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 subclinical 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.

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 4–15.7 yr; M/F 23/8) did lung function before and after 24-h GE pH monitoring (GE pH24). 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 pH24 levels did not correlate with exercise outcomes, nor yielded statistical differences between patient groups. Instead, GE pH24 correlated positively with baseline FEV1 % in asthmatic but not in non-asthmatic children (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 (-4.6, IQR:10.2 vs 0.00, IQR:5.64, p = 0.035). Conversely, GE pH values increased 1 hour after exercise only in asthmatic children (5.80, IQR:7.75 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.

Background Spironolactone 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 (IgE levels, blood eosinophils, Fe NO). Symptoms like cough, dyspnea, 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 with symptoms or the group without symptoms).
Background and Aims. Asthma is a chronic inflammatory disease of the lower airways, whose treatment is conducted by guidelines in use, depending on clinical markers of disease control (ACT=asthma control test score) and spirometric values. Due to situations in which there is discrepancy between the two categories of parameters, we aimed this study to examine whether FENO measurement may be an additional argument in guiding the treatment.

Method. The prospective study lasted five months and included 30 patients diagnosed as moderate persistent asthma, aged 5–17 years, nonsmokers; ACT score, FEV1 and FENO were assessed.

Results. 12 patients had ACT>19; normal FEV1 values and FENO < 20 ppb; 13 patients had ACT < 19; 9 of them had normal FEV1 values and 16 had FENO values > 32 ppb.

Conclusion. FENO value correlates better than FEV1 with clinical asthma control score, so it can be an additional marker in therapeutic decision.

Pre and Post Bronchodilator Airway Resistance Values in Children with Asthma Using Airflow Perturbation Device (APD)

Background. Asthma is the most common chronic disease of childhood and pulmonary function testing plays an important role in assessment and management of children with asthma. Pre and post bronchodilator spirometry test is the most common pulmonary function measurement that is utilized in the diagnosis of asthma.

Methods. Respiratory resistance using APD was measured prior and 20 minutes after Albuterol in children with asthma who presented to the Pediatric Pulmonary Clinic at GUH.

Results. A total of 30 children with asthma (mean age: 10.6; range: 5.6–17) including 14 female and 16 male participated in the study. The respiratory resistance values by APD ranged from 3.34–5.22 CmH2O/L/S (mean 5.27) for pre bronchodilator treatment and 2.37–6.95 (mean 4.35) for post treatment. All 30 children showed decrease in respiratory resistance as measured by APD after bronchodilator therapy. The highest value of resistance was 8.22 which was seen in the youngest child (5.6 yo) and the lowest resistance was 3.54 which was seen in an older child (16 yo). These results are consistent with the findings that airway resistance decreases after bronchodilator therapy in patients with asthmahas been developed to measure airway resistance noninvasively and without need of extensive coordination. The APD is a simple and portable device that can be used easily by patients of all ages.

Conclusions. APD is a simple, convenient, effortless, and easy to use device that may be a used as a valuable tool in evaluation of children with asthma.

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