decreased in patients with osteosarcoma at diagnosis.

P188 Basic and clinical immunology – 2012. Per a 10 favors DCs type 2 polarizations by CD40 cleavage and IL-12 suppression in cockroach-sensitive patients

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World Allergy Organization Journal 2013, 6(Suppl 1):P188

Background: Cockroach proteases are important risk factors for asthma development in predisposed individuals. The present study investigates the effect of serine protease Per a 10 from Periplaneta americana on dendritic cells (DCs) polarization and T-cell responses in cockroach-sensitive patients and healthy controls.

Methods: Patients of cockroach allergy and healthy controls were selected following American Thoracic Society guidelines. DCs were differentiated from peripheral blood monocytes of patient and control subjects and stimulated with Per a 10. Cells were evaluated for surface markers by flow cytometry and cytokines detected in culture supernatants by ELISA. Autologous DC-T cell co-cultures were done and cytokine levels analyzed in the supernatants.

Results: DCs from patient and controls displayed comparable levels of surface markers CD11c and HLA-DR. CD80 and CD83 were slightly higher on DCs from patient group than controls. CD86 was significantly high on DCs of patient group as compared to the control group. In contrast, CD40 was considerably low on DCs of patients’ group than control group. Within the patients’ group, CD40 was low on DCs pulsed with proteolytically active Per a 10 than inactive Per a 10. This was corroborated by two-fold decrease in IL-12 production in DC cultures pulsed with active Per a 10 as compared to inactive Per a 10 (P<0.05). These active Per a 10-pulsed DCs also showed elevated secretions of IL-5 and IL-6 than those by inactive Per a 10-pulsed DCs (P<0.05). Active Per a 10-stimulated DCs also induced significantly (P<0.05) low IL-12 and increased levels of IL-4, IL-5 and IL-6 by T cells as compared to inactive Per a 10. Between patient and control groups, low IL-12 and high IL-6 were observed in DC cultures of patient than control group (P<0.05). Further, Per a 10-stimulated DCs from patients’ induced significantly (P<0.05) increased secretions of IL-4, IL-5, IL-6 and low IL-12 by T cells in comparison to those from healthy controls.

Conclusions: Patients’ DCs on stimulation with Per a 10 favors type 2 polarizations by increase in CD86 expression and low IL-12 secretion. This may be mediated by CD40 cleavage due to proteolytic activity of Per a 10.

P190 Basic and clinical immunology – 2014. Pollen lipid can not stimulate iNKT cells in pollen sensitized patients

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World Allergy Organization Journal 2013, 6(Suppl 1):P190

Background: Invariant natural killer T (iNKT) cells are a small subset of T lymphocytes which express an invariant TCR and recognize lipid antigens. They are implicated in a range of immune responses but their role in allergy is controversial. Pollens are the most important trigger of allergic symptoms but their lipid contents may also have a role in allergy through interaction with iNKT cells. The aim of this study was to evaluate the in vitro effect of pollen lipid extract on iNKT cells.

Methods: PBMCs from 18 pollen-sensitized subjects and 11 healthy controls were isolated and stimulated for 7 days with a mix crude lipid extract of five allergenic pollens prepared by Folch method. Alpha-galactosylceramide and medium were used as positive and negative controls respectively. Proportion of iNKT cells was measured by Flow cytometry using 6B11 and anti-CD3 monoclonal antibodies.

Results: At day 0, the mean percentage of iNKT cells was 0.42 ± 0.93% and 0.44 ± 0.2% (P > 0.05) for sensitized and control groups respectively. Proportion of iNKT cells from both groups expanded efficiently in response to alpha-galactosylceramide and iNKT proportion reaches to 8 ± 5.6% but lipid extract did not stimulate iNKT proliferation in any groups and the proportion of iNKT cells remained unchanged.

Conclusions: Based on the results of our study, it seems that pollen lipids are not potent stimulator of iNKT proliferation but further studies need to evaluate the presence and frequency of pollen-specific iNKT cells.

P191 Basic and clinical immunology – 2015. Nonspecific defense factors in premature infants with pneumonia

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World Allergy Organization Journal 2013, 6(Suppl 1):P191

Neonatal pneumonia diagnosed in 0.5 - 1.0% of full-term and 10 - 15% of premature babies. Of neonatal pneumonia contributes to failure resulting from maternal immunity factors, which affects the function of the immune system and, in particular, the mechanisms of innate immunity.

Lactoferrin - one of the factors of innate immunity directed against a range of bacteria, viruses and fungi. The aim of the study was to examine the levels of lactoferrin in term and preterm infants with pneumonia.
The observation 84 infants: 55 - neonatal pneumonia patients and 29 healthy. In the patients with pneumonia were 36 full-term and 19 preterm infants. The concentration of lactoferrin in the serum were determined by enzyme immunoassay system “Lactoferrin Strip” (“Vector-Best™, Novosibirsk”. Statistical processing of the results was performed using the application.

Clinical examination showed that the most frequently encountered one- and two-sided polymegartary pneumonia, at least - pneumopathy and unilateral focal pneumonia. Pneumopathy, characterized by respiratory failure and oxygen dependence, often associated with CNS (in 62% of cases with cerebral ischemia II degree, and 30% - with intra-ventricular hemorrhage I-I level) in 43% of unilateral and 55% - bilateral pneumonia developed against the background pneumopathy. The clinical course of neonatal pneumonia, herpes virus, in combination infektivny, was the most difficult. Bilateral focal pneumonia occurred in 71.1% (p=0.01) cases sided polysegmental - in 42.9% (p<0.01) polysegmental bilateral pneumonia - by 16.9% (p=0.01) cases. In the blood of newborns with neonatal pneumonia lactoferrin level was 100 times lower than that of a healthy adult. When herpes infection lactoferrin concentration was higher (p<0.01) at the beginning and at the height of the disease, but the convalescence against the normalization of clinical data in patients with pneumonia, herpes virus, it remained significantly higher than normal. Increasing lactoferrin concentration in the serum at neonatal pneumonia caused, apparently, not vacuumed from the intestine, and the collapse of abundant neutrophil granulocytes. Increasing the concentration of lactoferrin - is a sign of pathogenic response of myeloid blood to infection of the lungs.

P192
Basic and clinical immunology – 2016. Successful desensitization to oxalplatin for metastatic colorectal carcinoma
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World Allergy Organization Journal 2013, 6(Suppl 1):P192

Background: Oxalplatin is a platinum based agent that is an antineoplastic used in colorectal carcinoma in combination with fluorouracil and leucovorin. A 45 year old female patient developed anaphylaxis on prior 2 cycles to this platinum agent with dyspnea and hypotension on the latter cycle. Further cycles were stopped and an allergist consult was obtained. Method: In this case a predemication protocol of dexamethasone 10 mg + diphenhydramine 50 mg + famotidine 20 mg by mouth were administered 13 hours, 6 hours and 1 hour respectively prior to the infusion of 40 mg of oxalplatin in 1:1000, 1:1000, 1:100, 1:10 graded dilutions. Each dilution was infused over 1 hour under close telemetry monitoring. A final dilution that contained 90% of the dose was infused over 4 hours until completion.
Results: The patient tolerated the desensitization protocol well with the premedication of dexamethasone + diphenhydramine + famotidine.
The graded dilutional desensitization approach allowed the patient to achieve tolerance to the drug without any significant adverse events and was able to continue her cycles of antineoplastic regimen.
Conclusions: This graded desensitization protocol permits the continuation of antineoplastic treatment protocols in patients that may have a varying degrees of hypersensitivity to oxalplatin agents. A premedicated patient in addition to a graded drug dilution approach may allow administration of this potential life saving drug. The patient must at all times during the protocol be closely monitored for any treatment adjustments for tolerability.

