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Background: Regulatory T cells (T-reg) expressing FOXP3 inhibit the development of T cells towards Th2. In this work we hypothesized that FoxP3 is responsible for the development of exacerbations in asthma.
Aim and objectives: To investigate the levels of CD4+FOXP3+ in moderate BA with different frequency of exacerbations compared to healthy donors.
Methods: We included 20 patients with moderate asthma, which were divided into 2 groups. The first group (n=16) had at least 1 exacerbation of asthma during the previous year, the disease duration was 7,5 (3,0:12,0) years, FEV1 - 81,2 (72,2:89,4)%. The second group (n=4) with moderate BA had 2 or more exacerbations of asthma in the previous year, the duration of the disease was 14,5 (9,0:23,0) years, FEV1 - 78,4 (74,4:89,8)%. The control group was included 17 healthy adults. Peripheral blood mononuclear cells were isolated in Ficoll density. The circulating percentage of CD4+FoxP3+ T-regs in peripheral blood was estimated by the flow cytometry analysis (FACSCalibur Becton Dickinson, USA) using appropriate monoclonal antibodies.
Results: It was found that moderate asthma is characterized by significantly lower CD4+FoxP3+ T-reg 0,99 (0,72:3,77)% compared to healthy control - 8,16 (7,66:9,42)% ($p<0,01$). The level of CD4+FoxP3+ was higher 1,8 (0,8:4,7)% in patients who didn't have the exacerbation of BA, or had a single acute of asthma compared to individuals, who had more than 2 exacerbation of asthma in the previous year - 0,53 (0,4:0,9), p=0,039.
Conclusions: FoxP3 is responsible for the development of exacerbations in asthma. Possible, the low level of transcription factor FoxP3 is closely related to 2 or more exacerbations of BA per year.

P1949

237. Phenotypes and mechanisms of treatment of asthma

P1948
Low level of FoxP3 in bronchial asthma (BA) is associated with frequent exacerbations
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P1950
The potential mechanism of Th17/Treg imbalance in the microenvironments of chronic inflammation and allergic asthma
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Objective: Recent studies have shown that Tregs can differentiate into IL-17+Foxp3+T cells in the colitic microenvironment and allergic rhinitis. However, the biology of CD39+Treg cells, IL-17+Foxp3+T cells and Th17 cells, and the relationship among these three kinds of cells remain poorly understood in allergic asthma.
Methods: We investigated the proportions of Th17, CD39+Treg cells and IL-17+Foxp3+T cells in peripheral blood from allergic asthmatics and healthy controls by flow cytometry. All patients were allergic to house dust mites. Dermatophagoides pteronyssinus specific IgE levels, pulmonary function and Asthma Control Questionnaire were assessed. Moreover, the associations among all these kinds of index and disease severity were analyzed.

Result: There was a deficiency in the frequency of total Tregs in asthmatics, whereas the frequency of Th17 cells, IL-17+Foxp3+T cells, CD39+Treg cells and plasma IL-17 levels were increased in moderate to severe asthma. FEV1 (% predicted) was negatively correlated with the frequency of Th17 cells, IL-17+Foxp3+ T cells, CD39+Treg cells and plasma IL-17 levels, and positively correlated with the frequency of total Tregs. Moreover, the frequency of Th17 cells and IL-17+Foxp3+T cells were positively correlated with the frequency of CD39+Treg cells.
Conclusion: Our findings suggest that the increased expression of CD39 on Tregs in asthma can offset the other decreased immunosuppressive functions of Tregs. And Tregs in the microenvironment of asthma also have plasticity of differentiate into IL-17+Foxp3+T cells. CD39+Treg cells play an important role in constraining pathogenic Th17 cells and IL-17+Foxp3+T cells.

