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Prevalence of GERD among adult asthmatics visiting a tertiary care hospital

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Abstract

Asthma and its control is influenced by both external environmental factors and also on the presence of several comorbid conditions like allergic rhinitis, gastro esophageal reflux disease(GERD), obesity etc. We aim to study the prevalence of GERD in adult asthmatic patients visiting a tertiary care hospital. We conducted a period prevalence survey of adult asthmatics visiting the outpatient department. Gastro esophageal reflux disease was diagnosed clinically through GERD-Q questionnaire. The study was conducted at Sri Venkateswaraa Medical College and Hospital and Research Institute, Chennai. A total of 110 patients were taken for the study. GERD was prevalent among 50% of the study population. 86.2% of the smokers in the study were having GERD. Mean Body Mass Index(BMI) in the study population was 29.14 +/- 4.8 with 72.7% of the patients with gastro esophageal disease were overweight in their body mass index. Significant number of patients with asthma are known to suffer from GERD. GERD worsens the symptoms in asthma and makes it difficult to control with regular inhalational therapy. Being overweight in BMI, smoking are risk factors to the development of gastro esophageal disease and also influence lung function in asthma patients. Symptoms for GERD must be questioned to treat the disease and adequately control asthma.

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INTRODUCTION

Asthma is common disease in the community. It is characterized by chronic intermittent respiratory symptoms which can vary over time and in intensity[6]. At least 25 percent of the population is documented to be suffering from chronic respiratory symptoms and not all patients are diagnosed and treated. Diagnosis of asthma relies on both clinical history and documentation of variable expiratory airflow limitation in pulmonary function tests[7].

Gastro esophageal reflux is a common disease in the community usually presenting with heartburn

and acid regurgitation. Risk factors for GERD are elderly age, excessive body mass index(BMI), smoking, anxiety/depression and sedentary lifestyle[14]. It is commonly accepted as a cause of chronic cough[5]. GERD can occur independently of asthma[8]. And is one of the reasons asthma is misdiagnosed in the society.

Difficult to treat asthma patients are patients whose symptoms are not controlled with standard therapy with inhaled corticosteroids at the usual doses[13]. These patients need complete evaluation for all known triggers and precipitating factors that increase airway inflammation and airway hyper-responsiveness[4]. One of the most important precipitating factors is GERD[4]. Persistence of reflux symptoms makes asthma difficult to control[9].

There are many possible mechanisms whereby GERD can cause and complicate asthma. These include a vagal mediated reflex affecting the smooth muscles of the airway, increased bronchial responsiveness and micro aspiration of gastric acid into the airways causing bronchoconstriction, elevated pressure differences between the chest and abdomen and hyperinflation which can compromise the gastro-esophageal junction and its musculature increasing the chances of gastro-esophageal reflux[1].

The prevalence of GERD in asthma has been studied in many studies. The true prevalence is difficult to comment, as asthma is characterized by its intermittent nature and persistence from childhood to old age in many patients, and very poor compliance in seeking treatment and continuing the treatment[11]. Asthma in itself can be complicated by allergic rhinitis, GERD, obesity, obstructive sleep apnea in various stages of life[10]. And these conditions can occur independent to asthma as well[12]. It's important to identify the co morbid conditions and treat them adequately to improve the quality of life for the patient. This study aims to understand the prevalence of gastroesophageal reflux disease in adult asthmatic patients visiting a tertiary care hospital

MATERIALS AND METHODS

The present Study was conducted in Sri Venkateswaraa Medical College Hospital And Research Institute, Chennai. Study is a period prevalence study of the patients who presented to the outpatient department. Patients who presented to the OPD with chronic respiratory symptoms similar to asthma had their pulmonary function tests done.

Inclusion criteria

- Asthmatics with PFT proven disease that is with a FEV1 reversibility of 12% and 200 ml post bronchodilatation
- Patients above 18 years of age

Exclusion criteria

- Patients below 18 years of age
- COPD patients
- Patients with obstructive sleep apnea
- Patients on medications for any co morbid conditions

All patients who fulfilled the above criteria's were evaluated for GERD through GERD-Q questionnaire. Scores between 11-18 from the questionnaire were taken as GERD. Additional details like sex, personal history was recorded.

RESULTS

A total of 110 patients were enrolled for the study. All of them had proven asthma confirmed in their PFT by the FEV1 reversibility of 12% and 200 ml post bronchodilatation criteria.37 female and 73 male were present in the study. Median age of the study participants was 37. Most of the patients were middle aged. 50% of the study populations were having clinical symptoms of GERD. Demographic details of the study population is shown in **Table 1**.

86.2% of the tobacco smokers were having GERD as shown in **Figure 1**.

All the smokers in the study were male. There were no female smokers in the study. These are one of the limitations of the study. All the smokers were current smokers who are finding it difficult to quit tobacco smoking.

Mean BMI in the study was 29.14 +/- 4.8. Most of the patients were above the overweight category. 72.7% of the patients with GERD were overweight as shown in **Figure 2**.

All female patients in the study who were having symptoms of GERD were overweight.