P193
2017 - Basic and clinical immunology – 2017: A functional polymorphism in IL-5 receptor alpha may influence asthma severity in patients with aspirin-exacerbated respiratory disease
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World Allergy Organization Journal 2013, 6(Suppl 1):P193

Background: Eosinophilic infiltration into the tissues of the airway is a central feature of aspirin-exacerbated respiratory disease (AERD). Eosinophil activation and survival are profoundly influenced by IL-5 and its receptor, IL-5R. In patients susceptible to allergic disorders, IL5RA polymorphisms have been reported, however, an association with AERD remains unclear. We hypothesise that the presence of IL5RA polymorphisms will increase the genetic susceptibility to AERD.
Methods: We recruited 139 AERD patients, 171 aspirin-tolerant asthma (ATA) patients and 160 normal controls. IL5RA polymorphisms (-5993G>A, -5676C>G, -5091G>A) were genotyped and functional studies were assessed by luciferase reporter assay and electrophoretic mobility shift assay (EMSA). Asthma severity was classed into three groups according the FEV1 predicted value at the enrolment period following the GINA guidelines.
Results: The genotype frequency of -5993G>A was significantly associated with asthma severity in AERD patients (P<0.05). The frequency of the minor allele at the IL5RA -5993G>A polymorphism was significantly higher in moderate and severe patients when compared with mild patients (severe vs. mild, P=0.032 for the dominant model; severe vs. moderate, P=0.041 for the co-dominant model, and P=0.012 for the dominant model). Moderate and severe patients in the AERD group, carrying the AA genotype at -5993G>A, had a significantly higher prevalence of specific IgE to staphylococcal superantigens than those with the GG/GA genotype (P=0.005). In vitro, the -5993A allele had a higher promoter activity compared to the -5993G allele in human mast cells (HMC-1) (P=0.030) and eosinophilic cells (HL-60) (P=0.013). In EMSA, a -5993A probe produced a specific shifted band than the -5993G had. The shifted band produced by the -5993A probe was not visible in the presence of the nonlabeled -5993G probe but remained visible in the presence of the nonlabeled -5993A probe.
Conclusions: A functional polymorphism in IL5RA could contribute to eosinophil and mast cell activation in AERD, and aggravate asthma severity along with specific IgE responses to staphylococcal superantigens.

P194
Basic and clinical immunology – 2018. Immunocap vs. skin prick testing for inhalant allergens
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World Allergy Organization Journal 2013, 6(Suppl 1):P194

Background: Skin Prick Testing has long been considered the standard for detecting sensitization to inhalant Allergens. However, in vitro testing for specific IgE is also common practice. Various studies have shown that these two methods are equal in sensitivity and specificity, while others have indicated that in vitro testing is less sensitive. This study was performed to compare in vitro Immunocap testing to Skin Prick Testing for identifying sensitization to common southern Aero-Allergens in patients with history of Allergic Rhinitis.
Methods: Fifteen patients (age range 25 to 48 years, 7 males and 8 females) suffering from perennial Allergic Rhinitis were studied. Eleven of fifteen patients reported worsening of Rhinitis symptoms during Spring. In addition, nine of eleven did have symptoms consistent with Allergic Conjunctivitis.
Skin Prick Testing was performed in accordance with published practice parameters (Bernstein L. et al, Annals of Allergy, Asthma, Immunology, Vol. 100, #3, supplement 3, March 2008.). In addition, Immunocap Testing (Quest Diagnostics) for specific IgE was performed on Cockroach, Dust Mite, D. Farinae and D. Pteronyssinus, Grass Pollens: Bahia, Bermuda, Johnson, Timothy, Italian Rye, & Tree Pollens; Oak, Elm, Maple, Pecan, & Sycamore. The sensitivity between these two methods was analyzed.
Results: Skin Prick Test for Grass and Tree Pollens were positive in 13/15 (87%) patients. However, Immunocap Testing was positive in only two of fifteen (13%) patients for Grass and Tree Pollens. In contrast, for Dust Mite, D. Farinae, D. Pteronyssinus, both Immunocap and Skin Prick Test were positive in only three of fifteen (20%) patients. Furthermore, in one of fifteen (7%), results were positive for Cockroach; both by Skin Prick Test & Immunocap Assays.
Conclusions: In patients with Allergic Rhinoconjunctivitis, Skin Prick Tests may be more sensitive in detecting sensitization to Grass and Tree Pollens in comparison with Immunocap Testing.
P195
Basic and clinical immunology – 3019. Gamma interferon release assay for diagnosis of latent tuberculosis – comparison with TB skin test
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World Allergy Organization Journal 2013, 6(Suppl 1):P195

Background: The presence of latent tuberculosis is routinely assessed by tuberculin skin test (TST), which detects a cell mediated immune response to the injected tuberculin purified protein derivative (PPD). Although TST has been in use for over a century, its limitations include poor specificity (i.e. numerous false positive results), the need to examine the site 48-72 hours after injection and the subjective interpretation of results (i.e. estimation of the diameter of induration). Recently, an in vitro assay has been investigated as an alternative to overcome limitations posed by TST. This assay, also known as gamma interferon release assay (GIRA) detects the release of gamma interferon from sensitized lymphocytes upon exposure to mycobacterium TB antigen coated tubes.

Methods: The study included 17 healthcare workers ages 21 to 45 years who had positive TST as screening procedure for latent TB. In addition, 56 adult rheumatoid arthritis (RA) patients on anti TNF therapy were also included. TST were not performed on the immunosuppressed RA patients. GIRA was performed using ELISA technique involving whole blood utilizing mycobacterium TB antigen coated tubes along with positive and negative controls.

Results: Twelve of the 17 healthcare workers were positive on TST and 5 had indeterminate TST results. Of the 12 subjects with positive TST results, 8 tested positive with GIRA testing (66.7%). However, 4 of the 12 with positive TST results were negative with GIRA testing (33.3%). Two of the 5 from TST indeterminate group tested positive with GIRA testing, while 3 were negative. All of the 56 immunosuppressed subjects tested negative with GIRA testing.

Conclusions: This limited study reveals that TB skin test results can be falsely positive in at least 33.3% of the population tested positive with TST. Therefore, GIRA testing is valuable to decipher those with TST indeterminate results. Therefore, GIRA is a superior method for diagnosis of latent tuberculosis and will reduce the unnecessary cost of treatment associated with false positive results with TST.

P197
Basic and clinical immunology – 3021. Inhibitory action of levocetirizine hydrochloride on eosinophil activation in vitro
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World Allergy Organization Journal 2013, 6(Suppl 1):P197

Background: Histamine H1 receptor antagonists are used for the treatment of allergic disorders such as allergic rhinitis and atopic allergy with remarkable success. However, the influence of antihistamines on the function of eosinophils, which are the most important final effector cells in allergic diseases, is not well understood.

Purpose: The influence of histamine H1 receptor antagonists on eosinophil functions was examined through the choice of levocetirizine hydrochloride (LH) in vitro and in vivo.

Methods: BALB/c male mice (5 weeks of age) were intraperitoneally infected with 500 M.cestoides cortii larvae. These mice were then treated with LH at a single dose of 0.1 mg/kg once a day, which was started on the day of infection. The percent of peripheral blood eosinophils and IgE levels were examined 21 days after infection. In the second experiments, eosinophils obtained from mice infected with M cortii were sensitized with M.cortii-specific IgE, and these sensitized eosinophils were stimulated with 10 ng/ml of M. cortii extractary antigen in the presence of LH for 24 h. MIP-1β, LTβ, and RANTES levels in culture supernatants were examined by ELISA.

Results: Oral administration of LH could not suppress both peripheral blood eosinophils and IgE hyper-production, which were observed in mice infected with M cortii. The addition of LH into cell cultures could suppress the ability of eosinophils to produce MIP-1β, LTβ, and RANTES, which were increased by SCF stimulation. The minimum concentrations of LH, which caused significant suppression of factor production, were 1.0 μM for MIP-1β and LTβ, and 0.5 μM for RANTES.

Conclusions: These results may suggest that LH exerts inhibitory effects on eosinophil activation and results in favorable modification of clinical status of pollinosis patients.

P196
Basic and clinical immunology – 3020. Fish oil supplementation in early infancy modulates developing infant immune responses but not clinical allergy
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Background: Maternal fish oil supplementation during pregnancy has been associated with altered infant immune responses and a reduced risk of clinical allergy. The objective of this study was to examine the effect of early postnatal fish oil supplementation on infant cellular immune function at six months of age and infant allergic diseases.

Methods: In a double-blind randomized controlled trial (ACTRN1260600 0281594), 420 infants of high atopic risk received fish oil (containing 280mg docosahexaenoic acid (DHA) and 110mg eicosapentaenoic acid (EPA)) or control oil daily from birth to six months. Fatty acid levels, induced cytokine responses were assessed at 6 months of age in 150 infants. Eczema, food allergy, asthma and sensitization were assessed in 323 infants who completed clinical follow up at 12 months of age.

