

MONDAY, SEPTEMBER 4TH 2006

249. Aspects of childhood asthma

P2771

The role of "Asthma School" patient education in management of severe childhood asthma in Russia

Fedor I. Petrovskiy¹, Ludmila M. Ogorodova¹, Alexandr G. Chuchalin², Yulia A. Petrovskaya¹, Ivan A. Deyev¹. ¹Faculty Paediatrics, Siberian State Medical University, Tomsk, Russia; ²Pulmonology, Scientific Research Institute of Pulmonology, Moscow, Russia

Global Initiative for Asthma recommends patient education as a component of six part asthma management program. The present study was designed to evaluate the practical significance of patients' education in severe childhood asthma. Cross-sectional study was carried out in 304 pediatric severe asthma patients aged 6 – 18 who had been admitted in 5 pediatric clinics in Russia during 2003. A specifically designed questionnaire was used to collect the data. 60.5% of patients attended special educational courses referred to as "Asthma School" (AS). They had better daytime and nighttime symptoms (4.02 vs 5.75, $p < 0.001$ and 2.44 vs 3.26, $p = 0.001$ symptoms/week respectively), fewer number of reliever use (7.59 vs 12.51 inhalations/week; $p < 0.001$) and fewer number of hospitalizations (1.11 vs 1.58 hospitalizations/year; $p = 0.001$). Patients who took AS courses received inhaled corticosteroids (ICS) in combination with long acting β_2 -agonists (LABA) more often than ICS alone compared to those who did not take AS (OR = 1.91, 95% CI 1.14 – 3.19; $p = 0.014$). Irrespectively of AS attendance, there were no differences found in clinical characteristics between patients treated with ICS alone or with combination of ICS and LABA. Our report provides data that patient education significantly improves control of severe asthma in children. Whereas most attention is usually paid for the appropriate choice of medication and its dosage, it should be stressed that asthma management consists of several interrelated parts including appropriate patient education.

P2772

Attitudes towards specialty care referral by pediatric primary care physicians

Jennifer M. Walker¹, Mary Beth E. Bollinger², Amanda Manning¹, Cassia J. Lewis¹, Kim Mudd¹, Arlene M. Butz¹. ¹Pediatrics, Johns Hopkins University School of Medicine, Baltimore, MD, United States; ²Pediatric Pulmonology/Allergy, University of Maryland- School of Medicine, Baltimore, MD, United States

Rationale: PCP's act as "gatekeepers" when referring asthma patients to specialist and often prefer to exclusively treat their pediatric patients with asthma. However, U.S. guidelines recommend referral to a specialist for consultation of children with moderate to severe persistent asthma. Lack of referral may result in less effective asthma control.

Methods: 32 primary care physicians of children with mild-severe persistent asthma N=90 (mean 2 ED visits last 6 months) were asked to report responses to 2 asthma scenarios that presented children over using reliever medication, less active due to symptoms and non-adherent to controller meds.

Results: Physicians were primarily 36 years of age or older (71%), white (44%), board certified in peds or family practice (61%), practiced in hospital clinics (53%) or community health centers (25%). Most physicians reported refer to a specialist sometimes (81%) or rarely (19%). No physician reported referral to specialist always, most or none of the time. Those who practiced in hospital clinics were less likely to refer scenario patients to a specialist versus those who practiced in a group practice or a community health center (CHC) (hosp:76%, group: 5% CHC: 19%; $p = .003$). Despite the fact that the scenario patient over used quick relief medication (6 times/day), reported less activity and was non-adherent to controller meds only 44% of the physicians who did refer patients to specialists reported they would refer the scenario patient.

Conclusion: Criteria for referral to asthma specialist by primary care physicians may need to be emphasized in medical training so that children with severe or uncontrolled asthma receive optimal care.

P2773

Global asthma physician & patient (GAPP) survey: differences between treatment practice and GINA guideline recommendations in Europe – paediatric findings

Erkka Juhani Valovirta¹, Carlos E. Baena-Cagnani², Michael S. Blaiss³, G. Walter Canonica⁴, Ronald Dahl⁵, Michael A. Kaliner⁶. ¹Turku Allergy Center, Turku Allergy Center for the World Allergy Organization, Turku, Finland; ²Immunology and Respiratory Medicine, Catholic University of Córdoba, Córdoba, Argentina; ³University of Tennessee Health Science Center, University of Tennessee Health Science Center for the American College of Allergy, Asthma & Immunology, Memphis, TN, United States; ⁴Department of Internal Medicine, University of Genova DIMI for the World Allergy Organization, Genova, Italy; ⁵Department of Respiratory Diseases, Aarhus University Hospital, for the World Allergy Organization, Aarhus, Denmark; ⁶Institute for Asthma & Allergy, Institute for Asthma & Allergy, for the World Allergy Organization, Chevy Chase, MD, United States