P1951
Expression of the β2-adrenoreceptor and M3-cholinoreceptor genes in patients with different severity of asthma and BHR level
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Background: Persistent airway inflammation, as well as nervous innervation of bronchial smooth muscles plays the main role in the formation of BHR, one of the key characteristic of asthma.
Aim and objectives. To evaluate the β2-adrenoceptor (*ADRB2)* and M3-cholinoreceptor (*CHRM3*) gene expression in bronchial mucosa of patients with different severity of asthma. We hypothesized that the differential expression of these genes may contribute to the different BHR level.
Methods: Biopsy specimens of right middle lobar bronchus were obtained from 30 asthma patients (13 with severe, 9 with moderate, and 8 with mild). The inclusion criteria followed the GINA, 2009. All subjects underwent a routine medical history taking, physical examination, spirometry, BHR measurement. The mRNA levels for the *ADRB2* and *CHRM3* genes in bronchial mucosa were revealed using quantitative RT–PCR (iQ SYBR Green Supermix, BioRad, USA), mRNA levels were then recalculated as 2^{-ddCt} to the *GAPDH* mRNA.
Results. An increase of the *ADRB2* and *CHRM3* genes expression was demonstrated in patients with severe asthma (*ADRB2* mean=0.54; 95%CI 0.50-0.59; *CHRM3* 0.57; 0.53-0.60) as compared to patients with mild (*ADRB2* 0.34; 0.32-0.36; *CHRM3* 0.48; 0.46-0.49) and moderate disease (*ADRB2* 0.27; 0.25-0.29; *CHRM3* 0.46; 0.43-0.49) ($p<0.05$). It was revealed by correlation analysis that the level of the PC20 is negatively correlated with the mRNA levels of the *ADRB2* and *CHRM3* (R=-0.67 and -0.52, respectively; $p<0.005$), thus a high level of gene expression is associated with a high BHR.*Conclusions.* The differential expression of the *ADRB2* and *CHRM3* genes is associated with asthma severity and BHR level.

P1952
Changes in skin prick test reactivity over 7-14 years in a population of food allergy children and asthmatic symptoms
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Background: Allergic disorders are an increasing health problem among children.
Aim: To describe the prevalence of sensitization to common food and inhalant allergens at different ages and the association with asthmatic symptoms.
Methods: 174 children with positive Skin Prick Test (SPT) to at least one food allergen at <36 months were called after a follow-up period of 7-14 years to repeat SPT, to complete a questionnaire about asthmatic symptoms, and to perform spirometry.
Results: 174 children complete the questionnaire: 25.8% had wheezing, 34.4% had dry cough and 35.6% reported diagnosis of asthma. At the first observation 65 (37.3%) had positive SPT only to food allergens(F) and 109 (62.6%) had sensitization to food and inhalant allergens (F+I). At the second observation in the group with single sensitization to F 50% lost sensitization, 10% retained sensitization to food and developed sensitization to inhalants (F+I) and 40% showed sensitization only to inhalants. In the group with double sensitization (F+I) at the first observation: 50% remained positive to both allergens (F+I), more than 40% were positive only to inhalants and a small percentage (<10%) became negative. The sensitization profiles differed significantly between two groups (F and F+I). FEV 1 and FEF25-75 were significantly lower in the group F+I at the first observation than in the group F ($p<0.01$).
Conclusion: We found an association between changes in SPT positivity and the development of asthmatic symptoms. The double sensitization (F + I) as well as the early sensitization to alants would seem to correlate with the persistence of the allergy and with the development of respiratory disease.

