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and 2005, we compared the degree of seriousness of the illness and the type of the preventive therapy. In the group of children (n=65) from the year 1995, average age  $9.28 \pm 1.39$  and from the year 2005, average age  $10 \pm 2.34$ , intermittent, mild persistent and moderate persistent asthma was observed in 33.85% (n=22) vs 53.85% (n=35); 38.46% (n=25) vs 30.77% (n=20) and 27.69% (n=27) vs 15.38% (n=10) of the children. The less serious types of asthma are related to the kind of the administered preventive therapy. Children with asthma from the year 1995 were treated with antihistamines (73.85%) with the statistical significance  $p < 0.001$ ; cromones (26.15%), and inhaled corticosteroids (6.16%). The group of the children from the year 2005 was treated with inhaled corticosteroids in 73.85% of the cases, (with fluticasone 41.54%, budesonide 9.23% and beclomethasone 23.08%, with the average length of treatment of 31.33; 19.5; and 22.27% months, see respectively), cromones 1.54%, antihistamines 1.54% and without prophylactic 24.07%.

There is an increasing trend of intermittent asthma and the decrease in the mild and moderate persistent asthma in 2005 which is related to the choice and the availability of the prophylactic therapy with inhaling corticosteroids.

**P1477****Recurrent wheezing in infants and small children-bronchological aspects**

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Wheezing in early childhood is heterogeneous condition. Determining the etiology of wheezing illness particularly in infants is difficult and sometimes needs numerous investigations.

**Aim:** Role of bronchoscopy in the determination of etiology of recurrent wheezing in early childhood.

**Materials and methods:** Retrospective study of 784 children with history of recurrent wheezing younger than 3 years (mean age 19months). Diagnostic fiberoptic bronchoscopy was performed in 75 (9,5%) children where other procedures were not helpful. Most common conditions (like asthma, post viral bronchiolitis wheezing) were excluded.

**Results:** We found:

reactive bronchial mucosis with clear viscous secretion in 31 (41,3%) children  
chronic inflammation of airways (mucopurulent secretion) in 22 (29,3%)

Dyskinesia – tracheobronchial – 7(9,3%)

Chronic Foreign body (ignored) 4(5,3)

Developmental disorders 4 (5,3%)

Aspiration airways 3(4%)

Tuberculosis 4(5,3%).

**Conclusion:** Adequate approach to recurrent wheezing is important for early therapeutic intervention that may modify the long-term course of the disease. Bronchoscopy is, in number of cases, most useful and needed intervention for resolution of this condition.

**P1478****Asthma and acute infections of upper respiratory tract in children**

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**Introduction:** Acute respiratory infections are main triggers for asthma in early age children. There are frequent respiratory infections in anamneses of asthma patients in early age.

**Aim:** The aim of this study was evaluation of immune response in asthma children with acute respiratory infections.

**Material and methods:** We observed the group of 76 patients aged 2-5 years with asthma and frequent respiratory infections in anamnesis. Children were divided in 2 groups: main group consisted of 40 patients that were treated with interferon inductor for 3 months, control group included 36 children. In the beginning and the end of the study we measured IL-4 and IFN- $\gamma$  level in serum.

**Results:** The study showed that symptoms of acute respiratory infection were less manifested and faster diminished in the main group in comparison with the control group.

Before the beginning of the study there were high IFN- $\gamma$  and IL-4 level both in main and in control groups. In the course of observation we found an increase of IFN- $\gamma$  production in children but there were not found any significant changes in IL-4 level.

Cytokines level in groups

Group	IL-4 (pg/ml)		p	IFN- $\gamma$ (pg/ml)	
	before	after		before	after
main	268,87 $\pm$ 51,44	250 $\pm$ 73,8	0,05	92,1 $\pm$ 16,93	160,87 $\pm$ 56,78
control	265,57 $\pm$ 48,6	275,13 $\pm$ 81,25	0,05	93,2 $\pm$ 15,84	99,35 $\pm$ 19,19

**Conclusion:** There were found changes in cytokine profile and results of treating with interferon inductors are very promising.