Background: The GAPP Survey is the first-ever global quantitative survey designed to uncover asthma attitudes & treatment practices among physicians & patients, with the goal of identifying barriers to optimal management. 5,482 interviews were conducted globally: 1,733 physicians & 1,726 asthma patients in a 16-country adult arm; 1,006 physicians treating children with asthma & 1,017 parents of children with asthma patients in a 9-country pediatric arm.

Methods: 6 countries in Europe: 602 physicians & 603 parents of children with asthma were interviewed by telephone & face-to-face.

Results: 91% of physicians believe inhaled corticosteroids (ICS) are the "gold standard" of therapy, and 99% agree that treating inflammation reduces the risk of bronchoconstriction. Physicians were questioned which medication they actually prescribed for the various asthma severities, their responses are detailed in table.

First-line treatments physicians use for different asthma severities

	SABA	ICS	LABA	ICS/LABA Combination	LTRA
Mild intermittent	92%	46%	22%	26%	27%
Mild persistent	86%	78%	44%	44%	39%
Moderate persistent	77%	79%	66%	73%	52%
Severe persistent	76%	88%	79%	87%	67%

SABA = short-acting β_2 agonists, ICS = inhaled corticosteroids, LABA = long-acting β_2 agonists, LTRA = leukotriene receptor antagonists.

Conclusions: Analysis of European pediatric physician responses demonstrated that asthma is not being treated according to GINA guideline recommendations across all severity levels, particularly with early introduction of long-acting β_2 agonists.

P2774

Global asthma physician & patient (GAPP) survey: satisfaction with current asthma medications in Europe – paediatric findings

Carlos E. Baena-Cagnani¹, Erkka Juhani Valovirta², Michael S. Blaiss³, Michael A. Kaliner⁴, G. Walter Canonica⁵, Ronald Dahl⁶. ¹Immunology and Respiratory Medicine, Catholic University of Córdoba, for the World Allergy Organization, Córdoba, Armenia; ²Turku Allergy Center, Turku Allergy Center for the World Allergy Organization, Turku, Finland; ³University of Tennessee Health Science Center, University of Tennessee Health Science Center for the American College of Allergy, Asthma & Immunology, Memphis, TN, United States; ⁴Institute for Asthma & Allergy, Institute for Asthma & Allergy, for the World Allergy Organization, Chevy Chase, MD, United States; ⁵Department of Internal Medicine, University of Genova DIMI, Genova, Italy; ⁶Department of Respiratory Diseases, Aarhus University Hospital, for the World Allergy Organization, Aarhus, Denmark

Background: The GAPP Survey is the first-ever global quantitative survey designed to uncover asthma attitudes & treatment practices among physicians & patients, with the goal of identifying barriers to optimal management. 5,482 interviews were conducted globally: 16-country adult arm & 9-country pediatric arm.

Methods: 6 countries in Europe: 602 physicians & 603 parents of children with asthma were interviewed by telephone & face-to-face.

Results: Both physicians and parents report that their satisfaction with ICS is lowest on the issue of side-effects. Parents stated that side-effects had caused their child to switch/consider switching medications (21%/30%), skip/consider skipping doses (28%/34%), stop/consider stopping medications (12%/23%) or change dosage (30%). Of those children that did switch or discontinue treatment, 12% did so because they experienced side effects & 17% because of the concern for potential side effects. Furthermore, 74% of parents and 97% of physicians reported an increased incidence of symptoms as a result of children with asthma not taking medication as instructed. Most physicians (80%) and parents (79%) believe there is a need for new treatment options in asthma, specifically for a new ICS with at least equal efficacy with other ICS, a lower potential for long-term and short-term side-effects, and a once-daily dosing regimen.

Conclusions: Side-effects play an important role in patients' compliance and decision to switch medications. Physicians and patients believe there is a need for a new ICS treatment options with comparable efficacy & improved safety & tolerability, which may enhance patient outcomes.