P1953
Comparison of different instruments to obtain nasal epithelial cells from human volunteers
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Introduction: Nasal epithelial cells have been shown to be good surrogate markers for bronchial epithelial cells. We aimed at comparing different brushing instruments allowing collection of nasal epithelial cells.
Methods: Nasal epithelial cells were obtained by brushing the inferior surface of the middle turbinate of both nostrils using three different instruments: a cytology brush, a flocked nasal swab and a nasal mucosal curette. Cell cultures were established by seeding the cells into medium. Cell count, cell viability, success rate in establishing cell cultures and the acceptability to subjects were compared between groups
Results: 60 human subjects (median [IQR] age: 34 [27-36] years) were brushed. Higher number of cells were obtained using brushes (9.8 [6.7-33.5] x 10^5 cells/mL) compared to swabs (2.5 [1.5-4.0] x 10^5 cells/mL, $p<0.0001$) and curettes (1.3 [1.0-2.1] x 10^5 cells/mL, $p<0.0001$). Viability was similar for cells obtained using brushes (42 [14-78] %), swabs (54 [15-71] %) and curettes (54 [25-69] %). Cells obtained by brushes reached confluence fastest (6 [6-10] d), followed by cells obtained by curettes (11 [9-15] d, n.s.) and swabs (19 [13-21] d, $p=0.0001$). Success rate in establishing primary cell cultures (~ 90% confluent cell layers within 21 days in a 12.5 cm^2 cell culture flask) was 90% with brushes, 65% with swabs and 85% with curettes. Pain intensity was similar for all instruments, brushes (3.0 [2.0-5.8] out of 10 on the pain scale), swabs (2.5 [1.0-4.0] and curettes (3.0 [2.0-5.0]).
Conclusion: All three types of instruments allow collection and growth of human nasal epithelial cells, with good acceptability to subjects. The most efficient instrument is the nasal brush.

P1954
The inflammatory response of pulmonary vascular smooth muscle cells to bacterial endotoxin is sensitive to endothelin receptor antagonism
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Bacterial infections cause exacerbations of chronic inflammatory lung diseases by aggravating airway inflammation. Current therapeutic strategies like steroid administration have proven unsatisfactory e.g. for COPD and highlight the need for new approaches.
We aimed at elucidating the inflammatory response of pulmonary vascular smooth muscle cells (PVSMCs) to LPS, and whether this response is sensitive to antagonists of endothelin A receptor (ETAR) (Ambrisentan), ETBR (BQ788) or both receptors (Bosentan).
PVSMCs of n=4 donors were incubated with highly purified smooth LPS (S-LPS), highly purified short-chain LPS (Re-LPS, shortest form) or M-LPS (mixture of long and short forms) of Salmonella spp. or with Lipooligosaccharide (LOS) of nonetypeable H. influenzae (NTHi) or with NTHi extract in absence or presence of endothelin receptor antagonists (10^{-7}-10^{-5} M) for 72 hours and cytokines were measured by ELISA.
All LPS-forms and NTHi extract induced concentration-dependent IL-6, IL-8 and GM-CSF release from PVSMCs (each $p<0.05$). M-LPS and LOS were most effective. The effects of M-LPS were completely abolished by polymyxin B and CLI-095 (TLR4 inhibitor) but not affected by TLR2/TLR9 inhibitors. M-LPS-induced IL-6 was reduced by all endothelin receptor antagonists (each $p<0.05$). IL-8 and GM-CSF were reduced by Bosentan and BQ788 but not by Ambrisentan (each $p<0.05$).
PVSMCs contribute to the inflammatory response to bacterial infections and thus can prove to be a therapeutic target in exacerbations of chronic airway diseases. Cytokine release shows specific reactions to dual vs. selective endothelin receptor blockers which can be useful in therapy.

P1955
Asthma and vitamin D
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Objectives: Recent studies indicate a relationship between low vitamin D level and asthma pathogenesis. The aim of this prospective study is to evaluate vitamin D levels in asthmatic patients and investigate the relationship between vitamin D and asthma pathogenesis.
Material and method: 112 asthmatic patients and 94 healthy people who admitted to Cukurova University Chest Diseases Department were included. The age and gender of asthmatics and control group were similar. The demographic data were recorded. Both asthmatics and control group had detailed pulmonary function tests and their serum vitamin D levels are studied with liquid chromotography.

Results: 86 (76.8%) of asthmatics were female, 26 (23.2%) were male. Mean age of asthmatics were 43.6±14.1. Sixty two (66%) of control group were female and 32 (34%) were male. The age and gender were similar between asthmatics and control group. No statistically significant difference was determined between vitamin D levels of asthmatics and control group (p=0.27). The mean vitamin D level of asthmatics was 25.19±12.01, of control group was 27.09±12.9 ng/ml. When the mean Vitamin D levels were compared in asthmatics according to gender, the mean vitamin D level of female patients was significantly lower than the male patients (23.88±11.92 ng/ml in females and 29.52±11.48 ng/ml in males) (p=0.03). Again in asthmatic patients, a significant positive correlation is determined between the forced expiratory volume in first second and serum vitamin D level (p=0.004).
Conclusion: With these results, it is thought that vitamin D levels could be associated with asthma pathogenesis especially in females and poor lung functions.