## 120. Paediatric asthma and quality of life

**P1476****Comparison of severity of childhood asthma in years 1995 and 2005**

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The objective of this paper is the comparison between two groups of children with asthma of similar ages from the years 1995 and 2005, determining the seriousness of the illness and the type of the administered prophylactic therapy. Using the method of random choice of children with asthma from years 1995

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P1479

**Clinical markers of asthma outcome in adolescents**Tatjana V. Kulichenko, Olga F. Lukina, Vera A. Revjakina. *Allergology, Children Health Center, Moscow, Russia*

Early intervention with anti-inflammatory therapy may improve the short-term outcome of asthma, but long-term studies are clearly needed in order to verify whether or not treatment, especially with inhaled corticosteroids alters the natural history of asthma. Clinical markers of poorly controlled airway inflammation appear to have a negative impact on the longitudinal changes in lung function. This paper aims to give an overview of the clinical markers for different asthma outcome in adolescents. Retrospective analysis of prospectively collected data on 211 adolescents aged 14-17 years with mild to severe asthma (hospital-based study). Demographics and clinical data were analysed. Lung function, serum IgE and skin prick tests were performed in all adolescents. Early onset of asthma, more severe and frequent symptoms in childhood, asthma in relatives and obesity are associated with a worse asthma outcome in adolescents. There was no evidence that female sex, serum IgE level and skin prick tests results are associated with a worse outcome. Severity of lung function abnormality in adolescents is higher in adolescents with poor compliance. No association between FEV1 in asthma remission and ICS-dosis, ICS-therapy duration, total serum IgE, active smoking was found. Lung function was more impaired in adolescents with low compliance. Lung function was significantly lower in adolescents with moderate-to-severe symptoms without ICS-therapy. Combination antiinflammatory and long-acting bronchodilator therapy in severe asthma can better suppress the expression of asthma symptoms, but not the lung function level. An effect of long-term treatment with inhaled corticosteroids on changes in lung function has been difficult to demonstrate.

P1480

**Correlation between atmospheric PM2.5 and number of hospitalization for pediatric asthma attack in Japanese chest hospital**Hirosaki Odajima, Sankai Nishima. *Pediatrics, Fukuoka National Hospital, Fukuoka, Japan; Pediatrics, Fukuoka National Hospital, Fukuoka, Japan*

**Background:** There were little reports about the influence of the PM2.5 on pediatric asthma in Japan.

**Aim:** The aim of this study was to clarify the relationship between the PM2.5 and severe asthma attack in children.

**Subjects and methods:** The patients visited to our hospital over the 1-year period were enrolled. The correlation was investigated between the daily mean value (mean) or maximum value (max) of the PM2.5 and the number of the admitted patients with asthmatic attack (attack).

**Results:** In spring, summer, and fall there was a significant correlation between mean or max of PM2.5 and the number of hospitalization for asthma attack in the age group under 6 years old.

In winter there was no such a relationship.

Only in summer there was a significant correlation between mean or max of PM2.5 and the number of hospitalization of asthma attack in the all age of children.

**Conclusion:** The correlation between the PM2.5 and asthmatic attack was seen especially in the group of the age under 6 years old except for winter.

P1481

**Agreement of asthma diagnosis between primary and secondary care: a study of 385 children according to international guidelines**Sebastiano S.G. Guarnaccia<sup>1</sup>, Andrea A.L. Lombardi<sup>1</sup>, Serena Giulia S.D. Domenighini<sup>1</sup>, Alessandro A.G. Gaffurini<sup>1</sup>, Maria Teresa M.C. Chiarini<sup>1</sup>, Antonietta A.S. Silini<sup>1</sup>, Emanuele E.D. D'Agata<sup>1</sup>, Raffaele R.S. Spiazzi<sup>1</sup>, Luigi Daniele L.N. Notarangelo<sup>2</sup>. <sup>1</sup>Clinical Pedagogical Laboratory, Children's Hospital, Spedali Civili, Brescia, Italy; <sup>2</sup>Department of Paediatrics, University of Brescia, Brescia, Italy

**Background:** Our study aims to verify if the children diagnosed with bronchial asthma were classified on the basis of international guidelines and therefore treated in an appropriate way. These children were sent to our outpatients' department by their primary care doctors.