P2775

Global asthma physician & patient (GAPP) survey: lack of communication between paediatric parents & physicians in Europe may influence compliance
 Erkkä Juhani Valovirta¹, Carlos E. Baena-Cagnani², Michael S. Blaiss³, G. Walter Canonica⁴, Ronald Dahl⁵, Michael A. Kaliner⁶. ¹Turku Allergy Center, Turku Allergy Center for the World Allergy Organization, Turku, Finland; ²Immunology and Respiratory Medicine, Catholic University of Córdoba, for the World Allergy Organization, Córdoba, Argentina; ³University of Tennessee Health Science Center, University of Tennessee Health Science Center for the American College of Allergy, Asthma & Immunology, Memphis, TN, United States; ⁴Department of Internal Medicine, University of Genova DIMI for the World Allergy Organization, Genova, Italy; ⁵Department of Respiratory Diseases, Aarhus University Hospital, for the World Allergy Organization, Aarhus, Denmark; ⁶Institute for Asthma & Allergy, Institute for Asthma & Allergy, for the World Allergy Organization, Chevy Chase, MD, United States

Background: The GAPP Survey is the first-ever global quantitative survey designed to uncover asthma attitudes & treatment practices among physicians & patients, with the goal of identifying barriers to optimal management. 5,482 interviews were conducted globally: 16-country adult & 9-country pediatric arm. **Methods:** 6 countries in Europe: 602 physicians & 603 parents of children with asthma were interviewed.

Results: In Europe, parents of children with asthma report that 62% of physicians do not discuss maintaining a symptom diary & 35% a plan for treating their asthma. Physician reported that these conversations do happen more often (85% & 58% do, respectively). Most physicians (62%) say they initiate discussions about medication side effects; most parents disagree (57%) & say they start this conversation. Parents who say their child complies 100% of the time, report that more time (41%) was spent on education during typical office visit, compared with parents who report their child complies 50% of the time or less (only 27%). 86% of children who are not compliant 100% of the time experience at least one of the following symptoms, increased symptoms (74%), nighttime awakenings (59%) & more physician visits (54%).

Conclusions: There are contradictions in physician & parent communications which may contribute to a lack of education, understanding & compliance. Furthermore, parents who report their children comply more frequently appear to have received more education. There is an opportunity for physicians to improve communications & for parents to actively participate in their children's treatment, ultimately improve treatment outcomes.

P2776

Successful use of a "bottom up" strategy to reduce acute asthma morbidity during childhood

Selena Lovick¹, Peter Norris¹, Gary Connett². ¹Southampton Community Children's Nursing, Southampton City PCT, Southampton, United Kingdom; ²Department of Paediatrics, Southampton University Hospital's NHS Trust, Southampton, United Kingdom

Introduction: Asthma attacks are one of the most common reasons for hospital admission, with substantial cost to the community. There is conflicting evidence about the value of asthma education interventions to reduce morbidity. We hypothesized that interventions to enhance existing community services using a "bottom up" approach might be effective.

Method: A paediatric community asthma nurse specialist was employed to identify children referred to the Paediatric Emergency Assessment Unit (PEAU) and those admitted directly to Southampton General Hospital. Her role was to ensure discharge information was conveyed directly to asthma lead nurses in GP practices in Southampton Primary Care Trust (SPCT) enabling them to provide appropriate follow-up within a week of discharge. Direct input was offered to practices needing help managing pre-school children. A practice based follow-up clinic and 3 monthly training sessions for practice nurses was provided. Referrals and admissions 1 year after the intervention were compared with numbers from the previous year and with numbers referred and admitted from outside the local PCT and not receiving this service.

Results: There were no significant changes in monthly referrals and admissions from outside SPCT comparing the 2 years (95% reduction NS). Numbers from within SPCT were significantly reduced in all months ($p < 0.01$). Reductions were greatest during winter months when admissions typically peak (ie 50% and 55% fewer in November and December 2005 versus 2004).

Conclusions: These data support the hypothesis that primary care interventions enhancing the delivery of existing infrastructure can reduce asthma morbidity and demands for secondary care.

P2777

Integrated care pathways significantly reduce drug dosing and administration errors in patients with acute asthma

Ann McMurray¹, Clare Logan¹, Mark Dunn¹, Neil Richardson¹, Linda Lockerie², Robin Prescott², Steve Cunningham¹. ¹Dept of Respiratory & Sleep Medicine, Royal Hospital for Sick Children, Edinburgh, United Kingdom; ²Medical Statistics Unit, University of Edinburgh, Edinburgh, United Kingdom

Introduction: Integrated care pathways (ICP) can provide structure to multidisciplinary and multihandover patient care. Our aim was to identify whether ICP

reduced the frequency and severity of prescribing errors associated with acute asthma admissions.