P1956
Level of vitamin D is decreased in asthmatic patients
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Background and aim: 1.25-Dihydroxy vitamin D (1.25[OH]D) has long been recognized as a critical mediator in bone health. Several studies of resent years have shown the relationship between chronic inflammatory lung diseases and Vitamin D serum levels. The aim of this study was to elucidate Vitamin D levels in allergic asthma (AA) and non allergic asthma (NA) patients, and to compare these results with healthy subjects (HS).
Methods and material: Eighteen patients with AA, 14 with NA, as well as 10 HS were involved to the study. 1.25[OH]D levels in serum samples were analysed by ELISA. Eosinophil count was evaluated in induced sputum and peripheral blood samples.
Results: We found that vitamin D levels in asthmatics were lower compared with HS: in asthmatic group 66.93±21.5 pmol/L vs HS 134.5±20.1 pmol/L, $p<0.05$. However in AA (81.06±21.5 pmol/L) and NA (52.8±21.5 pmol/L) significant difference of 1.25[OH]D was not obtained. Level of 1.25[OH]D significantly negatively correlated with eosinophil count in induced sputum ($r=-0.72$, $p<0.05$) and in serum ($r=-0.54$, $p<0.05$).
Conclusions: Levels of vitamin D is decreased in patients with asthma. It let us hypothesize that 1.25[OH]D may be important in the pathogenesis of asthma.

P1957
Complex treatment of allergic bronchopulmonary aspergillosis (ABPA) in asthmatic patient including anti-IgE therapy – A case report
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Background: ABPA is an immunologic pulmonary disorder caused by hypersensitive reactions to Aspergillus fumigatus colonizing patient's bronchial tree. The prevalence in general population is between 1-2%, in patients with corticosteroid dependent asthma and cystic fibrosis in about 8-10%. Early and correct diagnosis along with its adequate treatment is essential in preventing of bronchiectasis which presence is associated with unfavorable prognosis of this disease. The standard treatment includes systemic corticosteroids (SCS) and antifungal agents (AFA). The biological therapy in ABPA is discussed.
Methods: A case report of 56 year old woman with ABPA, manifested as uncontrolled severe persistent asthma with frequent exacerbations. We compared effects of 1. standard inhaled CS treatment, 2. combination of SCS with AFA and 3. Anti-IgE therapy using lung function tests, FENO, total IgE level, spec.IgE level to Aspergillus fumigatus, ACT questioner and clinical course assessment.
Results: We found significant improvement in all parameters after 4 weeks of SCS + AFA therapy. Significant improvement has been observed in all parameters after 16 weeks, 8 months, 1year and 2 years of anti-IgE, with no need of AFA and SCS. Only one exacerbation of ABPA was observed during 24months of anti-IgE treatment. No adverse effects from anti-IgE therapy were observed.
Conclusion: Anti-IgE therapy could prove to be an alternative targeted treatment options in patients with ABPA. Successful response to anti-IgE in severe asthma patients with ABPA could result in reduced need of AFA and SCS therapy, stable lung function and lower risk of exacerbations.

