**Gastroesophageal Reflux Disease (GERD) is Associated with Worse Outcomes in Patients with Asthma Presenting to the Emergency Department**

Vishant Bansal, MD, Pankaj Aggarwal, BS, Kaveh Hajifathalian, MD, Akaash Mittal, BS, Scott Gabbard, MD and Nitin Aggarwal, MD

Introduction:

Gastroesophageal Reflux Disease (GERD) is a leading cause of chronic cough. Recent data show that GERD may be present in up to 70% of patients with asthma. Some have implicated both acid and non-acid reflux as an etiological factor in the bronchoconstriction associated with asthma. Furthermore, asthma guidelines recommend management of GERD as a way to treat poorly controlled asthma. However, given the limited body of literature in this field, experts now suggest that GERD may only be a small contributing factor in the pathophysiological mechanisms of asthma.

Methods:

We performed a retrospective review of the data in the 2013 National Emergency Database Sample (NEDS) to evaluate whether a diagnosis of GERD is associated with a worsening of outcomes in patients presenting to the Emergency Department (ED) with a principal diagnosis of asthma. These outcomes include hospitalization rate, health care utilization rates, length of stay, and cost visits.

Results:

There were a total of 440,381 ED visits with principal diagnosis of asthma in the United States. 54.3% of the patients were female, and mean (SD) age at visit was 32(16). In 20,610 (4.7%) of these visits diagnosis of GERD was also recorded for the patient. After adjusting for age, sex, and number of diagnoses, GERD was associated with an increased the risk of admission by 23% (RR 1.21, 95% CI 1.16-1.26, p<0.001). A diagnosis GERD was also associated with a lower cost of medical care, with an average savings of $4,973 per patient (95% CI 5668-4277, p<0.001). GERD was associated with significantly more frequent use of nebulizers in the ED (RR 1.24, 95%CI 1.12-1.39, p<0.001) and chest Computed Tomography (CT) scans (RR 1.66, 95%CI 1.05-2.62, p=0.029), but not with use of chest radiographs (RR 1.05, 95%CI 0.94-1.17, p=0.425). GERD was also associated with a shorter hospital stay, leading to an average difference of about 8 hours comparing patients with GERD and those without (RR 0.28, 95%CI 0.35-0.22, p<0.001).

Conclusions:

Our data show that GERD may play a large role in asthma exacerbations and visits to the ED. Furthermore, compared to those without GERD, patients with asthma who have GERD tend to need more diagnostic testing, hospital admissions, and increased costs of health care.