**Methods:** Throughout two years (2003-5), in the outpatients ambulatory of Pulmonology we have observed 385 children (age 1-15) with an asthma diagnosis. On the basis of GINA guidelines and along with primary care, we have structured and shared a clinical pathway for the collection of anamnestic data. At the admittance we have considered intermittent or persistent asthma of the children who were treated only based on need, or with long-term therapy, respectively.

**Results:** Of the 385 patients we observed, 159 (41.3%) received diagnosis of intermittent asthma, 219 (56.88%) of persistent asthma and 7 (1.82%) of exercise-induced asthma. For every patient we have estimated if the diagnosis of the primary care doctor were the same (agreement of the diagnosis) of that received from the first visit, formulated following international guidelines. We have found agreement in the diagnosis in 141 on 159 (88.67%) children with intermittent asthma and in 123 on 219 (56.16%) children with persistent asthma; the agreement of the diagnosis of asthma (intermittent and persistent) is of 68.57% (264 children out of 385).

**Conclusion:** The collaboration between primary and secondary care concurs an optimal management of bronchial asthma, especially in the initial phase of the diagnosis/classification of the severity of the symptoms. This collaboration is facilitated by sharing guidelines and operating instruments.

P1482

**Lack of association between IL15 polymorphisms and atopic phenotypes in a large sample of German children**Leonardo A. Pinto<sup>1</sup>, Martin Depner<sup>1</sup>, Lena Stuedemann<sup>1</sup>, Michael S.D. Kormann<sup>1</sup>, Norman Klopp<sup>2</sup>, Thomas Illig<sup>2</sup>, Christian Vogelberg<sup>3</sup>, Stephan K. Weiland<sup>4</sup>, Erika von Mutius<sup>1</sup>, Michael Kabesch<sup>1</sup>. <sup>1</sup>University Children's Hospital, Ludwig Maximilian University Munich, Munich, Germany; <sup>2</sup>Institute of Epidemiology, GSF - Research Centre for Environment and Health, Neuherberg, Germany; <sup>3</sup>University Children's Hospital, University of Dresden, Dresden, Germany; <sup>4</sup>Department of Epidemiology, University of Ulm, Ulm, Germany

**Introduction:** Interleukin 15 (IL15) promotes activation and proliferation of CD8+ T cells and enhances the differentiation into Th2 cells. Blocking IL15 signalling suppresses the pulmonary allergic inflammation in mice. A previous study by Kurz et al. described five polymorphisms (SNPs) in the IL15 gene to be associated with asthma and atopy in a haplotype analysis. We tried to replicate these results in a large German cross sectional study population.

**Methods:** Genotyping of 5 SNPs in the IL15 gene was performed using MALDI-TOF MS in a cross sectional study population of 1,940 children from Dresden (age 9-11) phenotyped by the ISAAC II protocol for asthma and atopy. Effects of single SNPs and haplotypes were studied using SAS/Genetics.

**Results:** Only SNPs C-80T, G20A, C13467A and A13815T were genotyped successfully using MALDI-TOF technology. No association between any of the tested four IL15 SNPs and asthma or atopy was found. In addition, further analyses did also not reveal a significant effect of IL15 haplotypes on the development of asthma or atopy in our study population.

**Conclusions:** The previously reported association between IL15 polymorphisms and asthma and atopy could not be confirmed in our large German study population. However, it can not be ruled out that other polymorphisms in the IL15 or IL15 receptor genes may play a role in these diseases.

P1483

**Cow's milk allergy-induced respiratory symptoms and asthma**Mahboube Mansouri, Msoud Movahedi, Zahra Pourpak, Habibe Mozaffari. *Immunology & Allergy, Children Medical Center Hospital/Tehran Medical Science University, Tehran, Iran; Research Center of Asthma & allergy, Children Medical Center Hospital/Tehran Medical Science University, Tehran, Iran*

**Background:** Cow's milk allergy (CMA) is the most prevalent food allergy in the first year of life. Chronic isolated food-induced respiratory tract symptoms and asthma are uncommon. Asthmatic reaction triggered by allergy to Cow's milk protein is worrisome and may be fatal