P1958
Antineutrophil cytoplasmic antibody (ANCA) associated lung-renal vasculitides: A single centre perspective
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Introduction: Small to medium vessel vasculitides are a rare cause of multi-organ failure.
Methods: This is a single centre retrospective review of systemic vasculitides, with respiratory involvement.
Results: 23 patients (14 Male; 9 Female, mean age 45 (Range 14 to 70) years), presented with vasculitis and significant respiratory involvement, including 17 with ANCA+ vasculitis, 3 ANCA-Neg, and 3 with Churg Strauss Syndrome (CSS). 2 patients had isolated airways disease, 4 systemic non-organ threatening disease, and 14 generalised disease, 7 requiring ventilation and renal replacement.
15 of 20 patients had a biopsy procedure including nasal, skin, bronchial and renal biopsy. 2 patients with ANCA+ vasculitis and 3 with CSS were diagnosed clinically.16 of 20 patients recieved corticosteroids (CS) and cyclophosphamide induction. Maintenance therapy included CS and Azathioprine or Mycophenalate Mofetil. Patients presenting with diffuse alveolar haemorrhage or renal failure received plasma exchange. Rituximab was reserved for patients intolerant or not responding to Cyclophosphamide, or serious relapses, including cerebral vasculitis. Tracheal stenosis (n=1) required recurrent balloon dilatation. Cavitatory pulmonary disease, pneumothorax and aspergillus disease, responded to CS, iv Immunoglobulin and Rituximab.
16 patients relapsed requiring further induction treatment. There were 3 deaths, 1 renal transplant, 1 lung transplant, and 1 end stage renal failure on haemodialysis. The majority of patients are asymptomatic on low dose immunosuppression.
Conclusions: Pulmonary vasculitis requires a high index of suspicion to ensure prompt diagnosis and treatment to avoid end organ damage.

P1959
Phenotypes of adult-onset asthma by cluster analysis
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Rationale: Asthma phenotyping is of increasing importance to identify patients who could benefit from personalised therapeutic strategies. Several studies suggested that adult-onset asthma is a specific phenotype. In order to explore underlying mechanisms of adult-onset asthma, we aimed to identify subphenotypes by using unsupervised clustering. methods
Methods: 200 patients with adult-onset (>18yr) asthma (60.5% female; age 54 (26-75) yr, 45% atopic) were characterized with respect to clinical, functional and inflammatory markers. Initial variable reduction was achieved by elimination of redundant data and factor analysis. K-means non-hierarchical cluster analysis was performed to identify clusters
Results: We identified three clusters of adult-onset asthma. Cluster 1 (n=41) consisted of predominantly females, with higher BMI and more often of non-Caucasian descent. They showed higher symptom scores, higher health care utilization and frequent exacerbations. However, they had lower sputum eosinophils and normal exhaled nitric oxide (FeNO) levels. Cluster 2 (n=69) consisted of predominantly females with severe asthma. They showed high symptom scores and frequent exacerbations, with reduced lung function, elevated sputum eosinophils and relatively high FeNO levels. Cluster 3 (n=90) consisted of predominantly males with mild-moderate asthma, normal lung function, minimal symptoms and health care utilization.
Conclusions: Non-hierarchical cluster analysis identifies three subphenotypes of adult-onset asthma that can be distinguished by gender, symptom severity, BMI, lung function and airway inflammation. Identifying these subphenotypes can help to investigate the associated pathobiology and provides new directions to personalized management.

P1960
Asthma phenotypes in Turkey: A multicenter study
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Introduction: The aim of this study was to determine the distrubition of phenotypes in patients with asthma in Turkey.
Materials and methods: A total of 1400 adult asthmatic patients from 13 centers

of different geographic locations were involved. A standard questionnaire was applied between February -December 2011.
Results: The percentage of females was 75%. Severity of the disease was found as mild persistant in 10%, mild intermittant in 40%, moderate in 38% and severe in 12%. 12% of the patients had irreversible airway obstruction. Smoking/quitted patients were 34% of the study group, 42% of the patients had obesity (BMI> 30), 11% had analgesic intolerance and 29% had psychological triggers. Smoking rate was found to be lower in females (p<0,01) whereas the rate of obesity, analgesic intolerance and psychological triggers was higher in females (p<0.01) than males. Allergic asthma phenotype consisted 46,2% of the study group. Total control rate was found as 22%; which was higher in males compared to females (29% vs 19%) (p<0,01). There was no difference between genders in term of partial control however uncontrolled asthma was more frequent in females than males (31% vs 22%) (p<0.01). Pulmonary function tests, total IgE values, skin prick test results and severity of disease were all comparable between males and females. The most frequent comorbidities were chronic rhinitis/rhinosinusitis (49%) and reflux(34%). It was found that the cases with lower asthma control levels had higher rates of analgesic intolerance and multipl comorbities (p<0.01)
Conclusion: To our knowledge this is the first study on asthma phenotypes in our country and we believe that it will have significant contribution in obtaining control in our asthma patients.

