

**Research Paper****To study the prevalence of Gastroesophageal reflux disease in patients with airway obstructive disease**

Authors

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Dr J S Namdhari**Introduction**

Obstructive airway diseases (OAD) is a major cause of chronic morbidity and mortality throughout the world; it is the fourth leading cause of death in the world⁽²⁾. OAD is a preventable and treatable disease with some significant extra pulmonary effects that may contribute to the severity in individual patients. Its pulmonary component is characterized by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and associated with an abnormal inflammatory response of the lung to noxious particles and gases⁽¹⁾. Gastroesophageal reflux disease (GERD) is the collective term used to describe abnormal reflux of gastric content into the esophagus as well as the symptoms and mucosal disease associated with it. Clinical manifestations of GERD include heart burn, regurgitation, dysphagia, chest pain, cough and other esophageal symptoms. GERD is known to

cause erosive esophagitis and Barrette esophagus. Currently upper GIT endoscopy is the main clinical tool for visualizing esophageal lesions⁽³⁾. Micro aspiration of gastric contents and/or vagal nerve induced bronchospasm from gastric acid irritation of the esophagus may contribute to the observed association between GERD and pulmonary disease or symptoms⁽⁴⁾. Gastroesophageal reflux disease (GERD) may cause, trigger, or exacerbate many pulmonary diseases. The physiologic link between GERD and pulmonary diseases has been extensively studied in asthma; however, in other pulmonary diseases, including interstitial pulmonary fibrosis (IPF), cystic fibrosis and OAD, the link has been less well studied⁽⁵⁾. The prevalence of reflux symptoms is related to the degree of obstruction of airflow in patients with OAD⁽⁶⁾.

In a study done in Karachi, it was found that frequency of GERD in subjects with OAD was 39.7%⁽⁷⁾. In another study conducted in Iran, it has been established that GERD positive patients experienced more exacerbations of OAD. The rate of hospitalization due to OAD exacerbations was significantly higher in GERD positive patients and they had more severe OAD and more concurrent use of multiple therapies as compared with GERD negative patients⁽⁸⁾.

The rationale of my study is to explore the frequency of GERD in OAD patients and to create awareness among health care professionals that GERD is an important risk factor for OAD severity. This study will also help us in future to establish the fact that appropriate management and prevention of GERD in OAD patients will decrease morbidity.

Aims and Objectives

To evaluate the prevalence of GERD among OAD patients in a tertiary care hospital.

Material and Methods

Subjects

This prospective study was done at Department of Medicine, Gajra Raja Medical College, Gwalior (M.P.) over a period of 2 years. All patients with confirmed cases of COPD between age 18yrs and 85yrs on basis of clinical symptoms, signs and pulmonary function tests were included in the study. A total of 50 cases were included in the study by computer generated random sampling method. The grading of OAD patients was done according to the GOLD guidelines.

Patients were excluded if they were having other respiratory illness, OAD patients requiring ICU setting, chronic obstructive pulmonary disease, chronic smokers, had previous gastric or oesophageal surgery, scleroderma, with malignancy and immune suppressive therapy, and patients on acid suppressive therapy and ACE inhibitors therapy. Ethical clearance was obtained before conducting the study from the Institutional Review Board.

Methodology

All enrolled patients were given questionnaire which included: Age, gender, cigarette smoking, any other illness, any medication history, any previous surgeries, duration of respiratory disease, and any previous surgery. Then all patients underwent GERD FSSG Scale (Frequency Scale for Symptoms of GERD) questionnaire.

The FSSG has been proven to be a useful questionnaire for the assessment of GERD, and it was used to determine the prevalence and symptoms of GERD. This questionnaire is composed of 12 questions, which are scored to indicate the frequency of symptoms as follows: never=0, occasionally=1, sometimes=2, often=3, and always=4. The cut-off score for diagnosis of GERD is defined as 8 points. The unique feature of the FSSG is that the questions cover both acid regurgitation related symptoms (questions 1, 4, 6, 7, 9, 10, and 12) and gastric dysmotility-related symptoms (questions 2, 3, 5, 8, and 11).

Table 1: Questions of FSSG*

Questions
1. Do you get heart burn?
2. Does your stomach feel bloated?
3. Does your stomach ever feel heavy after meals?
4. Do you sometimes sub consciously rub your chest with your hand?
5. Do you ever feel sick after meals?
6. Do you get heart burn after meals?
7. Do you have unusual sensation in the throat?
8. Do you feel full while eating meals?
9. Do something gets stuck while swallow?
10. Do you get bitter coming up in to your throat?
11. Do you burp a lot?
12. Do you get heart burn if you bend over?

FSSG* - The frequency of scale for the symptoms of GERD.

Symptom Scale: Each question was scored as: Never=0, Occasionally =1, Sometimes=2, Often=3, Always=4.

If score >8 then GERD was considered to be POSITIVE.

All patients were subject to baseline investigations: CBC, LFT, RFT, pulmonary function test, x-ray chest and ECG.

The confirmation of GERD was done by using objective evidence with Gastro- Esophageal endoscopy to all GERD positive cases obtained by

FSSG SCALE Questionnaire method. Grading of GERD was done with endoscopy report according to Los Angeles classification. The severity of oesophagitis was categorized by gastro-oesophageal endoscopy as Grade A to Grade D according to the classification used. Then the severity of GERD was compared with severity of OAD cases. Those cases which were confirmed by endoscopy were taken as positive for GERD and were taken for the final analysis.

Table 2: Los Angeles grading of GERD

Grade A – Mucosal break = 5mm in length
Grade B – Mucosal break >5mm
Grade C – Mucosal break continuous between >2 mucosal folds
Grade D – Mucosal break > 75% of esophageal circumference.