**Objective:** to evaluate the frequency of the respiratory symptoms in CMA

**Materials and Methods:** All the patients with the confirmed diagnosis of CMA (from Feb 2004 to Feb 2006) were enrolled in the study. The demographic & laboratory data and also the clinical sign & symptoms of the patients were recorded

**Result:** among the 39 patients aged (4months-20 years old) with diagnosis of CMA, the males were (66.7%) and 13(33.3%) were females. The mean age was 56.26±9.11 months. The respiratory symptoms including wheezing and coughing during the anaphylactic were noted in 26 (66.7%) of the cases and isolated respiratory symptoms were also noted in 11 (28.2%) after ingestion of cow's milk. 15 of the patients (38.5%) had also asthma, unrelated to ingestion of milk.

**Discussion:** 2 type of the lower respiratory symptoms were noted in these patients. 1) wheezing as a part of an anaphylactic reaction and, 2) the isolated wheezing after ingestion of cow's milk. We have noticed that the respiratory symptoms in our patients with CMA, was much more frequent than it is mentioned in literatures. Considering the 10% prevalence of asthma in total Iranian population, the rate of 38.5% for development of asthma is very considerable in these patients.

Food antigen sensitivity especially cow's milk allergy, is an important risk factor which increases number of wheezing attacks and asthma. Our results also confirm the close relationship between cow's milk allergy and the respiratory symptoms.

P1484

**Investigation for atopy in families of children with allergic bronchial asthma**Efimia J. Parapanissiou<sup>1</sup>, Theodouli A. Papastavrou<sup>2</sup>, Aristidis T. Deligiannidis<sup>1</sup>, Antigoni M. Mavroudi<sup>2</sup>, Dimitra V. Aivazi<sup>2</sup>, Olympia D. Ourailoglou<sup>2</sup>, Eliza D. Karatza<sup>2</sup>. <sup>1</sup>Department of Immunology-Histocompatibility, <sup>2</sup>3rd Pediatric Clinic, Hippokraton Hospital, Thessaloniki, Greece

**Aim:** The aim of the study was to investigate for atopy the family members of children suffering from allergic bronchial asthma.

**Material and Methods:** A total number of 261 relatives of children who suffered from allergic bronchial asthma with sensitivity to mites (D. Pteronyssinus and D. Farinae) underwent investigation. The relatives belonged to 27 nuclear and 33 extended families. We investigated: a) Medical history for atopic disease, b) Allergological examinations: 1) Total IgE with Elisa method (ImX system, Abbott Laboratories) 2) Specific IgE antibodies (Alastat method).

**Results:** The total IgE levels were lower in family members compared those of children who suffered from bronchial asthma. Positive specific IgE antibodies were determined in 44 out of 60 (73.3%) families, one or both parents were found positive. More specifically 32/58 mothers (55.2%) had positive specific IgE antibodies (mites: 20, moulds: 3, animals: 3, multisensitivity: 4) and 28/57 fathers (49.1%) had positive specific IgE antibodies (mites: 14, moulds: 5, animals: 5,

multisensitivity: 4). In extended families positive specific IgE antibodies were determined in grandfathers and grandmothers. Positive specific IgE antibodies were determined in 27 out of 51 (52.9%) grandparents from the mothers side and in 12 out of 36 (33.3%) grandparents from the side of the father.

**Conclusion:** The investigation of family members of children suffering from allergic bronchial asthma has confirmed that atopy in children is mainly attributed to maternal inheritance. The most important factor for sensitization in mites seems to be the genetic predisposition.

#### P1485

##### Diagnosics of bronchial asthma symptoms at children with ISAAC questionnaire

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We interviewed 2456 children in age 7-14 years. A questionnaire contained: 1) questions about the presence of wheezing some time and for the last 12 months, wheezing induced by the physical exercise, nightly cough without a cold and about bronchial asthma, recognized before; 2) questions about severity of these symptoms (frequency of wheezing episodes for the last 12 months, sleep disorders, talking disorders).