P1961
Asthma and atopy: How much is it really attributable? About a representative population of Tunis
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Introduction: In recent decades it has become routine to describe asthma as an atopic disease. We carried out this study to evaluate the prevalence of asthma and assess the association of atopy with asthma in individuals and in population.
Method: A cross-sectional survey, single pass, representative of the general population was carried out in subjects aged from 2 to 50 years. Informed consent was obtained. Prevalence was determinate through questionnaires, validated and used in international surveys, corresponding to the asthma screening and lung function test. Definition of atopy was based on clinical symptoms of rhinitis and allergy skin. Statistical analysis was performed using SPSS 18.0.
Results: The study included 4470 subjects. There was 40.2% male and 59.8% female. Current asthma prevalence was 6.8% in adults and 5.9% in children. Lung function test showed reversibility in 20%. The proportion of asthma cases that are "attributable" to atopy (defined as rhinitis and allergy skin) was estimated by the "population attributable risk". About 53.5% of children and 43.8% of adults with asthma have suffered from rhinitis (OR=3.8, p<0,001). Positive correlation was also found between asthma and skin allergy: (15.8% versus 5.8% OR=3.5, p<0.001). There was no significant difference between adult and children in neither between male nor female.
Conclusions: There is evidence of an association of the prevalence of atopy with the prevalence of asthma. Higher estimation can be obtained by using skin allergy tests and total serum IgE witch will be the purpose of the phase 2 of our study.

P1962
Asthma registry, a path to uncover pitfalls in asthma
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Background: Demographic aspects of different variants of asthma are not well known. It seems necessary to register and follow all age patients with asthma in a tertiary respiratory referral center to uncover many pitfalls in diagnosis and treatment.
Aim: We have developed Asthma Registry System which includes pediatrics and adolescents' patients in NRITLD, the largest respiratory referral center in Iran, in order to register and report asthma prevalence, demographic characteristics and follow-ups.
Methods: Asthma Registry software was developed and launched in September 2011, and thereafter all patients referred to our clinics were visited, diagnosed and followed up by Allergist. All demographic and follow data were recorded in the system.
Results: 163 patients with proved asthma based on clinical and labs were recorded in the Registry System. Among this, 79 males and 84 females were recorded. 26.6% of patients had less than 6 years age, 27.2% between 6-18 years old and 34.8% had more than 18 years old. 71.2% of patients symptoms aggravated with upper respiratory tract infections, 45% had exercise induced asthma, and 21% aggravated with aeroallergens, and more interestingly 88% aggravated with air pollution. 2.2% had mild intermittent asthma, 31% had mild persistent, 60% had moderate persistent, and 6.5% had severe persistent asthma. Accompanying disease were allergic rhinitis in 39.7%, dermatitis atopic in 15%, drug allergies in 4.9%, and urticaria in 7.6%. Chief complaints were cough in73%, wheeze in 46%, and dyspnea in 88%.
Conclusion: Our study indicates the need for a thorough analysis of demographic data, labs, and follow ups in asthma patients by a Registry System in a respiratory referral center.

P1963
Evaluation of asthma patients using the control of allergic rhinitis and asthma test (CARAT)
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Introduction: Asthma and allergic rhinitis are diseases often associated. According to international guidelines a combined approach of both conditions is recommended. The Asthma Control Test (ACT) is the most commonly used test to assess asthma control, but lacks an evaluation of the upper airway disease component. Recently a new test was created to assess the control of both components – the CARAT.
Aim: To evaluate asthma control in patients with associated rhinitis, by using ACT and CARAT tests, and compare results.
Methods: We performed a prospective study with a group of consecutive adult patients with allergic rhinitis and asthma from our outpatient clinic. The control of the disease was assessed using both ACT and CARAT tests.
Results: Forty patients were evaluated (mean age 53, 70% female). 17% of the patients had ACT controlled asthma and 45% had ACT uncontrolled asthma. In both groups CARAT results were equivalent.
In the 38% patients with ACT partially controlled asthma, CARAT results were as follow: 26% had a controlled CARAT test; 27% had an uncontrolled CARAT test due only to an uncontrolled upper airway component; 13% had only uncontrolled lower airway component and 27% had both airway components uncontrolled.
Conclusions: A tool able to assess both asthma and allergic rhinitis control was lacking. In our patients, using the CARAT was useful mainly in the partially controlled asthma population by helping to differentiate those in whom uncontrolled rhinitis was the main cause of the uncontrolled asthma.