Methods: Patients (2 – 16 years) attending hospital with acute wheeze or asthma were randomised to weekly clustered blocks of either Standard or ICP care. Medication charts were checked to identify prescribing accuracy and errors. Errors were classified into minor, intermediate and major by an expert group. Two independent scorers assessed all prescribing records in both groups.

Results: 298 children randomised. 180 admitted to hospital. Prescribing records available for 96% of children. ICP resulted in 17% fewer prescribing errors than standard care. Median number for each child was 10 ICP (iqr 3-15) and 15 standard care (iqr 7-21) ($p < 0.001$). During standard care weeks children were 7 times more likely to have dosing error and 6 times more likely to have a drug administration error. Most prescribing errors were classified as minor, and more prevalent in standard than ICP (minor 6 per patient ICP vs 11 standard, $p < 0.001$). ICP children had more legal problems with their prescribing secondary to poor patient identification labelling of the multisheeted document. No difference between moderate and major errors identified: Moderate, 3 per patient both ICP and standard, $p = 0.44$, major errors median 0 both ICP and standard ($p = 0.35$).

Conclusions: Substantial reductions were seen in drug dosing and administration errors in children care for with an integrated care pathway during an acute asthma exacerbation in hospital.

P2778

Cost implications for the introduction of omalizumab in to the management of severe chronic asthma in children

Ann Y. Kirk¹, Andrew J. Fall², Fiona J. Hampton², Christopher J. O'Brien³, Michael C. McKean³, David A. Spencer¹. ¹Respiratory Paediatrics, Freeman Hospital, Newcastle upon Tyne, United Kingdom; ²Paediatrics, James Cook University Hospital, Middlesbrough, United Kingdom; ³Respiratory Paediatrics, Royal Victoria Infirmary, Newcastle upon Tyne, United Kingdom

Most children with asthma respond well to conventional therapies. Only a small number of severely affected patients require treatment at level 5 of the BTS/SIGN guidelines, although the actual number of such patients within the paediatric age group is not known. These are the most difficult patients to treat, particularly as risk of treatment-related adverse effects increases significantly with time. The monoclonal anti-IgE antibody Omalizumab offers the potential for improved disease control with reduction in adverse treatment-related effects in some patients with severe allergic disease. Use of this agent is limited by cost, the IgE level and the patients' age. Within our region of total population of 2.5 million there are 400 000 children. We are aware of 37 asthmatic children who currently require treatment with long term oral corticosteroids and/or continuous subcutaneous terbutaline and/or weekly subcutaneous methotrexate. We have estimated the number of potential recipients as 27, excluding 10 patients with IgE > 1,000 as there are practical limitations to administration of very high doses, but including 13 patients < 12 years as we anticipate some off licence use. The estimated total annual cost determined by patients weight and IgE level is #280 000 (410 000 euro), or #10 370 (15000 euro) per patient. Potential savings from reduced hospitalisations, reduction in other drug costs and discontinuation of Omalizumab in non-responders would need to be determined. These estimates should facilitate financial planning for the use of this expensive, but potentially useful new therapy.

P2779

Cluster randomised controlled trial of the effect of introduction of an acute wheeze/asthma integrated care pathway on patient outcome

Clare Logan¹, Ann McMurray¹, Mark Dunn¹, Neil Richardson¹, Linda Lockerie², Robin Prescott², Steve Cunningham¹. ¹Dept of Respiratory & Sleep Medicine, Royal Hospital for Sick Children, Edinburgh, United Kingdom; ²Medical Statistics Unit, University of Edinburgh, Edinburgh, United Kingdom

Introduction: Integrated care pathways (ICP) can provide structure to multidisciplinary patient care. Our aim was to assess whether discharge time could be reduced by the provision of multidisciplinary pre-defined discharge criteria within the ICP.

Methods: Children (2 – 16 years) attending hospital with acute wheeze or asthma, randomised to Standard or ICP care. Change in physiological parameters, time to discharge, parental information provided and recall at 10 days post discharge were assessed.

Results: 298 children randomised (180 admitted to hospital (86 standard, 94 ICP)). ICP did not increase hospital admissions (58% ICP, 64% standard). Children in both groups had similar resolution of RR, HR, SaO₂ and time to 4 hourly bronchodilator spacing. ICP group received significantly less bronchodilator treatment upto 12 hours ($p = 0.02$), but not at 18 and 24 hours. ICP did not significantly increase the median number of documented clinical contacts in the first 12 hours ICP = 19, Standard = 17. Provision of 48 hour post discharge management plan documented in 71% ICP, but just 29% Standard ($p < 0.001$); For those receiving the plan, parental recall at 10 days was 58% in both groups. ICP identified children as ready for discharge (1.4 days) significantly earlier than actual discharge in both ICP (1.8 days) and Standard (2.0 days) gps ($p < 0.001$).

