

Gastroesophageal reflux and respiratory diseases

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Abstract

Gastro oesophageal reflux disease can cause respiratory symptoms. These symptoms are triggered by reflux events and stomach contents that reach the pharynx, causing micro aspiration or through vagal reflex. Respiratory symptoms can be vague and coexist with gastro esophageal reflux disease, without a real link between the two entities. To treat these patients effectively, it is important to find an association between the two diseases. In spite of numerous investigations, the relation between respiratory symptoms and reflux symptoms in the general population remains unclear, since population-based studies are few. An association between asthma and gastro-esophageal reflux have been reported, but it is unclear which condition develops first. The ability of gastro esophageal reflux disease to provoke asthma is controversial. Recent reports suggest that reflux to the proximal esophagus may aggravate asthma, but the prevalence of proximal reflux in children and adolescents is poorly documented. It is also unclear, how the sensitivity and specificity of the commonly used tests of reflux, viz. barium swallow, and scintiscan are compared with pH probe studies in young patients.

Key words: Gastroesophageal reflux disease, Asthma

INTRODUCTION

Gastro-Oesophageal Reflux Disease (GERD) is regurgitation of gastro duodenal content into the oesophagus which may be gastric or even bile from the duodenum. GERD can be associated with many respiratory symptoms or diseases. GERD and its associated manifestations are quite common problems in day to day practice in this part of our country¹⁻³. The pulmonary manifestations due to this are not well understood and are often not recognized. We reviewed the literature on the chronic respiratory tract symptoms

secondary to GERD in an attempt to promote recognition of this subject. This review will be helpful to the physicians for treatment of those patients in whom such a mechanism might be responsible for pulmonary symptoms.

GERD AND ASTHMA

The relationship of increased asthma symptoms, particularly at night to gastro-oesophageal reflux (GER) remains uncertain, although this condition is three times more prevalent in patients of bronchial asthma compared to general population^{4,5}. In a study of GERD, 137 (72%) of 189 consecutive asthmatics had heartburn and 35 (18%) had nocturnal burning in the throat⁶. In an Indian study, history of GERD was

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present in 52 of 70 (74.28%) asthmatics and 40 patients of these 52 also demonstrated a positive Bernstein test with a fall in FEV_1 of $> 20\%$ ⁷. Studies to address the development over time of GERD in asthmatics and the development over time of asthma in patients of GERD, after a mean follow-up of three years, concluded that a non-significant number of GERD patients were diagnosed with asthma, whereas a significant number of asthmatics were diagnosed with GERD⁸. Many factors can lead to GERD in asthmatics, including the presence of autonomic deregulation. Airway obstruction also triggers transient lower esophageal sphincter relaxations⁹. Medications used in asthma therapy can also potentiate GERD. Theophylline and oral beta2-agonist may increase the likelihood of symptoms by relaxing the lower oesophageal ring¹⁰. Furthermore, asthmatics have lifestyle issues that may predispose to GERD.

A diagnosis of gastro-oesophageal reflux in patients with asthma can best be made by simultaneously monitoring esophageal pH and lung function. GER is common and the enquiry about it should be made while taking history in the asthmatics. Because GERD is a potential asthma trigger, all asthmatics should be questioned about the possibility of gastroesophageal reflux symptoms^{7,11}. Patients may have heartburn, regurgitation, or worsening cough/bronchospasm associated with foods that lower the lower esophageal sphincter pressure. Patients should be asked about dysphagia. The frequency and severity of heartburn and other esophageal symptoms should be quantitated. The patients with chronic persistent symptoms should be evaluated with endoscopy to rule out the possibility of Barrett's esophagitis or other gastroesophageal reflux complications. In some patients, there may be respiratory symptoms associated with esophageal symptoms. For example, Field and colleagues¹¹ recorded that 41% of asthmatics experience reflux - associated respiratory symptoms, and 28% of them used inhalers. In asthmatic patient with prominent reflux symptoms, a trial of treatment with an H2 blocker or a proton pump inhibitor is required⁷. Combined therapy with omeprazole and domperidone in adult asthmatics with gastroesophageal reflux may be beneficial for reducing asthma symptoms, rescuing medication use and improving pulmonary function^{12,13}. The association between asthma and gastro esophageal

reflux (GER) has been further delineated with recent clinical investigations. The prevalence of GER development in asthmatics is higher than in control populations.

Asthmatics with GER have a higher risk of hospitalization. Asthma medications may be one of the promoting factors for GER development in asthmatics. Inhaled albuterol decreases lower esophageal sphincter (LES) pressure and esophageal contraction amplitude. Furthermore, oral prednisone results in increased esophageal acid contact times. Respiratory symptoms also correlate with esophageal acid events. The role of neurogenic inflammation in asthma-induced bronchoconstriction is also being investigated. Therapy of GER improves asthma outcomes in selected asthmatics. Currently, there are no double-blind, placebo-controlled, multicenter trials reporting asthma outcomes with antireflux therapy⁴. Fundoplication, a surgical procedure to treat GERD has been consistently shown to ameliorate reflux-induced asthma; and the results are superior to that of antisecretory therapy. In fundoplication, the fundus (upper part) of the stomach is wrapped around the inferior part of the esophagus, preventing the reflux of gastric acid in GERD. Analysis of reports on medical and surgical antireflux therapy for respiratory symptoms revealed that only 50% of the patients show improvement in symptoms with histamine-receptor antagonists. However, only two of the ten studies shows benefit in pulmonary function. With proton pump inhibitor, symptomatic improvement was seen in only 25% of the patients¹⁴. In an Indian study Omeprazole for 4 weeks resulted in significant improvement in drug score, symptoms score and spirometry as well as in gastric symptoms⁷.

GERD AND CHRONIC COUGH

In patients of chronic cough due to GERD, the term acid reflux disease, should be replaced by the more general term reflux disease because all patients with cough due to GERD did not improve with acid suppression therapy. In patients with chronic cough and associated GI complaints such as daily heartburn and regurgitation, especially when the findings of chest-imaging and/or clinical syndrome are consistent with an aspiration syndrome, the diagnostic evaluation should always include GERD as a possible cause.

Patients with chronic cough who have GI symptoms that are consistent with GERD should be prescribed antireflux treatment. In patients of chronic cough, it should not be assumed that GERD has been ruled out as a cause of cough simply because there is a history of antireflux surgery. In patients of chronic cough, a definitive diagnosis of cough due to GERD requires that cough nearly or completely disappear with antireflux treatment¹⁵.

CONCLUSION

In conclusion, GERD is responsible for precipitating the symptoms in a number of bronchial asthma and chronic cough patients. There is strong evidence that GERD plays an important role in patients with asthma. The patients with good history should be investigated to prove the aetiology. Even positive results on such direct tests as sputum inspection and scintigraphic monitoring, both of which establish reflux into the tracheo-bronchial tree, however may not establish cause or effect and can not be used to predict outcomes. Fair trial of antireflux treatment should be given to these patients. The current anti-reflux therapy/management that has survived the test of time, is given below:

- * Avoid eating for three hours before bed time.
- * Avoid dietary fat and large meals, which delays gastric emptying.
- * Elevate the head of the bed.
- * Use Proton pump inhibitors.
- * Undergo anti-reflux surgery.

A large field study is recommended on GERD and associated respiratory diseases to answer the unsolved queries and develop better modalities for the treatment.

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