immunological tests. Complex of immunological investigations comprised determination in dynamics of the level of antibodies IgD, IgM to *Chlamydia pneumoniae* and *Mycoplasma pneumoniae*.
Results: Obtained data have shown much higher incidence of increased antibodies of IgD and IgM classes in patients with uncontrollable BA course (47.5% and 37.5% *versus* 30.0% and 22.5%, respectively). On the basis of obtained results, correction of therapeutic complex has been conducted. In positive acute tests (increased IgM to *Chlamydia pneumoniae*), a 14-day course of treatment with antibiotics of the macrolide group (Clarithromycin, Spiramycin) was included into the basic therapy. Antibacterial 7-day treatment with a preparation of the same group was repeated in 3–4 weeks after the course of treatment. Therapeutic benefits were estimated by the degree of achieved controllability of the disease with the use of classical 5-score scale of the asthma-control test. Positive dynamics of the indeces of disease controllability was achieved within the 1st month of treatment. It has become more considerable by the end of I.5 month, remained unaltered and improved during the entire period of surveillance (3 months). Terms of response to the therapy were different for each of the indeces, at that night time symptoms of bronchial asthma regressed most readily.
Conclusions: Obtained results allowed determine interrelations between the *Chlamydia pneumoniae* infection and BA controllability. Treatment of a concomitant infection made it possible in as short as 6 weeks to achieve controllability of the disease in the majority of patients with the infection under study.

1153
Intervention to support adherence to asthma self-management in children with asthma

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Objective: To evaluate the importance of educational interventions on adherence to asthma self-management in children.
Methods: Randomised, controlled clinical study performed in a Regional Centre for children with asthma. Forty-two children with persistent asthma (age 9.2 ± 3.1 years; 28 boys) received a written asthma plan and instruction on electronic PEF home-monitoring. The study group received one-to-one educational intervention on asthma self-management delivered by Centre personnel. Adherence to PEF home-monitoring was assessed using Piko-1 devices and data were downloaded at each of the three monthly visits.
Results: There were no significant differences on the use of PEF-meters at home during the first month between the intervention group and the control group. Nevertheless, at 3 months, the intervention group presented a two-fold better adherence than the controls. Overall, adherence to home PEF monitoring in intervention group was below the targeted adherence (i.e. 61% *versus* 80%). Children in either group who were less than 33% adherent to PEF-monitoring were significantly prone to asthma symptoms. Asthma exacerbations were less likely in the intervention group (0.92 *versus* 1.3, $P = 0.0014$).
Conclusion: Our data support the positive impact of educational interventions on adherence to asthma self-monitoring in children.

1154
Sensitisation to pollen allergens in asthmatic children

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Background: Allergy is one of the most common causes of respiratory symptoms in children and youth. Asthma is a common problem in children and the causative pollen allergens vary according to the geographical area.
Objectives: The purpose of this study was to evaluate the prevalence of atopy, and to identify the frequency of allergic sensitization to pollen allergens, among children who have asthma, from Jaén (Spain).
Methods: A total of 407 consecutive children, younger than 14 year old, 261 male and 146 female, were recruited from our outpatient allergy clinic of a general hospital from Jaén, Patients were arbitrarily divided into three groups (grs) according to their age: group 1 = younger than 3 year old (63 patients), group 2 = 4–6 years (148 patients), and group 3 = 7–14 years (196 patients). Skin prick testing was performed to relevant individual aeroallergens (Lolium perenne, Cynodon dactylom, Cupressus arizonica, Platanus acerifolia, Olea europaea, Chenopodium album, Salsola kali, Plantago lanceolata, Artemisia vulgaris and Parietaria judaica). Testing for dust mites, cats, dogs, cockroach and molds were performed also.
Results: The prevalence of atopy at the whole sample was of 94.58% (385 patients). 167 of atopic children (43.37%) showed a positive skin test, only to at least one of tested pollens. The most common allergens were Olea europaea (93.5%), followed by: Lolium perenne (60.5%) Chenopodium (52.2%) and Plantago (43.6%). The percentage of allergic patients to pollens increased with age for all tested allergens, but the differences were not significative, except for sensitized to Lolium perenne ($P = 0.03$). Only 30 children were monosensitized to Olea europaea.
Conclusions: In children with bronchial asthma from Jaén (Spain), the pollens are the most frequent cause of respiratory allergy. Olea europaea is the pollen which sensitizes more children in our geograhical area.

1155
Results of a school-based asthma assessment from the upKids questionnaire validation study

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Background: There is a need for simple reliable tools to assess allergic asthma in children. In this work, we compare the parents responses of the upKids-asthma questionnaire with objective measures used in daily practice.
Participants and methods: The study sample was formed by 173 Portuguese schoolchildren aged 8 to 12 from the urban area of Porto (51.4% girls). Children's parents completed a self-administered questionnaire reporting asthma, physician diagnosis of asthma and asthma medication. The questionnaire was based on ISAAC questionnaire and was developed for assessing allergic asthma in schoolchildren. Skin prick tests (SPT) to common aeroallergens and measurement of exhaled nitric oxide (FeNO) using NIOX MINO (Aerocrine, Sweden) were performed. We defined two groups in the validation analysis: 1) atopics (positive SPT) with FeNO ≥ 25 ppb and 2) all the others.
Results: Twelve percent and 15% of the parents reported physician diagnosis of asthma and asthma medication use in the previous year, respectively, however no differences in FeNO were observed between subjects reporting doctor diagnosis or ever having had asthma. FeNO was significantly increased in atopics (mean ± SD ppb) (34 ± 27 *versus* 13 ± 8; $P < 0.001$), children ever had wheezing (27 ± 25 *versus* 17 ± 15; $P = 0.002$), wheezing with exercise in the last 12 months (34 ± 28 *versus* 19 ± 19; $P = 0.005$), and

in children using asthma medication in the last 12 months (31 ± 24 *versus* 19 ± 15; $P = 0.01$). All the questions had low sensitivity, from 16% (ever had asthma) to 73% (ever had wheezing). The questions specificity ranged between 60% (ever had wheezing) and 88% (physician diagnosis of asthma and wheezing with exercise in the last 12 months). Computing a score with three questions (ever had asthma, ever had wheezing and wheezing with exercise in the last 12 months) no differences were observed.