Conclusions: ICPs improve provision of discharge information. Although ICP are able to identify patients who fulfill criteria for discharge significantly earlier than standard care, other non-clinical factors significantly influence actual time to discharge in children admitted to hospital with acute asthma.

MONDAY, SEPTEMBER 4TH 2006

P2780**Quality of life in children with asthma-the impact of education**

Iwona Stelmach¹, Aleksandra Korzeniewska¹, Piotr Stelmach², Joanna Kaczmarek¹, Malgorzata Olszowiec-Chlebna¹. ¹Dept of Pediatrics and Allergy, N. Copernicus Hospital, Lodz, Poland; ²Medical University of Lodz, Lodz, Poland

Introduction: The management of childhood asthma necessitates a comprehensive approach including pharmacological treatment and education.

Aim: The objective of this study was to evaluate the impact of an education program on quality of life (QoL) in children with asthma

Material and methods: There was a retrospective study conducted after 12-months education program. The study was conducted with 100 children (13-18 years) with asthma; 50 children (group A) required to modify of asthma treatment during education program and in 50 children (group B) treatment was not changed. Quality of life before and after education program was evaluated using a questionnaire based on Paediatric Asthma Quality of Life Questionnaire (PAQLQ).

Results: 82 children aged 13-18 years (mean±SD;16,4±3,2), 45 from group A (16,3±2,9 years) and 37 from group B (16,6±3,5 years), were included to final analysis (18 questionnaires were incomplete).

After 12-month education program there was a significant improvement in QoL in both groups of children. For the individual domains of activities, emotions and symptoms we also observed significant improvement in groups A and B after education.

Conclusions: Incorporating education program into asthma management may be an effective mean of improving asthma outcome in children.

P2781**Wheezing phenotypes and lung function in Georgian children**

Ivane Chkhaidze¹, Nia Masiukovich², Ketevan Nemsadze², Nana Nareklishvili², Sofia Broladze², Tamaz Maglakelidze³. ¹Pediatric, State Medical University, Tbilisi, Georgia; ²Pediatric, M. Guramishvili Pediatric Clinic, Tbilisi, Georgia; ³Diagnostic, I. Javakhishvili State University Diagnostic Centre, Tbilisi, Georgia

The aim of the study was investigation of association between lung function and wheezing phenotypes in children.

Materials and methods: We studied 38 children, 5 to 7 years old. The children were enrolled in the WING (Wheezing IN Georgian Children) project. The run-in assessments included clinical check-ups, a structured interview and measurement of serum IgE. Lung function testing was done with MicroLab Spida 5 (Micro Medical LTD, UK). FVC, FEV1, FEV, MEF75, MEF50 and MEF25 were assessed 3 times for the total 24 months period. Parental history of asthma, atopy, and maternal smoking habits were recorded. According to parental reported history of wheezing and, where possible, physician assessment, children were classified as transient early wheezers (those, who had LRTI with wheezing during the first three years of life but no wheezing in the previous 12 months at current age), late onset wheezers (those, who had no LRTI with wheezing during the first three years of life but who had wheezing in the previous 12 months at current age) or persistent wheezers (those, who had LRTI with wheezing during the first three years of life and had wheezing in the previous 12 months at current age).

Results. In the late onset wheezers episodes of wheezing in the past 12 months were not associated with reduced lung function. Early wheezers had normal lung function at the age 5 and 7 years as well. Persistent wheezers had significantly poorer lung function during the whole 24 months period to compare with early wheezers and late onset wheezers.

Conclusion. The persistent wheezers associated with diminished airway function. In these children wheezing episodes are probably related to a predisposition to asthma.