Results: DHA and EPA levels were significantly higher in the fish oil group and erythrocyte arachidonic acid (AA) levels were lower (all p<0.05). Infants in the fish oil group had significantly lower IL-13 responses (p=0.036) to house dust mite and higher IFNγ (p=0.035) and TNF (p=0.017) responses to phytohaemagglutinin. Infants with relatively high DHA levels had lower Th2 responses to allergens including lower IL-13 (p=0.020) and IL-5 (p=0.045) to b-lactoglobulin. Although n-3 PUFA levels at 6 months were associated with lower risk of eczema (p=0.033) and recurrent wheeze (p=0.027), the association with eczema was not significant after multiple comparisons. Between group comparisons revealed no differences in the occurrence of allergic outcomes.

Conclusions: Postnatal fish oil supplementation increased infant n-3 polyunsaturated fatty acid (PUFA) levels and associated with lowered allergen-specific Th2 responses and elevated polyclonal Th1 responses. However, postnatal fish oil supplementation did not prevent childhood allergic disease.

P198
Basic and clinical immunology – 3022. Inhibitory action of fexofenadine hydrochloride on mast cell activation in vitro
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World Allergy Organization Journal 2013, 6(Suppl 1):P198

Background: Allergic rhinitis is well known to be accompanied by inflammatory responses in the nasal wall and lumen including predominant infiltration of eosinophils, T cells and mast cells. With the discovery of IgE as the link between allergen exposure and mediator release, mast cells established their role as effector cells in the development and maintenance of allergic diseases. However, the influence of histamine H1-receptor antagonists on mast cells activation is not fully understood. The present study, therefore, was undertaken to examine the influence of histamine
H1-receptor antagonist on mast cells activation by using an in vitro cell culture technique and fexofenadine hydrochloride (FEX).

Methods: Spleen cells obtained from BALB/c mice were cultured for 3 weeks in the presence of FEX, and the number of mast cells was counted with alcian blue. We also examined the influence of FEX on mast cells activation. Cultured mast cells were sensitized with OVA-specific IgE and these sensitized cells were stimulated with OVA in the presence of FEX for 4 hours. The levels of tumor necrosis factor (TNF-α), vascular endothelial growth factor (VEGF) and keratinocyte-derived chemokine (KC) were examined by ELISA.

Results: FEX could not suppress mast cell growth from progenitor cells in spleen cell suspension, even when 500 ng/ml of the agent was added to cell cultures. On the other hand, treatment of mast cells with FEX caused suppression of factor production from mast cells by antigenic stimulation. The minimum concentration of the agent that caused significant suppression was 200 ng/ml.

Conclusions: The present results strongly suggest that FEX exerts inhibitory effects on mast activation and results in favorable modification of clinical status of pollinosis patients.

P199
Basic and clinical immunology – 3023. Influence of fexofenadine hydrochloride on uteroglobin production from nasal epithelial cells in vitro and in vivo
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Background: Uteroglobin (CC10) is well known to be an immunosuppressive protein secreted from airway epithelial cells after inflammatory stimulation and function in development of allergic disorders. Although histamine H1 receptor antagonists are used for the treatment of allergic disorders, the influence of the agents on CC10 production is not well understood. In the present study, we examined the influence of a histamine H1 receptor antagonist, fexofenadine hydrochloride (FEX) on CC10 production in vitro and in vivo.

Methods: Nasal epithelial cells (5 x 10⁴ cells/ml) were stimulated with 20 ng/ml TNF-α in the presence of various concentrations of FEX for 24 h. CC10 levels in culture supernatants were examined by ELISA. Patients with Japanese cedar polinosis were orally treated with FEX twice a day at a single dose of 60 mg for two weeks during Japanese cedar pollen season (February 2011 to April 2011). CC10 levels in nasal secretions were also examined by ELISA.

Results: The addition of FEX into epithelial cell cultures caused dose-dependent increase in the ability of cells to produce CC10 in response to TNF-α stimulation, and the minimum concentration that caused significant increase was 200 ng/ml. Oral administration of FEX for two weeks also increased CC10 levels in nasal secretions from pollinosis patients along with attenuation of clinical symptoms.

Conclusions: The ability of FEX to enhance CC10 production may account, at least in part, for the clinical efficacy of the agent on allergic disorders, including allergic rhinitis.

P200
Basic and clinical immunology – 3024. First evidence for epigenetic disruption in T-cells from children with food allergy
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World Allergy Organization Journal 2013, 6(Suppl 1):P200

Background: No studies to date have formally investigated the role of epigenetics in food allergy. Many believe that disruption in epigenetic marks may lead to loss of gene control in relevant immune pathways, and this may predispose to allergic disease. There is a growing body of evidence to suggest DNA methylation marks in key locus control regions are the primary regulators of naive T-helper cell differentiation. To address these contemporary research questions, we undertook genome-wide methylation profiling of CD4+ T-cells harvested from children with and without food allergy, before and during the onset of disease. This data was analysed in the context of genome-wide expression data from the same cohort.

Methods: Genome-wide DNA methylation profiling of CD4+ cells from children with diagnosed food allergy (n=30) and non-allergic children (n=30) was undertaken at birth (neonatal cells) and 12 months (during onset). A comparative analysis of DNA methylation profiles was performed and this data was correlated with gene expression data and functional T-cell assays.

Results: We report the first lines of evidence for epigenetic disruption in association with food allergy. 85 loci were differentially methylated between allergics and non-allergics after adjusting for age (Adj P-Value<0.05 Beta fold change >0.10), and genetic effects. This represented a change in the promoter methylation status in 25 unique genes involved in cellular response to stress; fatty acid beta-oxidation pathways, calcium-activated potassium channel activity, small molecule and vitamin metabolism. Approximately 40% of methylation changes occurred outside known gene-associated regions with unknown significance. An examination of the effects of SNPs on methylation profiles revealed HLA-DQB1 as differentially methylated between allergies and non-allergics, resulting in a quantitative change in gene expression.

Conclusions: DNA methylation profiling of CD4+ cells reveals disruption of several epigenetic pathways that appear to be programmed into the T-cell compartment. Although a proxy marker, the methylation array has genotyping utility and suggests a novel role for SNPs in HLA-DQB1 in association with changes in methylation and gene expression.

P201
Basic and clinical immunology – 3025. Suppression of eosinophil activation by levocetirizine hydrochloride in vivo
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World Allergy Organization Journal 2013, 6(Suppl 1):P201

Background: Histamine H1 receptor antagonists are used for the treatment of allergic disorders such as allergic rhinitis and atopic allergy with remarkable success. However, the influence of antihistamines on the function of eosinophils, which are the most important final effector cells in allergic diseases, is not well understood.

Methods: The influence of histamine H1 receptor antagonists on eosinophil functions was examined through the choice of levocetirizine hydrochloride (LH) in vivo. Patients with Japanese cedar polinosis were orally treated with LH once a day at a single dose of 5 mg for two weeks during Japanese cedar pollen season (February 2012 to April 2012). Nasal secretions were obtained before and after treatment with the filter paper method. Eosinophil activation was assessed by measuring the levels of both ECP and MBP in nasal secretions by ELISA. We also examined the number of eosinophils in nasal secretions and IgE levels in peripheral blood obtained from patients before and after treatment with LH.

Results: Oral administration of LH could not suppress both peripheral blood eosinophilia and IgE hyper-production. On the other hand, ECP and MBP levels in nasal secretions decreased significantly after treatment with LH. LH treatment also favorably modified the clinical conditions of patients: the clinical symptom scores, such as sneezing, nasal discharge and congestion decreased significantly after treatment with LH.

Conclusions: These results may suggest that LH exerts inhibitory effects on eosinophil activation and results in favorable modification of clinical status of pollinosis patients.

P202
Basic and clinical immunology – 3027. Group of immune factors studied in relation to early development of allergic symptoms in an Indian subpopulation at one year of age
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World Allergy Organization Journal 2013, 6(Suppl 1):P202
Background: It is speculated that Indian population is protected against allergies due to sufficient exposure to microbes and infections. Due to scarce information regarding birth cohort, principally prompted us to follow a cohort for development of allergies and study the immune markers (cytokines and chemokine receptors) at one year of age.