Statistical Analysis

All analysis was performed by using SPSS software. Categorical data were presented as percentages, while continuous data were presented as means and standard deviation. Chi –square tests were used to analyse categorical and continuous variable. p value less than <0.05 was considered to be statistically significant with 95% confidence interval.

Observation and Results

The present study was carried out in Department of Medicine, GRMC Gwalior. During the study period of 2 years 50 patient were studied. The findings and observations are as follows;

Table 1: Distribution of cases according to age

Age (yrs)	No. of patients	Percentage
< 30	0	0
30-40	3	6
41-50	16	32
51-60	17	34
> 60	13	26
Total	50	100

In the present study patient age ranges from 15-85 years in the following order with maximum number of cases in the age group 51 -60 years (17 patient-34%), 41 -50 years (16 patients -32%), >60 years (13 patients -26%), and lastly between 30-40 years (3 patients- 6%).

Table 2: Distribution of cases according to gender

Gender	No. of patients	Percentage
Male	40	80
Female	10	20
Total	50	100

p value : 0.004

Chi square : 8

In present study 50 patients were distributed according to their gender, which shows that there were 40 male and 10 female.

Table 3: Prevalence of GERD

	No. of patients	Percentage
GERD	29	58
No GERD	21	42
Total	50	25

p value : 0.009

Chi square : 6.65

In present study among 50 OAD patients 29 patients (58%) were having GERD while 21 patients (42%) were having no evidence of GERD on endoscopy.

Table 4: Prevalence of GERD with severity of OAD

OAD severity	GERD	No GERD
Stage 1 and 2 (Mild to moderate)	10	21
Stage 3 and 4 (Moderate to severe)	18	1
Total	28	22

p value : 0.0001

Chi square : 18.6

In present study prevalence of GERD in mild to moderate severity OAD- 10 patients (20%), while in severe to very severe OAD -18 patients (36%).

Discussion

Gastroesophageal reflux disease (GERD) is one of the most common causes of chronic cough and a potential risk factor for exacerbation of chronic obstructive pulmonary disease (OAD). The association between gastroesophageal reflux (GERD) and chronic obstructive pulmonary disease (OAD) has been previously investigated⁹. Cross-sectional studies with limited sample size have reported, with some exceptions, that esophageal disease-related symptoms are more common and more severe in OAD patients than in other general medicine patients.¹⁰⁻¹² The cause of

this important association is unknown, but these data suggest not only that GERD is more common in OAD, but also that by increasing exacerbations, GERD may alter OAD presentation and course.

We planned this study to explore the frequency of GERD in OAD patients and to create awareness among health care professionals that GERD is an important risk factor for OAD severity so that the results may help us in future to establish the fact that appropriate management and prevention of GERD in OAD patients will decrease morbidity.

In our study, out of 50 cases of OAD, 85 years in the following order with maximum number of cases in the age group 51 -60 years (17 patient-34%), 41 -50 years (16 patients -32%), >60 years (13 patients -26%), and lastly between 30-40 years (3 patients- 6%).

In present study among 50 OAD patients 29 patient (58%) with statistically significant p value: 0.009 were having GERD while 21 patients (42%) were having no evidence of GERD on endoscopy. Our findings are in agreement with a study done in Karachi, where they measured the frequency of gastroesophageal reflux disease (GERD) in subjects with chronic obstructive pulmonary disease (OAD) presenting at the department of Pulmonology, PNS SHIFA and recorded that frequency of GERD in subjects with OAD was 39.7%.⁹

In present study prevalence of GERD in mild to moderate severity OAD- 10 patients (20%), while in severe to very severe OAD -18 patients (36%) with statistical significant p value: 0.0001. Similar results were observed by Adel Khattab and others¹⁴, they studied the prevalence of GERD in OAD patients and its effect on the number of exacerbations of OAD, they recorded that the prevalence of GERD in OAD patients was 53.3% in the moderate group, 73.3 in the severe group (total= 63.3%) by endoscopy & was 66.6% in the moderate group, 93.3 % in the severe group ((total= 80 %) by biopsy being more prevalent in the severe group of OAD. GERD severity increases as the degree of OAD increases (there were more patients with advanced grades among

severe OAD than the moderate group). GERD increases with increase in the smoking (pack/year) both in moderate & in the severe groups. Moreover, there was increase in the frequency of exacerbations of OAD in GERD patients both in moderate & in the severe groups, the above study is in agreement with the findings of the study that GERD is associated with OAD, however, being the limitation of the current study we did not stratify the frequency according to the severity of OAD and causative factors of GERD i.e. smoking etc.

Another study by Mokhlessi et al¹⁴ using GERD questionnaire given to 140 patients and observed a high prevalence of GERD symptoms in patients with OAD with a trend to higher prevalence in severe OAD and increased use of acid suppressive medications among patients with OAD than the control; but this study had a limitation of not having objective measurements of acid reflux.

However, the findings of the current study are helpful for us in future to establish the fact that appropriate management and prevention of GERD in OAD patients may decrease morbidity.

Conclusion

GERD and OAD are very common problems in the society and a patient who has OAD may show wide range of atypical symptoms of GERD. It is important to diagnose this phenotype of population that has both GERD and OAD, as one disease may increase the manifestation of the other illness. Increased risk of GERD and pulmonary microaspiration is seen in OAD patients leading to acute exacerbations in OAD causing high economic burden.

Treatment of GERD in such patients may be helpful in reducing this burden as it decreases the frequency of acute exacerbations. The common approaches for the management of GERD include life style changes and drug therapy. Surgical approaches are reserved for patients with severe symptoms. However, there is lack of concrete evidence to suggest that GERD treatment will definitely eliminate exacerbation in OAD patients,

still proper management of GERD in such patients is critically important for reducing increased health care expenditure and quality of life.

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