P2782**Oxidative stress, antioxidant and clinical symptoms in childhood asthma**

Tereza L. Maksimovic¹, Dragana D. Begovic², Marija Popovic¹, Radojka Cvetkovic². ¹Center for Children Pulmology Diseases and TB, Clinical Health Center Dr Dragisa Misovic, Belgrade, Serbia & Montenegro; ²Center for Laboratory Diagnostic, Clinical Health Center Dr Dragisa Misovic, Belgrade, Serbia & Montenegro

The aim of our study was to determine connection of superoxide dismutase (SOD) activity and serum vitamin C values with clinical symptoms in children with asthma. We determined SOD activity and serum vitamin C in 32 school children (age 9.1±3 year) with mild asthma. Control group consisted of 18 children without allergy and asthma symptoms. In all patients lung function was measured by spirometric test. The activity of SOD was determined by commercial RANSOD test (Randox Company, UK) and serum vitamin C by spectrophotometric method. In the group of children with significantly decreased SOD activity we got lower values of FEV₁ (81.7%±10.0), PEF (79.6%±9.0) and MEF₇₅₋₂₅ (70%±18.0). Concentrations of serum vitamin C were not in correlation with clinical score of symptoms and/or spirometry. Our result shows that oxidative stress plays crucial role in development of clinical symptoms in asthma. Impact of vitamin C as secondary antioxidant on improvement of clinical symptoms has not been found.

P2783**Cerebral haemodynamics parameters and the pulmonary ventilation-perfusion ratio by children with asthma**

Marina Klyucheva¹, Natalia Geppe². ¹Paediatric, Ivanovo Med Academy, Ivanovo, Russia; ²Paediatric, I.M. Sechenov Med. Academy, Moscow, Russia

The **aim** was to evaluate the parameters of cerebral haemodynamics and of the pulmonary ventilation-perfusion ratio and the influence of instantly 200 mg b2-agonist salbutamol and 40 mg ipratropium bromide on patients with bronchial asthma 12-15 years old.

Methods and materials: The evaluation of the cerebral hemodynamics was based on reoencephalographic methods and reopulmonography was used to evaluate the pulmonary ventilation-perfusion ratio.

Results: 30 min after inhalation of salbutamol the tonus of small brain arteries increased as well as the peripheral vascular resistance the venous outflow from the skull cavity improved. Evaluation evidenced an amplification of ventilation and blood outflow in median and bottom lung areas while the total volume of ventilation and the blood outflow decreased. After inhalation of ipratropium bromide, the patients did not show any significant changes of cerebral haemodynamics. Only a tendency towards an increased tonus of brain arteries and an improvement of the venous outflow from the skull cavity could be revealed. Reopulmonography evidenced a decrease of breath depth and a decrease of the volume of ventilation and of the intensity of the blood flow towards the upper lung areas. This led to a redistribution of ventilation and blood flow towards the lower lung zones and a normalisation of the ventilation-perfusion ratio.

Conclusion: We could establish a positive influence of inhalatory 2-agonists and ipratropium-bromide on lung ventilation and blood flow. Ipratropium bromide, however, has a significantly lower impact on the brain vascular system than the instantly active 2-agonist, which shows that it is safer in use.

P2784**Characteristics and practice patterns of primary care providers (PCPs) of underserved children with asthma**

Mary E. Bollinger¹, Jennifer M. Walker², Arlene M. Butz². ¹Pediatric Pulmonology and Allergy, University of Maryland School of Medicine, Baltimore, MD, United States; ²Pediatrics, Johns Hopkins University School of Medicine, Baltimore, MD, United States

Background: Underserved children with asthma have high morbidity and mortality and underutilize inhaled corticosteroids (ICS). Characteristics of PCPs for this population have not been extensively studied.

Methods: PCPs of underserved children with asthma enrolled in a communication study were surveyed to determine beliefs regarding asthma treatment. The survey included a scenario of a poorly controlled asthmatic child on fluticasone with management choices. Correct/preferred options were based on NAEPP guidelines and results were compared with PCP characteristics.

Results: Thirty two PCPs (43.8% Caucasian, 37.5% male), mean age 41.8 years (range 25-69) participated. Years in practice included 35.7% ≤5 years experience, 14.3% 6-10 yrs and 50% > 10 yrs; 62% were board certified. Management of the scenario patient included 82.1% check inhaler (MDI) technique, 85.7% check environmental triggers, 60.7% prescribe fluticasone/salmeterol (Advair), 25% increase ICS dose and 35.7% refer to an allergist/pulmonologist. PCPs in practice longer were less likely to choose increase ICS (p=0.057) and more likely to check triggers, but years experience did not impact specialist referral, check MDI technique, or prescribe Advair. PCPs ≥36 yrs were more likely to prescribe Advair (72.2%, p=0.04) and less likely to increase ICS (10%, p=0.03). PCP age and being full-time medical school faculty did not impact choice to check MDI technique, triggers or specialist referral.

Conclusion: PCPs of underserved children with asthma are aware of the impact of environment. However, increased awareness of preferred NAEPP guidelines medications and indications for specialty referral is needed.