Wheezes were noted by 25,24% of children. These symptoms were observed during the last twelve months in 13,84% of children. They resulted in sleep disorders at 7,49% and talking disorders in 1,2%. Attacks of wheezing due to physical exercise were observed at 9,4% of children. A cough without respiratory infections was noted by 14,05% of respondents. Bronchial asthma recognized before was observed at 4,97%. Disease was had at boys more frequent than girls (5,98% vs 3,12%,  $p < 0,02$ ).

Breathing disorders happened 1-3 times for the last 12 months considered mild, 4-12 times - moderate and more than 12 times - severe. Mild breathing disorders were revealed at 11,36% of children, moderate ones - at 2,0% and severe ones - at 0,49% of respondents.

The conducted study have shown that in Ukraine there is the large contingent of children with the undiagnosed bronchial asthma. It needs conducting of the educational programs among paediatricians and general practitioners.

#### P1486

##### Allergy related diseases in two year old children in Trondheim, Norway, PACT 2003-05

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**Background:** During childhood, allergic diseases are a major cause of morbidity in western countries. Food allergy and atopic dermatitis (AD) is often the first manifestation in the allergic march.

**Aims:** To study the prevalence of allergy related diseases and allergen sensitisation in an unselected population of two year old children.

**Subjects and methods:** Women visiting their general practitioner during pregnancy were consecutively included in the study. At the age of two their offspring underwent a structured interview and a clinical examination. The doctor marked on a visual analogue scale (VAS) 0-8 cm the likelihood of a diagnosis of AD, allergic rhinoconjunctivitis (AR) and asthma. A VAS score  $\geq 6$  cm was regarded as a clinical diagnosis. Skin prick tests (SPT) were carried out in 304 children in accordance to the ISAAC protocol, with extracts from ALK Laboratories, Denmark.

**Results:** Of the 390 children (48.5% girls) 24 (6.2%) reported doctor diagnosed FR, AR, asthma and AD were diagnosed in 6 (1.5%), 38 (9.7%) and 94 (24.1%) children respectively. At least one positive SPT was found in 25 (8.2%) of the children; in 5.9%, 16.5% and 35% of those with asthma, AD and FR respectively. Significantly more boys than girls had asthma, FR and a positive SPT.

**Conclusion:** AD is the most prevalent allergy related disease in two-year-olds. In contrast to asthma; FR and AD were strongly associated to a positive SPT.

#### P1487

##### Allergic rhinitis and coexistence of allergic rhinitis and asthma at Greek children. Comparison of clinical and laboratory parameters

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Aim of the study was the clinical and the laboratory control of children with allergic rhinitis (group A) or allergic rhinitis and asthma (group B). Our study included 157 children aged 2-16 years old with allergic rhinitis according to ISAAC questionnaire.

**Methods:** All children were evaluated by: 1. Clinical examination 2. Rhinoscopy 3. Peak Expiratory Flow Rate (PEFR) 4. Peak Nasal Inspiratory Flow Rate (PNIFR) 5. Mucociliary clearance 6. Total serum IgE immunoglobulin 7. RAST tests (<3 years) 8. Skin prick tests (>3 years).

**Results:** Mean age for group A was  $8,1 \pm 3,61$  years and  $7,66 \pm 3,88$  years for group B. Each patient was evaluated from 1 up to 4 according to the number of the symptoms. Mean value of symptoms was  $3,0 \pm 0,64$  for group A and  $3,25 \pm 0,75$  for group B. In group A 14/23 of the children had abnormally high IgE and 9/23 had positive prick tests and in group B 97/123 had abnormal IgE and 76/123 positive prick tests. In group A 19/25 of patients had abnormal prolonged mucociliary clearance and 83/130 of group B. 1/21 and 2/22 children of group A had abnormal PEFR and PNIFR respectively as 6/87 and 15/86 of group B had these parameters affected.

**Conclusions:** 1. Personal history and/or symptoms of bronchial asthma were found in 84% of the children. 2. At least 50% of the children from both groups had a prolonged clearance. 3. There weren't statistically significant differences between the two groups for the parameters we studied ( $p > 0,05$ ).