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Correlation of changes of IgE with skin reactivity and clinical outcome during specific immunotherapy against home dust in asthmatic subjects
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Background: Effectiveness of SIT was well documented in many cases and published data. Selection of patients for SIT should be very serious and must include skin test and total and specific IgE measurement. How outcome of SIT correlate with changes of IgE, skin reactivity and overall symptoms reduction is aim of this study.
Material and methods: Skin testing, total and specific IgE measurements were performed before and after each year of treatment. Skin test assessment was performed according to recommendation of Manual of Laboratory immunology. IgE ws performed using ELISA method. Clinical outcome was assessed using AQLQ questionnaire.
Results: During five years period 58 asthmatic subjects with home dust and dermathophagoides allergy were treated by SIT. Bseline total IgE was 488,5 IU/ml (SD 78,9), mean specific IgE against dermatophagoides pteronissimus was 36,5 IU/ml (SD 15,2). Subcutaneous tests showed 15-20 mm weal in 43, and more than 21 mm in 15 cases. After 5 years mean total IgE was 227 IU/ml (SD 9,2) and mean specific IgE was 28,2 IU/ml (SD 8,9). Skin tests showed decrease diameter of weal. In 49 out of all patients clinical outcome were very well, and in 9 satisfied (according to AQLQ questionnaire). Using test of correlation, by linear regression, better correlation was shown between of skin testing and AQLQ than in total or specific IgE. So, in vivo skin tests were better predictor for success of SIT, than measurement of IgE.
Conclusion: Results of skin tests in diagnostic assessment of allergy in asthmatic patients were better predictor of successful outcome of SIT than laboratory measurement of total and specific IgE.

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Salmeterol pharmacokinetics following a 50-mcg dose by dry powder oral inhalation to healthy volunteers

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To date, the pharmacokinetics (PK) of salmeterol xinafoate (SX) following oral inhalation are only sparsely described in the literature (Kirby, S. *et al.* Eur J Clin Pharmacol 2001; 56:781-791; Harrison, L.I. *et al.* J Aerol Med Pulm Drug Del 2011; 24:1-8). Now, improvements in bioanalytical method sensitivity allow full characterization of the pharmacokinetics of SX following administration of the marketed dose (50 mcg). In 2 studies, healthy adult subjects received 50 mcg salmeterol by oral inhalation as Advair Diskus® 100/50 (100 mcg fluticasone/50 mcg SX; Study 1, 23 subjects, 2 Advair batches) or Advair Diskus® 500/50 (500 mcg fluticasone/50 mcg SX; Study 2, 20 subjects). Activated charcoal was not administered to block oral absorption. PK blood samples were collected pre-dose and 3, 4, 5, 7 min with additional serial timepoints to 48 hours (Study 1), or 2, 3, 4, 5, 6, 8 min with additional serial timepoints to 72 hours (Study 2) and processed by a validated LC-MS/MS assay with a 1.00-pg/mL LLOQ. Peak plasma concentration (Cmax) was 153±59 and 151±58 pg/mL (Advair Batches A and B, Study 1) or 185±96 pg/mL (Study 2). Time to Cmax was 4 and 3 min (Study 1) or 3 min (Study 2). By 12 hours postdose the plasma concentration was <5% Cmax. Elimination half-life was 12.9 and 15.4 h (Study 1) or 13.5 h (Study 2). These results illustrate the importance of early frequent sampling to capture SX Cmax followed by observation to 48 - 72 hours to capture 3 - 5 elimination half-lives.