P2786**Testing of the cough sensitivity in children suffering from allergic rhinitis and common cold**

Jana Plevkova, Silvia Varechova, Mariana Brozmanova, Milos Tatar. Department of Pathophysiology, Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia

Cough associated with upper respiratory tract disorders is a common and troublesome problem in children and very little is known about the aetiology of this type of cough. This study examined the capsaicin cough sensitivity (CS) in children suffering from allergic rhinitis (AR) and upper respiratory tract infection (URI), comparing to the CS of healthy children – controls (C). CS to capsaicin, spirometry, skin prick tests and nose-throat examination were performed on 61 children grouped by the diagnosis of AR, URI and C.

The results obtained for CS examined by capsaicin single breath test were: (in order C vs AR vs URI) expressed as a geom.mean ± 95%CI mM of capsaicin for C2 68.3 (41.3-80) vs 11.05 (7.03-19.2) vs 3.02 (0.61-6.2), p< 0.05 and for C5 737.08 (680.6-760.09) vs 358.4 (320-396.6) vs 150 (111-195.6), p< 0.001.

We have found that CS in children with AR whether tested out of pollen season is significantly heightened comparing to controls. CS in children with URI is extremely high comparing to both C and AR groups.

MONDAY, SEPTEMBER 4TH 2006

Pathological process in the nose of any aetiology could cause a sensitization of the cough reflex with decreased cough threshold during asymptomatic period of AR, and is also enhanced by acute inflammatory activity in the upper airways in nonatopic children.

P2787**The diagnostic value of nasal provocation tests in children with perennial allergic rhinitis**

Liubov L. Vilenchik, Olga F. Lukina, Vera A. Revyakina, Tatyana A. Filatova. *Allergologic Department II, SI Scientific Center of Children's Health RAMS, Moscow, Russia; Functional Diagnostics, SI Scientific Center of Children's Health RAMS, Moscow, Russia*

Background: there are ambiguous data regarding the diagnostic value of nasal provocation tests (NPTs) in particular in children with perennial allergic rhinitis (PAR).

Methods: Rhinomanometry (Rhinoscreen, Eger, Germany) with NPTs with histamine solution (in concentrations 0.001%, 0.01% and 0.1%) were performed in 50 children with PAR initially and after treatment with budesonide or cromoglicic acid. The test was considered positive if after applying histamine solution nasal flow decreased at least by 40% or nasal resistance increased at least by 60%; that was defined as a marker of nasal hyperreactivity (NHR). Lung function parameters including FEV1 were registered before and after NPTs.

Results: rhinometric decrease of nasal flow was registered in 85% of the patients. NHR was revealed in 96% of the children with PAR. The degree of NHR correlated with the degree of nasal obstruction ($p=0.16$). After treatment nasal flow improved in 70% of the children and NHR decreased in 74% of the children. Nasal flow improvement correlated with the degree of NHR decrease ($p=0.24$). FEV1 decreased after NPT by more than 20% in one patient.

Conclusions: NPT is an objective method of assessment of the functional state of the nasal mucous membrane and reflects the severity of allergic rhinitis. NPT is a safe method and an important criterion for diagnostics and assessment of efficacy of treatment of PAR.

P2788**The respiratory impedance response to bronchodilator in Vietnamese children**

Lan T.T. Vu¹, Huong T. Bui¹, Bruno Demoulin³, Cyril Schweitzer², François Marchal^{2,3}. ¹*Service de Pédiatrie, Hôpital Saint Paul, HaNoi, Vietnam;* ²*Explorations Fonctionnelles Pédiatriques, Hôpital d'enfants CHU de Nancy, Vandoeuvre les Nancy, France;* ³*Laboratoire de Physiologie, Faculté de Médecine, Université Henri Poincaré, Vandoeuvre les Nancy, France*

Background. An objective assessment of the airway response to bronchodilator may be critical to the management of young children with asthma. Little data are available in Asiatic children.

Objective. To assess the respiratory effect of salbutamol (S) in young asthmatic Vietnamese children.

Methods. Respiratory resistance and reactance were measured at 8 Hz (Rrs8, Xrs8) using the forced oscillation technique in 57 children aged 6 ± 2 year attending a paediatric asthma clinic in HaNoi during November and December 2005. Two measurements were obtained 5 min apart at baseline, and one 5 min after inhalation of 200 microg salbutamol. The data (mean \pm SD) were expressed using inspiratory values of Rrs8 and Xrs8.