#### P1488

##### Prevalence of symptoms of emotional and behavior disorders in asthmatic adolescents

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The International Study of Asthma and Allergies (ISAAC), phase three, was conducted in Belo Horizonte, Brazil and the prevalence of asthma was 17.8%. Looking for risk factors associated with the disease and the paucity of studies based on ISAAC's methodology about the association between asthma and emotional disorders, we decide to study the prevalence of emotional and behavior disorders in asthmatic adolescents and compare these to the prevalence in non-asthmatics.

**Methods:** transversal study in which the Strengths and Difficulties Questionnaire - SDQ - was applied to asthmatic and non-asthmatic adolescents between 14 and 16 years of age, randomly selected in municipal schools of Belo Horizonte. Asthmatic and non-asthmatic were identified by ISAAC questionnaire applied in 3088 adolescents.

**Results:** A total of 464 adolescents were studied (47.4% males, 152 asthmatics). The prevalence of emotional and behavior disorders was 20.4% (IC95% 14.5-27.8%) and 9.0% (IC95% 6.1-12.8%), in asthmatics and non-asthmatics adolescents, respectively ( $p < 0,001$ ). In the final model of logistic regression with control for social and economic variables, some variables remained as independent associated factors to emotional and behavior disorders: female gender, OR = 1,98 (IC95% 1,10-3,56,  $p = 0,02$ ) and asthma, OR = 2,66 (IC95% 1,52-4,64,  $p = 0,001$ ).

**Conclusion:** prevalence of emotional and behavior disorders in asthmatic adolescents is greater than in non-asthmatics, underscoring the need for inter-disciplinary approach.

#### P1489

##### Seasonal allergic rhinitis and quality of life in children in Georgia

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The frequency of seasonal Allergic rhinitis is quite high and has a tendency of increasing in Georgia. The patients with allergic rhinitis experience symptoms such as hypo, nasal irritation, rhinorrhea y nasal congestion. Often these symptoms constitute a big problem to the patients, affecting not only quality of life but also the achievements in the school or daily life activities. The aim of our study was to assess the grade of disturbance of the symptoms to the patients and to determine their role on daily activities. We studied 36 children aged 8-12 years with diagnosis of allergic rhinitis; from those 20 boys and 16 girls. We assessed the symptom severity scores and quality of life questionnaire that include questions on intensity and frequency of the symptoms and on quality of life. The most frequent symptom was nasal secretion but most serious and disturbing symptom, that affect quality of life was nasal obstruction. The sleeping disorder has also negative impact on quality of life. The results shows correlation between severity of rhinitis and quality of life.

#### P1490

##### Rhinoconjunctivitis quality of life (RCQOL) in allergic rhinitis & its impact on childhood asthma

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**Aims & Objectives:** To study Rhinoconjunctivitis Quality of Life (RCQOL) parameters in patients with AR & bronchial asthma (BA).

**Setting:** Pediatric chest clinic of a tertiary care hospital

**Methods:** The RCQOL parameters were studied (Prospectively) as per RCQOL Questionnaire (Professor Juniper, McMaster University) in 100 children (age 3-15 years) suffering from BA & AR after obtaining permission from the ethics committee. Features studied (RCQOL questionnaire): activities affected, sleep problems, practical difficulties- viz. inconvenience of carrying, ocular system, non-nose/non- eye symptoms viz. fatigue thirst, reduced productivity, tiredness, poor concentration, head ache, and worn out. Statistical Methods: Pearsons chi-square test.

**Results:** Following was the order of affection of RCQOL parameters: Ocular symptoms (87%), activities affected as a result of nose/ eye symptoms (78%), sleep problems (78%), emotional problems (52%), nasal symptoms (50%), non-nose/ non-eye symptoms (36%), & practical problems (36%). The number of patients with intermittent, mild persistent, moderate persistent, and severe persistent asthma at diagnosis were 10 (16.6%), 17 (28.3%), 27 (45%), & 6 (10%) respectively. At enrolment there were 31 (51.6%) patients with intermittent asthma and 29 (48.3%) patients with mild persistent asthma. Majority of our patients in whom RCQOL were studied were between the age group 5-10 yrs (59%), in whom abstract thinking & ability to answer complex questions was good.

**Conclusions:** Ocular symptoms viz. (itchy eyes, sore, swollen eyes) were maximally affected. AR has detrimental effects on the physical, psychological & social aspects of patient's lives.

