

**Methods** Spirometry measurements were performed and DLCO was measured. The final data analysis was conducted on 57 diabetics (mean age 14.4 + 3.09 years, 31 males) and 40 healthy controls (mean age 13.6 + 2.2 years, 19 males).

**Results** Although FVC, FEV1, FEV1/FVC of diabetics were lower than in control, significant statistical analysis was found only for FEF 25–75. Statistically significant differences between diabetic and control girls was noted with lower FEV1, lower FEV1/FVC, lower FEF25–75 and reduced DLCO/VA values in diabetic girls. Almost no correlation was found for diabetes duration, HbA1c, HRV indices and pulmonary function variables.

**Conclusions** In conclusion, the results of our study indicate sub-clinical lung impairment in children with T1DM, with significantly reduced FEF 25–75 compared to control subjects, indicating early small airway obstructive pattern. In this study, statistically significant differences between diabetic and control girls was noted, suggesting obstructive airway disease, according to the spirometric evaluation, but restrictive derangement indicated by reduced DLCO/VA. Since total lung capacity was not measured in our study, we can not talk about a restrictive pattern according to reduced DLCO/VA, but gender appeared a significant determinant for pulmonary dysfunction.

### 667 GASTROESOPHAGEAL PH CHARACTERIZES FUNCTIONAL AIRWAYS RESPONSE IN ASTHMATIC CHILDREN

doi:10.1136/archdischild-2012-302724.0667

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**Background** Gastroesophageal acidity (GE pH) could be related to lung function and airway response to exercise in children with lower airways disease.

**Aims** To compare GE pH with lung function before and after exercise in asthmatic and non-asthmatic outpatients with recurrent respiratory symptoms.

**Methods** 16 asthmatic and 15 non-asthmatic patients (aged 4.5–15.7 yr; M/F 23/8) did lung function before and after 24-h GE pH monitoring (GE pH<sub>24</sub>). Subjects also undergone exercise-testing (treadmill) 1 hour before GE catheter removal. GE pH was also analysed for 6-minute intervals each (before, during and after exercise).

**Results** GE pH<sub>24</sub> levels did not correlate with exercise outcomes, nor yielded statistical differences between patient groups. Instead, GE pH<sub>24</sub> correlated positively with baseline FEV<sub>1</sub> % in asthmatic subjects ( $r=0.66$ ,  $p=0.006$ ) whereas correlated negatively in non-asthmatic subjects ( $r=-0.61$ ,  $p=0.016$ ). Median (interquartile range, IQR) values of GE pH fall during exercise in asthmatic but not in non-asthmatic children (–4.64, IQR:10.2 vs 0.00, IQR:5.64,  $p=0.033$ ). Conversely, GE pH values increased 1 hour after exercise only in asthmatic children (5.80, IQR:7.73 vs 0.00, IQR:9.82,  $p=0.012$ ).

**Conclusion** Our data suggest a characteristic relationship between GE pH, lung function and airway response to exercise in asthmatic children; whether GE pH is cause or consequence of these bronchial changes remains to be established.

### 668 YOUNGER CHILDREN ARE MORE RELIABLE IN ESTIMATING THE SEVERITY OF ASTHMA ATTACK COMPARING TO PARENTS AND OLDER CHILDREN

doi:10.1136/archdischild-2012-302724.0668

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**Background and Aims** Many studies emphasize that child's perception of asthma symptoms is not reliable.

We assessed correlation between objective and subjective asthma attack estimation and analyzed factors that affect objectivity.

**Methods** Independently from parents, 33 children ages 5–18 years estimated asthma attack severity from 0–10 by visual analog scale score (VASS) - subjective estimation. Objective estimation for each child was done in two ways: comparing absolute values of lung function parameters (LFP) with Zapletal's norms (ZN): LFP%ZN by Jaeger Flowscreen spirometer, and with individual best values during optimal disease control, individual norms (IN): LFP%IN. We analyzed the correlation between subjective and objective estimations.

**Results** VASS of children and parents were not in mutual correlation. VASS of children and parents were not in correlation with spirometric estimation (LFP%ZN). In younger children, correlation becomes statistically significant if we use IN instead of ZN (LFP%IN):  $r=-0.45$ ,  $p=0.049$  (FEV1);  $r=-0.52$ ,  $p=0.020$  (MEF50);  $r=-0.6$ ,  $p=0.005$  (MEF25). VASS of their parents were not in correlation with LFP%IN. In 15 of 20 cases, IN of younger children were higher than ZN, thus more valid. On the contrary, IN of older children were mainly below ZN (in 10 of 13), thus less reliable for estimation. In this group there was no correlation regardless of applied norm and whether the estimation was done by child or a parent.

**Conclusions** Children ages 5–10 years are more reliable in estimating the severity of asthma attack than older children and their parents who are adapted to lower child's possibilities.

### 669 MONITORING THE ASTHMATIC CHILDREN, A PROSPECTIVE STUDY

doi:10.1136/archdischild-2012-302724.0669

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**Background** Spirometry and biomarkers such as immunoglobulin E (IgE) levels, fractional exhaled nitric oxide concentration (FeNO) have been proposed for assessing the risk of future adverse events in Expert Panel Report 3 (US National Asthma Education and Prevention Program).

**Objectives** Evaluating the interrelationship between spirometry parameters and/or biomarkers levels (IgE, FeNO, blood eosinophils percentage) and specific symptoms in asthmatic children between hospitalization episodes.

**Material and Methods** 40 asthmatic patients were evaluated performing spirometry and measuring biological parameters (Ig E levels, blood eosinophils, Fe NO). Symptoms like cough, dispnoea, wheezing described in patients diaries were analysed in correlation with the spirometric and biological parameters using t-Test, Mann-Whitney test, Pearson correlations. For each symptom analysed, every time two groups have emerged (with symptoms or without symptoms).

**Results** Blood eosinophils were different for each symptom,  $p<0.05$  comparing each time the groups. The tendency for positive correlations  $p=0.08$  was noticed between FeNO and FEV1 (forced expiratory vital capacity). Positive correlations,  $p<0.05$  were found between studied parameters, most of the time in the same group (either the group with symptoms or the group without symptoms).