Conclusions: FeNO values were significantly increased in atopics, children ever had wheezing or wheezing with exercise and who did asthma medication in the previous year. Parents' individual answers had poor ability to identify atopic children with high FeNO values. Questionnaires and objective measures may complement each other in this assessment.

1156
Omalizumab in adolescents with persistent allergic asthma

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Background: This open-label study analyzed the first 1-year experience of anti-IgE-treatment in childhood asthma in Russia.

Methods: Efficacy and tolerability of omalizumab in 15 adolescents (12–17 years; 8 males) with severe persistent alllergic asthma inadequately controlled on high-dose inhalled corticosteroides has been established. Omalizumab (225–375 mg) was administred subcutaneously once every 2 or 4 weeks. Dose was individualized for each patient based on the body weight and total serum IgE level at the first visit.

Results: Omalizumab significantly reduced the rate of severe asthma exacerbation by 65% and the rate of hospitalisation by 78% after 6 month of treatment. Omalizumab significantly improved asthma-related quality of life and asthma symptom scores. In two of 3 of patients achieved a ≥50% reduction in inhaled corticosteroides dose. Fluticasone dose reduction to ≤500 μg/day occurred in ½ patients. No serious adverse events on omalizumab was shown. The tolerability of anti-IgE-treatment was good in all adolescents.

Conclusions: Omalizumab treatment improves asthma control in severely young allergic asthmatics, reduces the rate of clinically significant exacerbations and asthma-related hospitalisations, and reduces inhaled corticosteroides and rescue medication requirements. Omalizumab is effective and should be considered as add-on therapy for adolescents with inadequatelly controlled severe persistent asthma despite therapy with high-dose inhaled corticosteroides.

1157
Association between body mass index and bronchial hyperresponsiveness in children

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Aim: We intend to evaluate relationship between body mass index (BMI) and bronchial hyper responsiveness (BHR) degree in children with bronchial asthma.

Material and methods: Retrospective study performed at the Department for asthma and allergic diseases at the Institute. This study involved 220 children with asthmatic diseases, at the age of 7 to 15 years (approximately 9.8 years.); 149 male and 89 female. BMI was calculated as weight/height^2 (kg/m^2). In all children BHR degree was detected with broncho-provocation test with PD20 histamine chloride: 1. children with manifested mild BHR degree who reacted on PD20–2000 μg histamine chloride; 2. children with moderate BHR degree with reaction on PD20–500 μg histamine chloride; 3. children with intensive BHR degree reaction on PD20–125 μg histamine chloride.

Results: Our patients were divided in three groups: I. BMI < 20 in 93 (40.6%) children; II. BMI = 20–24 in 88 (38.4%); III. BMI "d20 in 48 (20.9%). We had results as follows: I. group: 6.7% children with BHR mild degree, 39% with moderate degree = 39% and with intensive BHR degree = 49.5%; in second group $P = 13.6\%$ with mild, 36.6% with moderate and 51.1% with intensive BHR degree; in third grou$P = 12.5\%$ children were with mild, 37.5% with moderate and 50% with intensive BHR degree.

Conclusion: We had no confirmed difference in all three groups of our patients, association between BMI and BHR was not verified, respectively.

1158
Translation and adaptation of a pediatric asthma quality of life questionnaire into Macedonian – a pilot study

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Background: Quality of life in children with asthma correlates closely and is a result of the diseases control. Pediatric Asthma Quality of Life Questionnaire-PAQLQ by Juniper has been developed to measure asthma specific quality of life in children. The aim of the study was to translate and adapt the PAQLQ into Macedonian.

Methods: The investigation included 15 asthma children aged between 7–17 years, with Macedonian as a native language. PAQLQ self/interviewer-administered forms were translated into Macedonian by Mapi research institute, Lion, France. 10 children completed the interviewer-administered form, 5 of them aged 10 years and older completed the self-administered form too, and 5 children only the self-administered form.

Results: The younger age group completed the questionnaire in 15 min, and the older one in 10 min. Generally, the questionnaire was clear and easy to understand, and children didn't have difficulties in selecting answers at the response scale. Three children added 'dancing in folklore group' into the offered activities. The word 'irritated' most of the children changed into 'nervous', and 'different' into 'other'.

Conclusion: The Macedonian version of the PAQLQ was acceptable with a few changes which were implemented in the questionnaire by MAPI. Validation of PAQLQ in The Republic of Macedonia is in progress.

Key words: Pediatric asthma, quality of life, questionnaire

1159
Predicting short term response to anti-inflammatory therapy in children with pre-school asthma

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Background: Currently available anti-inflammatory treatment for first line therapy in pre-school asthma includes inhaled corticosteroids (ICS) and the leukotriene receptor antagonist (LTRA) montelukast.