#### P1491

##### Evaluation of sleep quality and anxiety-depression parameters in asthmatic children and their mothers

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Chronic diseases in children may impair sleep quality and contribute to the development of anxiety and depression both in children and their family. The aim of this study was to evaluate sleep quality in children and their mothers and levels of depression and anxiety in mothers.

Study group consisted of 36 asthmatic children (21 male 15 female) aged 37-180 months (mean  $\pm$  SD) 106.8  $\pm$  39.5) who are followed up in Celal Bayar University Pediatric Allergy and Pulmonology Unit. Control group consisted of 12 children (8 male 4 female) aged 60-180 months (mean  $\pm$  SD 115.5  $\pm$  39.1) who did not have any chronic disease. Pittsburgh sleep quality index was administered to both children and mothers; anxiety sensitivity index and hospital anxiety and depression scale were administered only to mothers.

Pittsburgh sleep quality index total score in mothers of asthmatics were positively correlated with asthma severity in children ( $r=0.47$ ,  $p=0.02$ ). Similarly, anxiety sensitivity of mothers were significantly correlated with total score of Pittsburgh sleep quality index of children ( $r=0.40$ ,  $p=0.03$ ). Moreover, total scores of Pittsburgh sleep quality index of mothers and children were positively correlated ( $r=0.55$ ,  $p=0.006$ ). Subjective sleep quality scores were significantly different between the groups ( $p=0.03$ ). Frequency of healthy sleep was lower in asthmatic children and their mothers (%62.1 vs %80 in children, %43.5 vs %55.6 in mothers,  $p>0.05$ ). In conclusion, sleep quality of asthmatic children may influence sleep quality and anxiety sensitivity of mothers. Therefore, asthmatic children and their mothers need to be assessed for the requirement of support regarding sleep and anxiety.

#### P1492

##### The effect of asthma and chronic rhinitis on the quality of life of school-aged children

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This study aims to evaluate the quality of life of ill children that consulted the outpatient service of the Allergology Department and to compare them to a control group of schoolers. Our hypothesis was that the control group would have better quality of life than the ill children.

The sample consisted of 78 children with asthma and/or allergic rhinitis and another group of 100 healthy schoolers as a control group, aged 6 to 16 years old (56.3% boys and 43.8% girls). Children were given a questionnaire of quality of life constructed by our Department, based on Kid-KINDL questionnaire for children. Five domains of quality of life were evaluated: somatic, psycho-emotional, social, family and school life. Children's sex and age group (young children 6-11 years old, adolescents 12-16 years old) were taken into account in order to evaluate their impact on children's quality of life.

Results confirmed significant differences in two domains of quality of life: family and school life. Moreover, between the two groups diversity was also found in the social and psycho-emotional domain. Significant differences were also measured between boys and girls: girls appreciated different things in life than boys, with a priority on health and school performance. Age group also affected the school life domain, as well as the choice of values for a better quality of life. Younger children's wish was more playing and resting, while adolescents' choice was friends and relationships.

In conclusion, our results indicate that respiratory allergy affects quality of life, regardless of gender and age.

#### P1493

##### Seasonal variations in asthma quality of life of Spanish asthmatic children (ESCAPE study)

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**Background:** The quality of life of children with asthma depends mainly upon a correct treatment. However, other factors as the seasons of the year can affect asthma control and, consequently, modify the quality of life of affected children.

**Methods:** Four samples of asthmatic children recruited from paediatric centres were evaluated according to the validated Spanish version of the Paediatric Asthma Quality of Life Questionnaire (PAQLQ) in which the scale is 0 (minimum) to 7 (maximum) points. Other factors as the type of asthma and medication were also recorded. A number of randomly selected paediatricians were invited to evaluate prospectively the first three asthmatic patients (7-14 years of age) of each new season according to the study protocol.

**Results:** A total of 1103 children with available information according to protocol were included in the analysis (autumn 347; winter 327; spring 236; summer 193). The mean and (SD) of the results of the PAQLQ are shown in table 1. After adjusting for type of asthma (on treatment), age, sex, being on inhaled corticosteroids, having pets at home or smoking at home, the results maintained the same trend.