Table 1 Demographic data of the study population

MEDIAN AGE	37
SEX	33.6% females, 66.3% males
SMOKERS	26.3%
MEAN BMI	29.14 +/- 4.8
FEV1 , % of predicted	65.6 +/- 20.5

Figure 1 Distribution of patients according to their smoking history

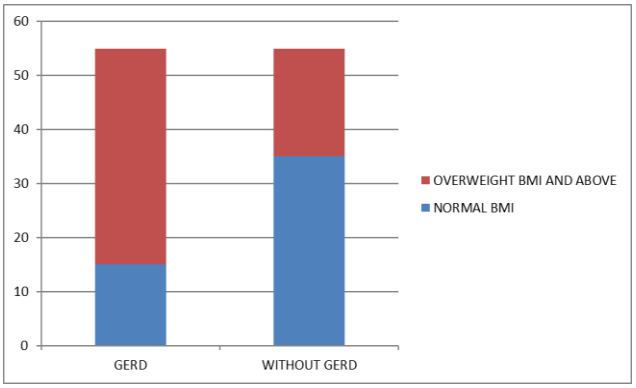

Figure 2 Distribution of patients according to BMI

DISCUSSION

Majority of patients with asthma or patients having symptoms suggestive of asthma relate the disease to GERD. Many of the general physicians opine the symptoms are a result of reflux and ignore lung evaluation. Importantly, the effect of GERD on asthma is still debated because not every patient yields absolute diagnostic values on PFT in their initial visit and asthma itself is an intermittent disease[6]. In the present study only asthmatics with PFT proven disease were included and GERD was diagnosed in 50 percent of the study population. Kiljander et al in his study found a prevalence of 36% of GERD among asthmatics [1]. Havemann et al in his systemic analysis calculated a prevalence of 58.4%[3][3]. Nearly similar prevalence was found by Compte et al at around 50[2].

Compte et al and kiljander et al had GERD diagnosed with 24 hr PH manometry. Havemann in his systemic analysis included primarily studies where 24 hr Ph manometry was done[2]. In our study GERD was diagnosed through a questionnaire which is one of the limitations of the study. However seldom 24 hr PH monitoring is done to diagnose GERD in clinical practice in India.

Mean BMI in the study was 29.14 +/- 4.8. 72.7% of the patients with GERD were overweight. Obesity is known risk factor for the development of GERD as noted by Richter et al[14]. Asthma and obesity is a complex association of comorbid conditions with both of them influencing each other. An overweight person with asthma is at sufficient risk to suffer from GERD in this study. A higher BMI, asthma and GERD play a complex interplay influencing the quality of life for the patients. However the sample size of the study is small and a larger sample is needed to confirm the findings.86.2% of the smokers were having GERD. Tobacco smoking is weakly associated with GERD as noted by Richter et al [14]. Our study only included current smokers and is period prevalence study. Longer follow up period and a better study design is required to find an association.

CONCLUSION

We conclude from our study that GERD is common among adult asthmatics, especially if the patient is overweight and is smoking tobacco. Careful history taking is necessary to identify the disease along with asthma so it can be treated adequately and improve the quality of life for the patient.

Ethical Approval

This research was conducted in line with the principles of the Declaration of Helsinki. All procedures involving study participants were carried out with care and consideration for their welfare, in compliance with ethical standards and regulations.

Author Contribution

All authors made substantial contributions to the conception, design, acquisition, analysis, or

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interpretation of data for the work. They were involved in drafting the manuscript or revising it critically for important intellectual content. All authors gave final approval of the version to be published and agreed to be accountable for all aspects of the work, ensuring its accuracy and integrity.

Conflict of Interest

The authors declare no conflict of interest, financial or otherwise.

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REFERENCES

[1] Kiljander TO, Laitinen JO. The prevalence of gastroesophageal reflux disease in adult asthmatics. Chest. 2004 Nov 1;126(5):1490-4.

[2] Compte L, Garrigues V, Perpiñá M, Ponce J. Prevalence of gastroesophageal reflux in asthma. Journal of Asthma. 2000 Jan 1;37(2):175-82.

[3] Havemann BD, Henderson CA, El-Serag HB. The association between gastro-oesophageal reflux disease and asthma: a systematic review. Gut. 2007 Dec 1;56(12):1654-64.

[4] Rameschandra S, Acharya V, Vishwanath T, Ramkrishna A, Acharya P. Prevalence and spectrum of gastro esophageal reflux disease in bronchial asthma. Journal of clinical and diagnostic research: JCDR. 2015 Oct;9(10):OC11.

[5] Nebel OT, Fornes MF, Castell DO. Symptomatic gastroesophageal reflux: incidence and precipitating factors. The American journal of digestive diseases. 1976 Nov;21:953-6.

[6] Harding SM, Richter JE. The role of gastroesophageal reflux in chronic cough and asthma. Chest. 1997 May 1;111(5):1389-402.

[7] Perrin-Foyalle M. Asthma and gastroesophageal reflux. Results of a survey of over 150 cases. Poumon Couer. 1980;36:225-30.

[8] Mays EE. Intrinsic asthma in adults: association with gastroesophageal reflux. Jama. 1976 Dec 6;236(23):2626-8.

[9] Irwin RS, Curley FJ, French CL. Difficult to control asthma: contributing factors and outcome of a systematic management protocol. Chest. 1993;103:1662-69.

[10] Richter JE. Gastroesophageal reflux disease and asthma: the two are directly related. The American journal of medicine. 2000 Mar 6;108(4):153-8.

[11] Sontag SJ, O'Connel S, Khandelwal S, et al. Most asthmatics have gastroesophageal reflux with or without bronchodilator therapy. Gastroenterology 1990; 99:613–620.

[12] Vincent D, Cohen-Jonathan AM, Leport J, Merrouche M, Geronimi A, Pradalier A, Soule JC. Gastro-oesophageal reflux prevalence and relationship with bronchial reactivity in asthma. European Respiratory Journal. 1997 Oct 1;10(10):2255-9.

[13] Nebel OT, Fornes MF, Castell DO. Symptomatic gastroesophageal reflux: incidence and precipitating factors. The American journal of digestive diseases. 1976 Nov;21:953-6.

[14] Richter JE, Rubenstein JH. Presentation and epidemiology of gastroesophageal reflux disease. Gastroenterology. 2018 Jan 1;154(2):267-76.

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