Methods: Healthy term newborns in families with h/o allergy were enrolled after informed consent at the time of birth. This Indian birth cohort of 99 babies with family history of allergy (75) and no history of allergy (24) was studied for minimum of 1.5 years for development of allergies with evaluation of chemokine receptors (CXCR3, CCR5, CCR3, CCR4, CCR8). Markers of Th1 (IFN-γ, IL12p40) and Th2 (IL4, IL13) responses were also compared. Expression of molecules was studied using semi-quantitative RT-PCR. The study was approved by the local Medical ethics review board.

Results: Out of 75 infants in FH+, twenty (26.7%) developed allergic features. Positive maternal history was found as an independent risk factor. Expression levels were compared on the basis of family history (FH+ & FH-) and allergy development FH-ALG- (controls, babies with no FH and no development of allergic symptoms), FH+ALG+ (babies with positive FH and development of allergic symptoms), FH+ALG- (babies with positive FH and without development of allergic symptoms). On the basis of FH there was significant higher expression of CXCR3 and CCR5 in FH+ (differed with individual show), FH+ALG- (controls, babies with no FH and no development of allergic symptoms). On the basis of FH there was significant higher expression of IFN-γ and IL-13 was higher in the FH+ALG- group whereas IL-13 was expressed at higher level in FH+ group. IL-13 was higher in the FH+ALG- and FH+ALG+ as compared to the FH-ALG- group but the difference was not significant. On applying multivariate analysis CXCR3, CCR5, CCR8 were found to be associated to allergy development.

Conclusions: The findings support that allergy is an intrinsic phenomenon which differs with individual showing differential immune responses. Positive maternal history was found to be a strong risk factor for early allergy developments. Early infancy is an important period for development of allergies later in life and thus should be studied intensely.

P203

Basic and clinical immunology – 3028. Interaction of DNA methylation and genetic variants of IL13 is associated with FEV1/FVC and BHR

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Background: IL13 genetic polymorphisms together with environmental exposures such as tobacco smoke exposure have been associated with asthma and lung function. However, both genetic and epidemiological studies fail to explain the variability in susceptibility and phenotypes. The epigenome, particularly DNA methylation (DNA-M), represents a site of molecular interaction between the environment and the genome, regulates gene expression and plausibly plays an important role in determining phenotype.

Aims: To see if methylation is genotype dependent in IL13 and to assess the effect of the interaction between IL13 SNPs and DNA methylation on FEV1/FVC and BHR.

Methods: Subjects from the 1989 Isle of Wight birth cohort (n=1456) were followed up at 1, 2, 4, 10 and 18 years. At 18 years 839/1313 had bronchial challenge. Illumina Human450K methylation arrays were used to assess DNA methylation (DNA-M) levels at cg13566430 across the genotypes of all three SNPs. An interaction effect for rs1800925*cg13566430 was seen for both FEV1/FVC (p<0.001) and BHR (p<0.036). For DRS; interactions of rs20541 with cg13566430 (p=0.030) and cg0658412 (p=0.036), rs2243204*cg13566430 (p=0.005), rs2243204*cg0658412 (p=0.012) and rs2243204*cg14523284 (p=0.017) were significant.

Conclusions: Genotype-dependent DNA methylation was seen at cg13566430. Interaction between genotype and DNA methylation was significantly associated with obstructive (FEV1/FVC) and reactive (DRS) aspects of asthma in adolescent females. DNA methylation is likely to modify the effect size of the impact of genetic variants that play a role in the development of complex traits like asthma.
After the stroke, our patient’s IgG level fell to 1.17 g/L, resulting in recurrent pneumonia. Cautious doses of IVIG were restarted and the patient remained on warfarin. These were tolerated well for 13 years. With the introduction of higher concentrations of IgG available for subcutaneous administration, we transitioned the patient to SCIG since it offered many advantages. The preparation was tolerated well by the patient, resulted in therapeutic trough levels, and was effective at preventing infection. It is also associated with a lower risk of thrombotic complications including stroke theoretically since this is extremely rare, related to the even physiologic nature of serum IgG levels, without marked increases in levels following the administration of the SCIG preparation.

Results: The patient was cautiously continued on IVIG therapy 7 months after the stroke, with modest doses initially of 20g in 250mL solution q4 weeks (goal trough IgG 5-7 g/L). This dose was effective and tolerated well and it was gradually titrated to higher trough levels 9 years later. With known and theoretical advantages of SCIG therapy, the patient achieved therapeutic trough IgG level of 9.5 g/L, and did not have any further thrombotic events or other systemic reactions. The patient continues on q3-4-weekly SCIG infusions that are both safe and effective. This therapy may also offer significant Quality of life (QOL) advantages to the patients and their families.

Conclusions: We report a CVID patient who had a cerebrovascular accident following an IVIG infusion. He was successfully restarted on IVIG therapy while on warfarin and then switched to SCIG, which he has tolerated well.

P206
Basic and clinical immunology – 3031. The correlation between serum proteomics patterns of strail and CXL8 with FDG-PET/CT findings in bevacizumab treated colon cancers

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Background: Bevacizumab is a humanized monoclonal antibody developed against vascular endothelial growth factor (VEGF) for the treatment of metastatic colorectal cancer (MCRC). The changes and correlations of strail and CXL8 prior to treatment and three months following therapy as well as the corresponding Positron emission tomography (18FDG-PET/CT) results were evaluated.

Methods: The measurements were taken before and after treatment for comparison purposes. The study population comprised 17/29 patients with MCRC, undergoing PET/CT scanning prior to treatment. We were able to perform a follow up PET/CT examination three months after onset of therapy in 15/17 patients. Patients were instructed to fast for at least 6h before an injection of 18-FDG(5 MBq/kg)(GeminiPET/CTSystem). Images were reconstructed using the maximum-likelihood 3-dimensional algorithm according to the standard clinical protocol. 1 iterations, relaxation parameter of 0.05,5-mm,3-dimensional gaussian postfiltering, a4-4.4-mm-voxel grid sampling, and attenuation correction based on a low-dose CT scan. All images were visually interpreted by consensus between two experienced nuclear physicians and standardized uptake values(SUVmax) were calculated from the image data.

Results: There were significant changes prior to treatment and three months later for strail(p = 0.0080) and CXL8(p = 0.0001). Generally, strail values were increasing during therapy, while a decrease was observed for CXL8. Correlation analysis was applied to the data and revealed significant correlations for the SUVmax in the primary tumor prior to treatment and CXL8 prior to therapy (p = 0.0303). Furthermore, significant correlations were found for SUVmax and strail(p = 0.0237) as well as CXL8 (p = 0.0002) three months after treatment initiation. CXL8 prior to treatment was also correlated with the SUV three months after onset of treatment (p = 0.0072). A significant correlation was noted for one combination of two variables, the SUVmax in the metastases and CXL8 prior to treatment (p = 0.0175). These results are supported when we group the SUVmax in the metastases following treatment into two groups with SUVmax<5 and

SUv_max > 5. There is a significant difference for both groups regarding overall survival, with a lower survival associated with SUVmax exceeding.

Conclusions: This study provides evidence that proteomics patterns of strail and CXL8 predict tumor response and survival in MCRC patients treated with bevacizumab and within a high concordance of 18-FDG-PET/CT findings. The high correlation of CXL8 and FDG uptake in metastases prior to treatment with survival direct to a promising approach to individualize treatment of patients.

P207
Basic and clinical immunology – 3032. 18FDG-PET/CT findings (SUV-MAX) are correlated with survival in stage-4 squamous cell carcinoma

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Background: Genetic factors are considered primary in the development of cancer. Bevacizumab is a humanized monoclonal antibody directed against vascular endothelial growth factor (VEGF). The objective of the study was to investigate the correlation between SUVmax with survival in patients treated with strail and FDG-PET/CT. There were significant changes prior to treatment and three months after onset of treatment. Correlation tables were calculated for all variables.

Methods: The concentrations of strail were measured in the sera of 37 NSCLC patients using a TRAIL/APO2L ELISA kit (Diaclone, France) and Roche kit for Vit-D and Hcy according to the manufacturer's instructions. The absorbance of each patient on a spectrophotometer using 450 nm and the concentration of strail(pg/mL), SC200 (pg/mL), Hcy(mmol/L) and Vit-D(ng/mL) was measured.