	Global	Symptoms	Emotions	Activities
Autumn	5.5 (1.2)	5.4 (1.4)	6.0 (1.1)	5.0 (1.5)
Winter	5.7 (1.1)	5.6 (1.3)	6.2 (1.0)	5.2 (1.5)
Spring	5.9 (1.0)	5.8 (1.2)	6.3 (0.9)	5.4 (1.5)
Summer	6.2 (1.0)	6.2 (1.0)	6.5 (0.8)	5.9 (1.4)
p	<0.001	<0.001	<0.001	<0.001

**Conclusions:** There is a significant influence of the seasons of the year on the quality of life children with asthma in Spain.

#### P1494

##### Spirometric parameters during single examination, besides peak expiratory flow (PEF) variability, do not correlate with quality of life (QL) in children with stable asthma

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**The aim of study:** The assessment of correlation between rates of asthma severity, spirometry, PEF variability and quality of life according to Paediatric Asthma Quality of Life Questionnaire (PAQLQ).

**Material and methods:** A group of 54 children (25 F, 29 M) aged 7-17 yrs (10 with severe, 22 with moderate and 22 with mild asthma) participated in the study. The course of disease was stable among all children for at least 6 weeks prior to the tests. All patients underwent spirometry (FVC, FEV1, PEF, MEF50) and PAQLQ according to Juniper three times at 2 weeks intervals (visits 1, 2 and 3). In the period between examinations children measured PEF at home and PEF variability index according to Reddel et al. was calculated.

**Results:** PAQLQ-score during all visits did not differ significantly between severe, mild and moderate asthma children. Quality of life among girls was significantly lower than in boys at the same spirometric parameters during visit 1 (5.4 vs 5.8,  $p<0.03$ ) and visit 3 (6.0 vs 6.4  $p<0.02$ ). PAQLQ did not correlate with spirometric parameters obtained during visits 1, 2 or 3. The positive correlation between PAQLQ and variability of PEF in the period of preceding visit 2 and visit 3 was shown ( $r=0.35$   $p=0.02$ ). The change in PAQLQ between visit 1,2 and 3 did not correlate with changes spirometric parameters.

**Conclusions:** PAQLQ should make up an additional significant tool to fully assess the health of a child suffering from bronchial asthma. The change in PAQLQ should suggest the necessity to broaden the diagnosis and modification of treatment.

#### P1495

##### Belgium paediatric consensus workgroup statement on wheezing below age of 5

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No clear consensus statements exist on management of wheezing children <5 years. A panel group of Belgian respiratory paediatricians presents their consensus statement. Although 25-50% of children <5 years suffer from wheezing episodes, most of them will outgrow their symptoms. Three phenotypes have been proposed, but no tools exist to recognize children prone to develop asthma. Treatment should be considered in case of >3 episodes of wheezing in the last 6 months, or 1 severe

SUNDAY, SEPTEMBER 3RD 2006

episode with hypoxia. The following aggravating factors are recognized: 1) positive modified Asthma Prediction Index, 2) disturbance of the child's well-being, 3) episodes >1/month, 4) persistence of wheeze >6 weeks. Goals of treatment are to minimize frequency and severity of symptoms, avoid admissions and exacerbations. Stepwise treatment should consist of: 1) trial with inhaled short acting beta agonist (SABA), 2) inhaled corticosteroid (ICS), max daily dose of 400mcg budesonide bid or eq., via metered dose inhaler and spacer, adapted to age. Montelukast could be considered in case of poor inhalation technique or corticophobia. Treatment should be evaluated after 6 weeks. In case of treatment failure, consider poor inhalation technique, poor compliance or alternative diagnosis. If symptoms persist, consider adding montelukast to ICS. An acute exacerbation should be treated with inhaled SABA. In case of a severe episode, a short course of oral prednisolone and referral to a specialist are indicated. Education will have impact on compliance, control of symptoms and prognosis.

Members of Workgroup: F.De Baets, G.de Bilderling, J.Hellinckx, A.Malfroot, M.Moens, C.Mossay, V.Pasquasi, M.Proesmans, M.Raes. Supported by a grant of MSD Belgium.