

Pulmonary or otolaryngologic extraesophageal manifestations in patients with gastroesophageal reflux disease

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Received: February 3, 2009 Revised: December 6, 2009

Accepted: December 13, 2009

Published online: February 16, 2010

Abstract

The extraesophageal manifestations of gastroesophageal reflux disease that are similar to a heart attack or gastric diseases are well known, while those categorized as pulmonary or otolaryngological are less known and less studied. In this article, we introduce this less known aspect of gastroesophageal reflux.

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Key words: Gastroesophageal reflux; Extraesophageal symptoms; Gastroesophageal reflux disease

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Bresci G, Sacco R. Pulmonary or otolaryngologic extraesophageal manifestations in patients with gastroesophageal reflux disease. *World J Gastrointest Endosc* 2010; 2(2): 47-49 Available from: URL: <http://www.wjgnet.com/1948-5190/full/v2/i2/47.htm> DOI: <http://dx.doi.org/10.4253/wjge.v2.i2.47>

INTRODUCTION

The crossing of acid, pepsin and other noxious sub-

stances from the stomach into the esophagus causes of gastroesophageal reflux (GER). This reflux is a normal event in healthy people. It is defined as gastroesophageal reflux disease (GERD) when it causes symptoms related to excessive exposure of the esophageal mucosa to refluxed gastric contents^[1,2]. Prolonged exposure to gastric contents can lead to esophagitis and ulceration; however, GER can occur without esophagitis. GER often presents with typical symptoms, such as heartburn or acid regurgitation. However, nearly 40% of patients might present with a combination of symptoms and signs not directly related to esophageal damage. Such conditions are known as the extraesophageal manifestations of GERD^[3-5]. The extraesophageal manifestations of GER that are similar to heart attack or gastric disorder are well known, while those categorized as pulmonary and/or otolaryngological are less known and less studied. This article analyzes this less well-known aspect of GER.

FEASIBILITY

In contrast to common GERD, with predominant symptoms such as pyrosis (heartburn sensation) and/or acid regurgitation, the symptoms in patients with extraesophageal manifestations depend upon the anatomical structures involved in the acid reflux. The major pulmonary manifestations of GER include asthma, wheezing, cough, and shortness of breath. Moreover, those otolaryngologic manifestations of GER can present as laryngeal disorders, dysphagia, dysphonia, altered salivation, hoarseness, sore throat, and globus sensation. There are various otorhinolaryngological disorders related to GER, and it has been recognized that GER is a possible cause of manifestations localized in the rhino-sinus and auricular district. Furthermore, gingivitis and pitting of dental enamel have been reported in patients with GER.