Results: The levels of sc200, strail, Hcy and Vit-D concentrations in the serum samples from the 37 NSCLC patients were analyzed using a TRAIL/APO2L ELISA kit (Diaclone, France) and Roche kit for Vit-D and Hcy according to the manufacturer's instructions. The absorbance of each patient on a spectrophotometer using 450 nm and the concentration of strail(pg/mL), SC200 (pg/mL), Hcy(mmol/L) and Vit-D(ng/mL) was measured.

Conclusions: The correlation coefficient r= -0.6954, p=0.004, n=15. The data were evaluated using the StataMP software package, version 12.1 (StataCorp, College Station, TX, USA). An error level of p<0.05 was generally used for the statistical analysis. The Wilcoxon matched pairs signed rank test was used to assess differences in the variables prior and three months after onset of treatment. Correlation tables were calculated for all variables. Furthermore, a multivariate correlation/regression analysis was applied to the data, using the survival as the dependent variable. The correlation was significant for SUVmax with overall survival, with a lower survival associated with SUVmax exceeding.

Conclusions: This study provides evidence that proteomics patterns of strail and CXL8 predict tumor response and survival in MCRC patients treated with bevacizumab and within a high concordance of 18-FDG-PET/CT findings. The high correlation of CXL8 and FDG uptake in metastases prior to treatment with survival direct to a promising approach to individualize treatment of patients.
Background: Oral allergy syndrome to sapodilla plum is caused by a b1 by homology modeling was carried (sapodilla belongs to order Eudicotyledons comprising of 19 orders (sapodilla belongs to order Ericales). The deduction protein sequences were manually selected for only full length sequences resulting in 132 TLP sequences. For the purpose of uniformity, the mature sequence was trimmed to include the conserved N-terminal -N-X-C- (residues 7-9) and -F-C-X- at the C-terminus representing the 16th cysteine. Phylogenetic tree was constructed using PHYLLOGENY.FR. The 3D structure prediction of TLP-1 by homology modeling was carried out using HHPREDD-MODELLER which generates a 3D model using a homologous template. The predicted model was compared with 8 plant TLP structures retrieved from PDB using RASMOL. The allergenicity prediction of TLP-1 was determined by ALGPRED, a server commonly used for allergenicity prediction of proteins.

Results: Transmembrane helix domain is lacking in the mature TLP-1 sequence. TLP-1 shows structural similarity with other TLPs in having a central domain of antiparallel b-sheets supported by 2 domains on either side, one made up of only b-sheets and the other of b-sheets-o-helices; the entire structure is stabilized by 8 disulfides. Comparison of eudicot TLP sequences shows that TLPs comprise of isoforms of various pi values, and pi does not correlate with phylogenetic grouping. Phylogenetic tree shows that all TLPs can be broadly grouped into 2 clades each further grouping into 2 sub-clades. Allergenicity prediction of TLP-1 supports its experimental observation as an allergen (score, 1.76; threshold, 0.4).

Conclusions: Sapodilla TLP-1 shows structural similarity to other plant TLPs in having identical 3 domains and 8 disulfide bonds. Based on allergenicity prediction, sapodilla TLP-1 is classified as an allergen.

P209 Basic and clinical immunology – 3034. Peculiarities of parameters immune system in juvenile rheumatoid arthritis
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World Allergy Organization Journal 2013, 6(Suppl 1) P209

Juvenile rheumatoid arthritis (JRA) is one of the most common disabling rheumatic diseases in children in the pathogenesis of which plays an important role certain subpopulations of lymphocytes. The functions of these immune cells are associated with the molecular receptors on their CD cellular membranes. The aim of the study was to study the state of molecular receptors of peripheral blood lymphocytes in children with JRA. 32 children aged from 5 to 13 years were examined. Diagnosis is based on the criteria of the American Rheumatology Association. In all patients, the diagnosis was confirmed radiographically. 16 healthy children were in control group. Immunological studies were studying the content of CD3+, CD4+, CD8+, CD16+, CD25+ and CD95+ cells by monoclonal antibodies. Circulating immune complexes were determined using PEG nephelometry. Phagocytic activity was determined with the use of latex particles. Clinical examination showed that the antibody-positive variant of the disease was observed in 80% of patients seronegative - at 20%. I degree of inflammatory activity was found in 31.1%, II degree - at 53.3%, III degree - in 15.6% of patients. Systemic manifestations were observed in 55.5% of children. Analysis of the results of immunological studies have shown that patients with JRA, compared with those of the control group, there was a reduction of CD3+ (P <0.01), CD4+ and CD8+ (P <0.01). The level of CD16+ cells was increased (P <0.01), while the level of proliferating cells and the number of CD95+ cells was higher (P <0.01). An increase in the CEC and decreased phagocytic activity of neutrophils. Thus, with JRA identified defects in the immune system as a clear expression of reduction of molecular receptors of T lymphocytes and subpopulation composition, suggesting inferiority of T-cell component of the immune system in children suffering from the disease. Rapid chronicization of inflammatory process, autoimmune nature of JRA is probably related to functional deficiency of T lymphocytes.

P210 Basic and clinical immunology – 3036. Investigation of peripheral follicular helper T-cells in primary Sjögren’s syndrome
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World Allergy Organization Journal 2013, 6(Suppl 1) P210

Background: The exact mechanisms behind the immune disturbances in primary Sjögren’s syndrome (pSS) are still not known in details, but evidence suggests that abnormal T- and B-cell activation plays a critical role in the disease development. Recent studies emphasized the important role of follicular helper T (T(H)1) cells, which contribute to B-cell proliferation and differentiation, as well as antibody production. The aim of this study was to investigate the possible role of T(H)1 cells in the pathogenesis of pSS, by analyzing a wide spectrum of immune-compotent cells and serological markers with a special emphasis on clinical symptoms of the disease.

Methods: We enrolled 50 patients suffering from pSS [25 with extra-glandular manifestations (EGMs) and 25 without EGMs] and 16 healthy individuals as controls in the study. Peripheral lymphocyte subpopulations were determined by flow cytometry, circulating cytokines and auto-antibodies were quantified by ELISA technique. Statistical analysis was performed using GraphPad Prism 5 software and SPSS version 16.0.

Results: Patients with pSS showed elevated ratio of peripheral T(H)1 cells, which implies that T(H)1 cells are significantly elevated in patients with higher EGM, especially in patients suffering from a systemic, more severe course of the disease. Moreover, elevated T(H)1 cell proportions correlates with activation of immune system, proportions of memory B cells and titers of autoantibodies, which implies that T(H)1 cells may play an important role in the disease development.

P211 Health outcomes, education, healthcare delivery and quality – 3037. Allergy immunotherapy quality of life and perceived efficacy opinion survey
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World Allergy Organization Journal 2013, 6(Suppl 1) P211

Background: The effectiveness of Allergy Immunotherapy is known to subjectively improve quality of life. An opinion survey was designed to elicit the perceived efficacy among immunotherapy patients with regards to the mitigation of symptoms of Allergic rhinitis, Allergic conjunctivitis, Atopic dermatitis and improvement in Asthma control.

Methods: A 10 question voluntary anonymous survey on paper was designed by a two-allergist team to assess the patient perception of the improvement in quality of life on Allergy Immunotherapy by the subjective opinion survey. The measures that were tested was perceived reduction as well as improved control with regards to disease states such as Allergic rhinitis, Asthma, Allergic conjunctivitis and Atopic dermatitis. Distribution of the voluntary survey was undertaken at 8 different sites. Responses were accepted over a testing period of 14 working days from May 1 - May 18, 2012.

Results: Of the 500 respondents from 8 different sites, 463 completed the complete survey. Only the data from completed surveys underwent
statistical analysis. 463 respondents were in the age range of 5 years to 84 years and consisted of 44% male and 56% female. The data analyzed corresponded to 1489 years (one thousand four hundred eighty nine years) of subcutaneous injections. 82% of the respondents expressed the alleviation of symptoms of allergic rhinitis, 43% improvement in asthma control, 55% decrease in recurrent sinusitis, 56% decrease in allergic conjunctivitis and 18% decrease in atopic dermatitis. 97.6% of respondents reported an improvement in quality of life, 1.5% reported no improvement and 0.9% were unsure.

Conclusions: Allergists caring for patients with atopic conditions can be reassured that the perceived clinical efficacy of subcutaneous allergy immunotherapy is at an extremely high level with regards to resolution of symptoms within the atopic disease states that it is indicated for. Opinion surveys can be a very helpful tool in assessing current patient level of satisfaction to therapy regarding atopic disease states.

