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Title: Induced sputum substance P in children with difficult-to-treat bronchial asthma and gastroesophageal reflux: Effect of esomeprazole therapy

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Body: Objectives. To assess the induced sputum substance P (ISSP) levels in children having difficult-to-treat asthma (DA) with and without gastroesophageal reflux (GER). We aimed also to evaluate the association of GER with childhood DA, relationship of GER severity with childhood asthma control test (C-ACT), FEV1, peak expiratory flow (PEF) variability, and ISSP. Finally, we tried to evaluate esomeprazole treatment effect on C-ACT and FEV1 in children with DA. Methods. Spirometry, C-ACT, upper gastrointestinal endoscopy, and ISSP measurement were done for children with DA compared to healthy controls. Results. ISSP was high in DA with higher levels in the group having associated GER. In the latter group, ISSP and C-ACT improved significantly after esomeprazole treatment while FEV1 and PEF variability did not improve. Reflux severity was positively correlated with ISSP and negatively correlated with FEV1. Conclusions. GER was found in 49% of our patients with childhood DA. Very high ISSP levels in children with DA may be used as a marker for presence of GERD. Esomeprazole therapy improved asthma symptoms but did not improve lung function.