

## Editorial

# Interplay between asthma and gastroesophageal reflux disease: A controversial issue

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Gastroesophageal reflux disease (GERD) is a quite common disease caused by the reflux of gastric contents into the esophagus and manifested by heartburn and acid regurgitation. Apart from the esophageal manifestations, GERD is implicated in extraesophageal manifestations including pulmonary manifestations i.e. asthma, chronic cough, pneumonia, idiopathic pulmonary fibrosis, otolaryngological manifestations i.e. laryngitis, otitis, polyps, cancer of the larynx, chest pain [1,2]. The relationship between GERD and pulmonary manifestations is quite challenging and ongoing research efforts have focused on the elucidation of the pathogenesis of GERD induced asthma.

Three mechanisms have been postulated in the aetiology of acid reflux induced asthma: (i) vagal mediated reflex, (ii) increased bronchial reactivity, (iii) bronchoconstriction due to aspiration of gastric acid. On the other hand, there are data supporting the notion of asthma induced GERD. There are reports of asthmatic patients who have been initially misdiagnosed as suffering from GERD [3]. Asthma results in physiological changes that might predispose to GERD disease. In that aspect, the increased pressure gradient between thorax and abdominal cavity and flattening of the diaphragm due to hyperinflation could impair the antireflux barrier and result in GERD. In addition medical treatment of asthma has been implicated in the pathogenesis of GERD. Especially, theophyllines have been implicated in an increase in gastric acid secretion and in a decrease of lower gastroesophageal sphincter pressure, enabling thus the appearance of GERD.

The pathogenetic link between GERD and asthma was suggested by epidemiological studies that have shown that asthma is more common among GERD patients in relation with normal controls [4]. GERD prevalence in asthmatic patients ranges between 30% and 90%. Attempting to establish a cause-effect relationship between GERD and asthma, a number of randomized controlled studies have examined the effect of proton pump inhibitor therapy in asthmatic patients. However, the results of these studies are discordant with some studies showing improvement of asthma symptoms in patients treated with acid suppressive treatment while other studies have shown no improvement [5]. Discordant results have also been published regarding the effect of acid suppressive treatment in asthmatic children suffering from GERD. Furthermore, a number of uncontrolled trials have investigated the effect of surgical treatment of GERD on symptom control of asthmatic patients. These studies have also resulted in discordant data [6,7].

In conclusion, there is an interplay between asthma and gastroesophageal reflux disease. Both clinical entities should be taken into consideration in the diagnostic approach of patients presenting with symptoms suggestive of GERD as well as of



asthma. Further research is needed in order to elucidate the mechanisms that link GERD with asthma. Novel knowledge is anticipated to lead to more efficient treatment of both GERD and asthmatic patients. More importantly, the interplay between GERD and asthma could generate a new paradigm towards an holistic and multidisciplinary approach of human diseases.

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