P212
Health outcomes, education, healthcare delivery and quality – 3038
The relation of STRAIL levels and quality of life in omalizumab using severe persistent allergic asthma patients
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World Allergy Organization Journal 2013, 6(Suppl 1):P212

Background: Omalizumab represents a novel approach to the treatment of asthma, inhibiting the inflammatory cascade before it starts. As it was previously reported, the increase in the eosinophil levels in allergic asthma was due to the increase in peripheral blood eosinophil survival promoted by TRAIL. And as an apoptotic molecule TRAIL also present in cells that involved in asthma including eosinophils, mast cells, fibroblasts, and airway epithelial cells. It is expressed in airway remodeling and may be linked with the pathways of TGF-β1, which is thought to cause damage to the epithelium. The repair process of the epithelium is hindered as a result of increased apoptosis induced by TGF-β1, which overlaps with the pathways of TRAIL. Moreover analogs of TRAIL could have therapeutic applications for asthma.

Methods: In our previous report, we showed that STRAIL levels of severe persistent allergic asthma patients were decreased after the anti-IgE treatment using omalizumab. Thus, the paper suggested that TRAIL may act as a soluble effector, and the decrease after the omalizumab treatment might be an indicator of clinical improvement. However, those results were had a limitation of follow-up period. Quality of life increased in the patients due to control of asthma with omalizumab treatment at the end of a year. Moreover, we evaluated the STRAIL levels again and compare them to the pre-treatment period and at the fourth month of the treatment. At the time of diagnosis, the mean STRAIL level in the severe persistent allergic asthma patients before the omalizumab started was 1663 ± 120.4 pg/mL. At the fourth month, STRAIL level decreased to 1443 ± 80.93 pg/mL. Finally, after a year of omalizumab usage, when all patients maintained significant improvement by a decrease in clinical symptoms and an increase in ACT, we found that STRAIL levels were also decreased to very low levels 273 ± 62.80 pg/mL.

Conclusions: Our findings reflect the different mechanism(s) in the pathogenesis of allergic diseases by the regulation of both inflammatory system and apoptosis.

P214
Health outcomes, education, healthcare delivery and quality – 3041
Smoking habit behaviour in adolescents
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World Allergy Organization Journal 2013, 6(Suppl 1):P214

Background: The main objective of this paper was to identify the percentage of smoking adolescents as well as the tobacco consumption and present asthma symptoms according to sex and age. Smoking habit play an important role in respiratory infections due it is a prenatal conditioning factor for the posterior appearance of asthma in the child and for the worsening of pre-established symptoms in active smokers as well as passive ones. Information related to this health problem is short as well as descriptions regarding asthma in smokers. There are uncounted descriptions about the dangerous effects of smoking cigarettes causing disorders to different organ systems although this paper has focused mainly the respiratory system where tobacco has been involved as the risk factor causing inflammatory infections as well as carcinomas.

Methods: A cross sectional study was done using a questionnaire in which the students answered according to their interpretation. The sample was taken to two hundred and ten participants. The data were collected through a doctor-patient interview and triangulated with information from a questionnaire and the study of individual and family clinical histories. This was organized according to age, sex, tobacco consumption habit, and asthma or related symptoms for the analysis. The students were eighth and ninth graders and were selected according to sex and age.

Results: 46.3% were males and 53.7% were females of whom 47.6% presented with smoking habits and none were asthmatic. Sixteen percent of these were smokers with someone who also smoked. The most commonly asthma-related symptoms found were wheezing, chest tightness and coughing in order of appearance.

Conclusions: There were no significant differences regarding sex. The occurrence of adolescent smokers is high as well as the population suffering asthma symptoms; therefore, prevention is a key point for the health professionals who are in charge of developing this task in the health care community.
P215
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World Allergy Organization Journal 2013, 6(Suppl 1)P215

Background: Atopic Dermatitis (AD) is a chronic relapsing skin disease occurring due to exogenous and endogenous cause. It has a tremendous psychological impact on individual’s life. It can interfere with the mental stability, social and emotional adjustment and Quality of Life (QOL).

This study aims to document the Quality of Life in children suffering from Atopic Dermatitis and its relationship with disease severity.

Methods: A total of thirty children aged 5-16 years suffering from AD (diagnosed by Hanifin and Rajka criteria) and thirty age, sex matched control group were included in the study. The Children’s Dermatology Life Quality Index (CDLQI) questionnaire was used to quantify the impact of Atopic Dermatitis on Quality of Life.

Eczema severity was assessed by using six area six sign Atopic Dermatitis Severity Score Index.

Statistical analysis was done by Spearman correlation coefficient by using Instat software to compare CDLQI with control and disease severity.

Results: Quality of Life is hampered more in Atopic children than control. Also it has been found that Q1, Q2, Q3, Q4, Q5, Q7 were elevated; which imply children’s symptoms, feelings, leisure, sleep and treatment were affected by the impact of the disease.

Children’s Quality of Life has shown a significant positive correlation with disease severity (r=0.8526, p<0.0001).

Conclusions: CDLQI can be used as an extra measure of disease assessment in the management of Atopic Dermatitis. Though it is not a life threatening disease, its impact on Quality of Life should not be overlooked while evaluating this disease.

P216
Health outcomes, education, healthcare delivery and quality – 3045: Questionnaire survey of patients with allergic disorders in Bangalore, India
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World Allergy Organization Journal 2013, 6(Suppl 1)P216

Background: Allergic Disorders are on the rise worldwide and especially in Indian urban set up. Bangalore is an urban city with rising population density and pollution. We evaluated the common symptoms of various allergic disorders in three selected outpatient clinics through a questionnaire survey, in children and adults who presented with symptoms to suggest allergy especially rhinitis and asthma.

Methods: Internal consistency of the questionnaire was checked. Eighty three patients with symptoms to suggest allergy participated in the survey.

We evaluated the common symptoms, duration, family history, perceived triggers and treatment sought through the questionnaire survey. A proportion of them (12%) had skin prick tests (HollisterStier, USA) to correlate between perceived and the actual triggers.

Results: Forty six patients (55.4%) were males and 44.6% (n=37) females. Common Symptoms in children ≤ 12 yrs (n=47, 56.6% of the group), included runny nose (49%), sneezing, nasal obstruction (46.8%) and cough (72.3%). In adults, sneezing and cough predominated equally (63.8%) along with runny nose (50%). Allergic Rhinitis with Asthma was equally seen in adults (22%) and children (19%); 45.8% of our study patients had family history of allergic disorders. Symptoms lasted > 3 to 4 days in a week in the majority (65 %). Commonest perceived triggers included dust (77%), strong odours (24.1%), food items both in children and adults. Discrepancy in perceived and identified triggers by skin prick testing was evident in 2 (out of 10) subjects. 13% of the group was on alternative medicine (ayurveda, homeopathy) at the time of the study and 10 patients (12%) were using only reliever inhalers in spite of ongoing symptoms to suggest asthma.

Conclusions: Coexistence of Allergic Rhinitis and Asthma was equally common in adults and children. Dust exposure was the commonest trigger and the differences in perceived and identified triggers should be tested in larger patient groups. As depicted in other studies, suboptimal control of allergic disorders was prevalent in our study patients as well.

P217
Health outcomes, education, healthcare delivery and quality – 3047. What do patients think about asthma-specific quality of life questionnaires? Qualitative interview study in the UK
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World Allergy Organization Journal 2013, 6(Suppl 1)P217

Background: The purpose of this study was to explore patients’ views on the content of three asthma-specific quality of life questionnaires.

Methods: 22 adult individuals with asthma were asked to complete three asthma-specific quality of life questionnaires (Juniper Asthma Quality of Life Questionnaire (AQLQ-J), Sydney Asthma Quality of Life Questionnaire (AQLQ-S), Living With Asthma Questionnaire (LWAQ)). Interviews were conducted to elicit patients’ views on the content validity of the questionnaires and transcribed verbatim. Thematic content analysis was performed.