CLINICAL APPLICATIONS

These pulmonary or otolaryngologic extraesophageal

manifestations of GER have a common pathophysiology, involving microaspiration of acid into the pulmonary tree, the larynx, and pharynx. Moreover these manifestations are mediated by cholinergic vagal pathways and might cause bronchospasm and laryngospasm. Increased GER has been described in up to 80% of asthmatics, but this high prevalence of abnormal acid exposure in asthmatics might be misleading, because wheezing and coughing could result in reflux episodes^[6]. Microaspiration of the stomach contents might bring about changes in the immune system that drive the development of asthma^[7]. GER has been confirmed to be one of the most common causes of chronic coughing^[8,9]. The relationship between coughing and GER is not completely clear, even though GER has been documented to be a cause of chronic coughing in 13%-38% of patients with GER. Chronic coughing in GER has been attributed to irritation of the esophagus and/or upper airways by reflux of gastric contents. There is also evidence to support that coughing might promote GER, probably by increasing the pressure gradient between the thorax and the abdomen or by causing transient lower esophageal sphincter relaxation. The role of extraesophageal reflux in such disorders is underestimated, due to silent symptoms and difficult confirmation of diagnosis. Care must be taken to determine if the patient has these pulmonary or otolaryngologic extraesophageal manifestations of GER, in addition to the typical symptoms of GER. Thus, we must deepen the investigation to rule out the cause of symptoms resulting from other factors. There has been no definite demographic or clinical profile available that permits us to distinguish between patients with and without GERD among those with ear, nose, and throat and pulmonary symptoms or chest pain. Moreover, the symptoms cannot predict the degree of esophagitis or future complications of GERD such as Barrett's esophagus. The diagnosis of reflux disease in these individuals can be challenging, because they might have an absence of heartburn and a negative esophageal mucosa injury during endoscopy. Patients with these symptoms should be a heterogeneous subgroup of GERD, either combined with and without typical esophagitis^[10,11]. The commonly used tests, such as laryngoscopy, upper gastrointestinal endoscopy or pH monitoring, are rather unreliable, with low specificity to define the exact diagnosis for the patients suspected of having extraesophageal symptoms of GERD. The treatment of these individuals is thus based on decrease in volume and potency of GER and protection of the mucosa from acid-induced injury^[12,13]. If the patient's history is typical for pulmonary or otolaryngologic extraesophageal manifestations of GERD, an initial trial of empirical therapy (including lifestyle modification, acid suppression, promotility therapy, maintenance therapy, antireflux surgery, and endoscopic therapy) is appropriate. Lifestyle modification may benefit many patients, although these changes alone are unlikely to control extraesophageal symptoms in the majority of such patients. Education of the patient about factors that may precipitate reflux remains reasonable. Numerous studies have indicated the

efficacy of elevation of the head of the bed, decreased fat intake, cessation of smoking, and avoiding recumbency within three hours after meals.

The more the stomach is stretched by food, the higher the tendency to reflux. The tendency is also increased by eating fatty meals, because fat delays gastric emptying. Avoiding large rich meals, particularly in the evening, will reduce the tendency to reflux. Chocolate, peppermint, coffee, fruit juices and alcohol prevent the esophageal sphincter from working properly. Weight loss also reduces stomach acid reflux. When symptoms persist, continuous therapy is required using antacids, antirefluxants (such as alginic acid) and promotility agents. The most effective therapy should be H₂ receptor antagonists or Proton Pump Inhibitors (PPIs), which are highly recommended by consensus as an optimal empirical treatment. Upper gastrointestinal endoscopy is in usual negative. Moreover, even if endoscopy and/or pH monitoring are positive, they will offer a low predictive value to determine the usefulness of therapy.

Patients with GERD-related extraesophageal manifestations have the same requirement for PPI as patients with typical symptoms of GERD. However, the optimal dose and length of PPI therapy remains unclear, due to the paucity and heterogeneity of trials that are often uncontrolled. In a minority of such cases where medical therapy has failed, the problem might be solved by a laparoscopic surgical procedure in which the oesophageal sphincter is strengthened (fundoplication).

EXPERT COMMENTARY

Since GERD is a prevalent condition characterised by frequent relapses, long-term costs of management for this disease are high. Thus, strategies to decrease resource expenditures without impairing the patient's quality of life are desirable. On-demand therapy (one-dose when symptoms occur) and intermittent therapy (short course of medication when symptoms occur) are attractive, as pharmaceutical expenditures might be decreased, and many patients self-medicate *via* this strategy^[14]. An alternative to traditional therapy in order to reduce costs is the step-down therapy^[15], i.e. switching from more potent to less expensive medication once symptoms are alleviated. This approach is successful in the majority of patients and can decrease costs without adversely affecting quality of life.

FIVE-YEAR VIEW

Pulmonary or otolaryngologic extraesophageal manifestations in patients with GER are emerging disorders with specific symptoms in need of clinical alerts. Further work to define quality of life and patient preferences associated with GERD may allow for a proper allocation of resources to manage this specific condition.

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S- Editor Li JL L- Editor Stewart GJ E- Editor Ma WH