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Title: Prolonged esophageal pH monitoring in the evaluation of gastroesophageal reflux in children with bronchial asthma

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Body: Aim: Evaluation of the 24-hour esophageal monitoring results in children with GERD associated with asthma. Methods: In 41 children with asthma and GERD (16 erosive and 25 non-erosive cases of GERD) prolonged esophageal pH monitoring was performed. GINA-2010 and ESPGHAN-2009 criteria were applied. Results: 24 hours monitoring of the acid (pH<4) and alkaline (pH>8) exposition of esophageal mucosa showed a significantly longer exposition time in children during asthma exacerbation (acid - 164 minutes, 11.42±3.9%; alkaline - 104 min., 7.19±1.8%) comparing with GERD associated with controlled asthma (acid - 103 min., 7.14±2.3%; alkaline - 44.7 min., 1.86±0.9%), p< 0.05. A significant increase of frequency of alkaline reflux in asthma exacerbation was seen as compared with remission period (277.5±40.3 vs. 58.3±4.5, p<0.05). Also, analysis of the integrated DeMeester score showed increased values in uncontrolled asthma (59.72±12.6) comparing with controlled asthma (27.01±8.8; p<0.05). There was a correlation of DeMeester score and asthma severity (mild asthma – 21.1±7.5; moderate – 46.17±8.5; severe – 75.0±31.6 (p<0.05), that demonstrates an increase of acid and alkaline reflux with increasing severity of asthma. In mild asthma this score is equal to 82.0±5.8 acid and 92.4±10.2 alkaline reflux episodes; in moderate asthma – 154.9±31.9 and 304.5±48.2; in severe asthma only acid ones (185.6±9.6). Conclusion: Children with asthma associated with GERD have disorders of the esogastric junction motility during asthma exacerbations manifested with increase of reflux frequency and acid or alkaline exposition of the esophageal mucosa that correlates with asthma severity.