Results: Participants spoke about missing content, redundant or similar content, irrelevant content, confusing content and irritating content. The AQLQ-J was perceived as a rather ‘narrow’ and ‘medical’ questionnaire with a focus on the environment and activities. The choice of activities was perceived to be positive by some and difficult by other participants. The AQLQ-J was contrasted with both the LWAQ and the AQLQ-S which were perceived to be ‘non-medical’, wide-ranging questionnaires with a social and emotional focus. The emotional focus of the LWAQ as well as the use of positive and negative items were perceived as irritating by some participants and overall, it was perceived as burdensome to complete and described as a ‘test’ or ‘quiz’. In contrast, the AQLQ-S was described as a simple, quick and easy questionnaire although it was thought to lack depth at the same time. Overall, the AQLQ-S was situated between the AQLQ-J as a ‘medical’ questionnaire and the LWAQ as an ‘emotional’ questionnaire.

Conclusions: Patient involvement highlights shortcomings and strengths of various asthma-specific questionnaires in terms of their content validity. The AQLQ-S seems to have acceptable length and yet sufficient coverage of medical, social and emotional aspect of health-related quality of life in asthma.

P218
Health outcomes, education, healthcare delivery and quality – 3048. From uterus to university: Recruitment and retention of a primary prevention birth cohort
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Background: It is important to identify predictors of retention in primary prevention studies as recruitment and retention are critical factors for a successful intervention study.

Methods: In 1994, the Canadian Asthma Primary Prevention Study (CAPPS) was established. This high-risk birth cohort has 2 sites, Winnipeg and Vancouver, Canada. Expectant mothers were recruited during the third trimester. Enrollment criteria were a first degree relative with asthma or two first degree relatives with other allergic diseases. Participants were prenatally randomized into control and intervention groups. Intervention measures
were introduced before birth and during baby’s first year of life. Follow-up assessments by a Pediatric Allergist included skin prick testing (SPT) to common food and inhalants and pulmonary function testing.

**Results:** 545 participants initially recruited. 266 randomized into control and 279 intervention. From recruitment to first year, 9.5% families (52) discontinued. At age 1, 493 infants were assessed; 52.3% males and 47.7% females, 49.1% control and 50.9% intervention. 76.8% high SES, 22.5% low SES. 9.7% maternal age ≤25 and 90.3% maternal age >25. 17.6% were diagnosed with asthma at 1 year. 22.1% with +SPT to food. 44.2% were 1st born. Children were assessed at 2 (n=472, 95.7% and 7 (n=380, 77.1%). At 15 years, 326 (66.1%) participants returned; 55.8% males and 44.2% females (p=0.02). 44.5% control and 54.6% intervention (p=0.05). Maternal age >25 (OR=1.73, 95% CI 0.95-3.16, p=0.05), asthma diagnosis (OR=1.53, 95% CI 0.91-2.57, p=0.066), high SES (OR=1.37, 95% CI 0.88-2.11, p=0.1) and +SPT (OR=1.23, 95% CI 0.78-1.95, p=0.22) were all associated with higher rates of return. While 138 participants returned with no sibling(s) at enrollment (OR=0.81, 95% CI 0.56-1.18, p=0.16).

**Conclusions:** Participants with sibling(s) at birth had no significant difference in retention. Maternal age was the most likely predictor of participant drop out. Female participants, low SES, negative skin prick test to food and no asthma diagnosis at age 1 showed a trend towards dropout. When establishing future asthma and allergy cohorts, specific retention strategies should be considered for groups identified at risk for drop out, especially for younger mothers and female participants.  


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**Introduction:** On March 11, 2011, the Tohoku region and some prefectures along the Pacific coast of Japan were hit by the Great East Japan Earthquake. Past experiences of tsunami in other countries also raised concern about the health of the local people after the disaster. To monitor the health status of people living in Miyagi prefecture and to raise concern about the health of the local people after the disaster, focusing on allergic diseases, Health, education, healthcare delivery and quality of children were potential subjects. During the screening survey, we will report the rate of response to the questionnaire and some of the results obtained.  

**P220 Health outcomes, education, healthcare delivery and quality – 3051. Profiles of diagnosis and treatment of asthma in the public health system in Brazil**

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**Background:** Despite existence of several guideline resources, diagnosis and management of asthma remains a challenge in the real world. We aimed to evaluate diagnosis and treatment profiles among patients and physicians in the context of the Public Health System in Ribeirao Preto, a city in Southeast Brazil.

**Methods:** ISAAC and ECRHS based questionnaires were used in a survey of 400 patients (109 children) who presented to the Emergency Department (ED) in the North District of the city with symptoms of asthma during the month of July 2011 (midwinter), to assess definition of asthma. A validated questionnaire was used to evaluate knowledge of asthma among physicians and other health care professionals working in Public Health Outpatient Clinics in the same area. Records of asthma medication delivered to the ED and of those provided to patients upon physicians’ prescription were analyzed within the period of August 2010 to July 2011.

**Results:** Questionnaires for assessment of definition of asthma revealed that 82.3% and 89% of children and adults reported symptoms of asthma in the past twelve months, respectively. However, only 12.8% and 12.8%; and 21.3 and 19.6% of children and adults reported asthma ever or MD diagnosis of asthma, respectively. Among health care professionals, Physicians, Nurses and Pharmacists performed significantly better than Technical Professionals or Community Health Agents, with mean rates of correct responses to the questionnaire of 84.7%, 63.2% and 57.6%, respectively. Within one year, 835 20ML-vials of Fenoterol and 2,280 20ML-vials of Ipratropium Bromide were dispensed to the ED; as compared to 133 10ML-vials of Albuterol (F/A ratio 6.3) nebulization solutions. Physician’s prescription resulted in delivery of 2,876 units Beclomethasone spray; 3,205 units Albuterol spray, but also of 1,782 120ML-vials Albuterol syrup, 634 30-pack Albuterol oral tablets, and 1,570 30-pack oral Aminophylline, to outpatient users of the Public System.

**Conclusions:** Asthma was under-diagnosed among patients seeking care for asthma symptoms in the ED. Treatment of asthma in the ED relied on use of Fenoterol and IpratropiumBromide, often in association, by nebulization. Outpatient treatment included prescription of oral medica- tions for asthma. Diagnosis and treatment of asthma could be improved in this Public Health setting in Brazil.
In this study we compare the anti-IgE treatment modality in levels, FEV1/FVC rates and asthma. Most of the asthmatic patients included as controls. Plasma levels of cytokines were measured. Total and specific IgG levels of anti-IgG monoclonal antibody treated patients, serum high-sensitivity C-reactive protein levels, FEV1/FVC rates and asthma control test (ACT) were measured for the clinical follow-up.

Conclusions: We observed that patients who had SPA whom were treated with anti-IgE monoclonal antibody presented increased levels of IL-8, TGF-β and GCSF during the treatment period of sampling times at 4 months and 18 months. However this increase was not correlated neither with serum hsCRP levels nor FEV1/FVC rates. We also noted that the levels of these cytokines did not differ between newly diagnosed allergic asthma patients, non-treated asthma patients and control.

P222
Health outcomes, education, healthcare delivery and quality – 3053.
Is it necessary to re-evaluate the airway hyperresponsiveness while in the treatment of mild asthma?
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Background: Airway hyperresponsiveness (AHR) is one of the typical characteristics of asthma, but its natural course is not known. While asthma is under medical treatment, whether their AHRs are present or not is hardly assessed. In mild asthma, we investigate the change of AHR in comparison to clinical parameters.

Methods: Patients diagnosed with asthma, but asymptomatic for more than 3 months while undergoing medical treatment were enrolled. AHR was measured through methacholine bronchial provocation test after a 2-week wash-out period. AHR-negative was defined as PC20 is greater than 25mg/mL. Clinical parameters were compared retrospectively between the AHR-negative and the AHR-positive patients.

Results: Among 54 patients, 22 (40.7%) were AHR-negative. The considerable factors for the maintenance of AHR is male sex, presence of dyspnea at initial presentation and high dose inhaled corticosteroid plus long acting beta agonist at initial presentation (respectively, p < 0.05). Age, symptoms other than dyspnea, blood tests, results of the spirometry, diagnostic methods at presentation and time intervals from diagnosis to follow-up tests showed no difference between AHR-negativity and AHR-positivity. Multivariable analyses failed to show a statistical significance in the two groups.

Conclusions: In mild asthmatics, about 40% might show no AHR, the clinical remission of the disease. Changing AHR status in mild asthma while undergoing medical treatment is not predictable, so that cessation of regular controller medication might be advocated, and then a reassessment of AHR should be mandatory.