Results. The average coefficient of variation derived from baseline Rrs8 was 11%. After S, Rrs8 decreased significantly from 7.9 ± 3.0 to 6.5 ± 2.3 hPa.s/L ($p < 0.0001$) and Xrs increased significantly from -2.0 ± 1.2 to -1.5 ± 1.0 hPa.s/L ($p < 0.0001$). The % decrease in Rrs8 induced by S was $16 \pm 16\%$.

Conclusions. The measurement of Rrs8 and Xrs8 is simple, quick, requires minimal cooperation and may be performed in a majority of preschool and school children attending a paediatric clinic. The data indicate significant effect of salbutamol in young Vietnamese children suspected of asthma, similar to previous reports in Caucasian children.

P2789**Factors with negative influence on adherence to controller therapy in asthmatic children**

Cristian Gheonea¹, Laura Dumitrescu¹, Doina Plesca², Dumitru Butulescu³, Dumitru Bulucea¹. ¹*Department of Paediatrics, University of Medicine and Pharmacy of Craiova, Craiova, Romania;* ²*Department of Paediatrics, Victor Gomoiu Children Hospital, Bucharest, Romania;* ³*Department of Paediatrics, Emergency County Hospital Tg. Jiu, Targu-Jiu, Romania*

Objective: To identify child and parents/caregivers factors with negative influence on adherence to controller therapy in patients followed at a Regional Asthma Centre.

Methods: A cross-sectional analysis of data recorded in 126 patients.

Results: The percentage of patients exhibiting adherence problems was greater the longer patients had been in treatment: 29,4% at 6 months, 36,2% at 12 months, 48,7% at 24 months ($p = 0,01$). The compliance with the Individual Asthma plan was present in 14,5% of the patients followed for 6 months compared with 46,7% for patients enrolled for 24 months ($p = 0,05$). Adherence was similar between

inhaled and oral controller medication ($p = 0,03$). Appointment and commitment problems were present in smaller percentages of patients and did not change by time ($p = 0,29$ and $0,37$, respectively). There was no influence of family income, level of education or patient sex on the occurrence of adherence problems.

Conclusions: Adherence to controller therapy can be hampered by various factors. Incorporating procedures that help anticipate and identify adherence problems early might improve adherence and control of asthma.

P2790**Free radical status and antioxidant defense in children with asthma treated by inhaled corticosteroids combined with prolonged b2-agonist**

Caterine G. Belousova¹, Nataly A. Geppe², Sergey B. Bolevich³, Svetlana K. Soodaeva⁴, Igor A. Climano⁵, Nataly G. Kolosova⁶. ¹*Chair of Child's Diseases, Moscoe Sechenov Medical Academy, Moscow, Russia;* ²*Chair of Child's Diseases, Moscoe Sechenov Medical Academy, Moscow, Russia;* ³*Chair of Pathophysiology, Moscoe Sechenov Medical Academy, Moscow, Russia;* ⁴*NO Laboratory, Institution of Pulmonology, Moscow, Russia;* ⁵*NO Laboratory, Institution of Pulmonology, Moscow, Russia;* ⁶*Chair of Child's Diseases, Moscoe Sechenov Medical Academy, Moscow, Russia*

The aim of the present study was to assess influence of inhaled corticosteroids combined with prolonged b2-agonist on the activity of airway inflammation in children with asthma.

Methods: We examined 40 children aged 6-15 years with moderate and severe bronchial asthma. Patients were treated by budesonide/formoterol 320/9 mcg/day. Patients of the second group were treated with nedocromil sodium. NO-metabolites in the exhaled breath condensate, prooxidant activity (basic and stimulated chemoluminescence), antiperoxide plasma activity (APA) and level of malondialdehyde (MDA) were measured. NO metabolite level was assayed by Griess reaction.

Results: In 3 months of treatment prooxidant activity increased and parameters of antioxidant defense decreased. NO-metabolites were also elevated from $16,39 \pm 1,12$ mcM to $22,67 \pm 2,44$ mcM ($p < 0,05$). Through 6 months level of prooxidant activity decreased while levels indicating antioxidant status improved. Level of nitrates/nitrites reduced to $8,85 \pm 0,89$ mcM ($p < 0,001$). Mean forced expiratory volume in 1 second (FEV1) was significantly increased after 3 months of treatment.

Conclusion: Treatment by inhaled corticosteroids combined with prolonged b2-agonist results in stabilization of asthma while increased levels of free radicals parameters can be explained by regulatory changes in oxidative mechanisms and through several months in children with severe asthma these parameters significantly improve.