P223
Health outcomes, education, healthcare delivery and quality – 3055.
Relation between gastroesophageal reflux disease and asthma
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Background: The Gastroesophageal Reflux Disease (GERD) is not associated with the increase the acid secretion, but by failure of the antireflux barrier with one basal histamine of the inferior sphincter of the esophagus that can be because of the medicines like Xanthine, Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), alcohol or anticolinergics. The Asthma and GERD are common medical affections and recent studies show that often they coexist. The GERD paper as leading factor of the asthma can precipitate the ERGE. This investigation purposed to demonstrate the interrelation between Gastroesophageal Reflux Disease and Bronchial asthma

Methods: By means of a descriptive and traverse study of the patients with bronchial asthma of the municipality Regla assisted in consultation of allergy of April – June 2011, being applied a survey to all the greater asthmatic patients of 20 years for clinical confirmation of the Gastroesophageal Reflux Disease.

Results: Demonstrating that 63.8% of the asthmatic ones present GERD, being more frequent in females (64%) and on the group of 40 to 59 years old, the digestive symptom most significant was the postprandial fullness (94%), and digestive extra the cough (81%). The abundant food is the main factor of risk of the ERGE (69%).

Conclusions: Most of the asthmatic patients suffer Reflux, being demonstrated the narrow relationship among these pathologies. It exists ignorance that the symptoms can be unchained by the GERD and that this last one is increased by Xanthine, NSAIDs, and abundant foods.

P224
Health outcomes, education, healthcare delivery and quality – 3056.
Constructed supporting program improves asthma treatment outcomes in children
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World Allergy Organization Journal 2013, 6(Suppl 1):P224

Background: Children with asthma and their parents usually can not cope with this disease leading to poor control. A constructed supporting program can improve treatment outcomes.

Methods: We conducted an open-label randomized controlled trial to investigate the impact of support intervention to the outcome of parents of asthmatic children. The constructed supporting program includes scheduled one-by-one and group asthma knowledge education, treatment adherence reinforcement, family support course, and telephone follow-up. The differences of parental knowledge of asthma, medication adherence, hospital re-admission, and health care resource usage between two groups were compared.

Results: The study enrolled 130 parents of asthmatic children who were randomized into 2 groups in the Pediatric Allergic Clinic of the Chang Gung Memorial Hospital. The experimental group (65 parents) who received support program and training course in addition to the regular care provided to the control group. There was less emergency room visits in experimental group (6 month, p<0.05). The understanding of the disease was much improved in parents of experimental group (10.69±1.04 versus 11.91±2.14, p<0.001). Furthermore, parents acquired a more positive attitude to asthma and had better adherence The control group without supporting program presented with irregular follow-up and poor compliance of medication usage.

Conclusions: This study emphasizes that a support program in children with asthma must be an important part of treatment and it can reduce unpredicted health care resource usage. used to educate parents in how to provide the best treatment plan for their children. It may play a significant role in reducing asthma progression and morbidity of late stage asthmatic children.

P225
Health outcomes, education, healthcare delivery and quality – 3057.
Randomized, double blind comparative study to assess safety, efficacy with mometasone & foroterol versus fluticasone & foroterol dry powder inhaler (DPI) in the treatment of mild to moderate persistent asthma
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World Allergy Organization Journal 2013, 6(Suppl 1):P225

Background: Asthma is a problem worldwide, with an estimated 300 million affected individuals. Mometasone being newer drug has low
systemic bioavailability, high glucocorticoid receptor affinity and modifies inflammatory mediators involved in the pathogenesis of asthma. Mometasone significantly improves PFT and symptom control in patients with asthma when used in combination with Formoterol. There are very few studies conducted to assess the safety and efficacy of Mometasone group (Mometasone & Formoterol) versus Fluticasone group (Fluticasone & Formoterol). Hence the present study was undertaken to assess the safety and efficacy of Mometasone group versus Fluticasone group using DPI in patients with mild to moderate persistent asthma and also its effect on symptom control and frequency of rescue medication use.

Methods: The present study was conducted in PMU, Bangalore during March 2011-2012. 60 patients were recruited in each arm based on inclusion and exclusion criteria. PFT was done pre and post bronchodilator with Salbutamol nebulization with Spirometry. Study medications were randomized, double blinded and were given for 12 weeks & comparison was done to know safety, efficacy and frequency of rescue medication use before and after treatment in asthmatics. Statistical test - descriptive statistics, repeated ANOVA, Z- test, t- test.

Results: Out of 60 patients in Fluticasone group, 11 developed adverse reactions- 4 developed recurrent URTI whereas in Mometasone group- 7 developed adverse reactions- 2 each developed recurrent URTI & hoarseness of voice. There was an overall improvement in lung function test (FVC, FEV1, FEV1/FVC, FEF25-75, PEF) between Mometasone and a Fluticasone group which was statistically significant when compared within the group (P<0.001), but was not significant when compared between the groups suggesting both are equally efficacious. There was a significant reduction in symptoms before and after treatment within the group, but the reduction was not statistically significant when compared between the groups suggesting both are equally efficacious. There was a significant reduction in dosage of rescue medication used from baseline to the end of 12 weeks in Mometasone group compared to Fluticasone group (t value= 6.96; P=0.001).

Conclusions: Both Mometasone +Formoterol and Fluticasone+ Formoterol combinations were safe and equally efficacious in treating asthmatics.

P227
Health outcomes, education, healthcare delivery and quality – 3060. Assessment of parameters of six-minute walk test (6MWT) in healthy young subjects

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Table 1 (abstract P227)

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<thead>
<tr>
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<tbody>
<tr>
<td>Height</td>
<td>male: 165.55+-7.25 cm</td>
<td>female: 157.97+-7.95 cm</td>
</tr>
<tr>
<td>Weight</td>
<td>male: 63.53+-6.67 kg</td>
<td>female: 54.85+-5.41 kg</td>
</tr>
<tr>
<td>Body mass index(BMI)</td>
<td>male: 23.15+-1.02</td>
<td>female: 21.94+-0.79</td>
</tr>
<tr>
<td>Mean 6MWT distance</td>
<td>male: 570.21+-35.77 meters</td>
<td>female: 494.27+-34.24 meters</td>
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1. Strong correlation between height, weight, BMI and 6MWT observed in both males and females. Table 2.
Mean 6MWT distance by males was higher than that of females for the same height. Table 3.
Conclusions: Mean 6MWT distance was : male- 570.21+-35.77 meters, female-494.27+-34.24 meters.

Correlation was strong for height, weight, and BMI with the 6MWT distance. Men had higher mean 6MWT distance than women for the same age, weight and BMI.
P228
Health outcomes, education, healthcare delivery and quality – 3063.
Cost-effectiveness of immunotherapy for children with atopic dermatitis
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Background: The study was aimed at evaluating the cost-effectiveness of immunotherapy (IT) for children (Ch) with atopic dermatitis (AD).

Methods: There were examined 94 Ch aged 3-18 years with AD and duration of disease 1-15 years. Patients underwent the standard general clinical and immunological and allergy survey. The treatment consisted of 2 stages: traditional therapy (TT) for reducing disease complications, and IT. Patients were divided in 3 groups: I group (n=30) received stepped therapy with immune response-modulating agent (IRMA) in course dose of 20mg; II group (n=31) was treated with parenteral accelerated allergen-specific immunotherapy (APAI); III group (n=33) received combination of IT - CIT (IRMA+APAI) on the fast track scheme. Pharmacoeconomic assessments were performed using cost-effectiveness analysis.

Results: The cost of a pack of IRMA was $7.67. The cost of 1 year APAI was $32.2. After 2 courses of IRMA the TT costs in I group were $189.69±1.08, in II group– $69.14±0.93, and in III group– $32.34. Three years of 2 consecutive courses in I group resulted in mean treatment costs of $569.06; 3 consecutive courses in II group– in mean treatment costs of $104.00, and $97.01 in III group for the same period. In addition, CIT provided long-term remission, reduced number of hospitalization, prevented AD progression, improved skin condition of children with AD, thus normalizing emotional balance. Furthermore there was indirect costs minimization - 2/3 reduction of parents’ sick leaves payments.

Conclusions: The clinico-economic analysis showed that despite the complexity of APAI, CIT method improves the quality of life of children with AD, provides pharmacotherapy and medical services costs reduction, and it is more cost-effective.