

A CROSS-SECTIONAL REGARDING FREQUENCY OF GERD IN COPD PATIENTS AT  
A TERTIARY CARE UNIT

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## ABSTRACT

Gastroesophageal reflux disease (GERD) is one of the most common causes of chronic cough but association between gastro-oesophageal reflux disease and COPD exacerbation is controversial. Many studies favors that frequency of Gastroesophageal reflux disease (GERD) is found to be higher in COPD patients. The aim of this study is to determine the frequency of GERD in COPD patients it will help in deciding whether to routinely assess COPD patients for the likelihood of GERD or not. **Methodology:** It is a Cross-sectional study done at Department of Pulmonology, Nishtar Hospital Multan from January 2018 to June 2018. We enrolled 190 patients of diagnosed Chronic Obstructive Pulmonary Disease through pulmonary function test (PFTs) having age > 40 years, either Gender. These patients were evaluated through GERD questionnaire for presence of GERD. **Results:** In our study, out of 190 cases of COPD (diagnosed through pulmonary function test), 17.9% (n=34) were between 40-50 years of age, 28.4% (n=54) were between 51-60 years of age, while 53.6% (n=102) had >60 years of age. The mean age was  $55.34 \pm 7.33$  years. In our study male to female ratio was very high i.e. 5.3:1, 84.2% (n=160) were male and 15.8% (n=30) were females. We recorded Frequency of GERD in COPD patients was 42.1% (n=80). **Conclusion:** The results of our study favors that the frequency of GERD is high among patients with COPD. So, it is recommended that every patient who present with COPD, should be evaluated for GERD. It is also recommended that every tertiary care center should evaluate association between GERD and COPD, so that a large more valuable data can be collected.

**KEYWORDS:** Chronic Obstructive Pulmonary Disease, Gastroesophageal Reflux Disease, Frequency.

## INTRODUCTION

Chronic obstructive pulmonary disease (COPD) has an extensive, adverse effect on patient's life and burden on healthcare system. It is frequently augmented by acute exacerbations, which increase the risk of morbidity and mortality of COPD and ultimately leads to accelerated decline in lung function.<sup>[1]</sup> With respect to the healthcare system, chronic obstructive pulmonary disease causes high resource utilization, which includes frequent clinician office visits, frequent hospitalizations due to acute exacerbations, and chronic therapy.<sup>[2]</sup> COPD has two Clinico-pathological types including asthma, emphysema and chronic bronchitis. It develops as chronic inflammatory response to inhaled irritants, gases and recurrent infections.<sup>[3]</sup> COPD is a common preventable and treatable disease, which is characterized by persistent airflow limitation that is usually progressive and associated with an abnormal inflammatory response of the lung to noxious particles or gases.<sup>[4,5]</sup> The underlying mechanisms of acute exacerbation of COPD are still not clear. One of the suggested risk factors for COPD exacerbations is gastroesophageal reflux disease. Gastroesophageal reflux disease is a common

gastrointestinal disease that is defined as a condition of troublesome symptoms and / or complications caused from reflex of stomach contents.<sup>[6]</sup> GERD may adversely effects many lung diseases including chronic cough, bronchial asthma, bronchial pneumonia and pulmonary fibrosis. It is proposed that aspiration of gastric contents due to reflux and vagal nerve induced bronchospasm from gastric content irritation may contribute to the observed association between GERD and pulmonary disease. The association between gastroesophageal symptoms and respiratory symptoms is well recognized in the setting of asthma<sup>[7]</sup>, in other pulmonary diseases including COPD, the link has been less well studied. In a study done in Karachi, it was found that frequency of GERD in subjects with COPD was 39.7%<sup>8</sup>. The rate of hospitalization due to COPD exacerbations was significantly higher in GERD positive patients and they had more severe COPD and more concurrent use of multiple therapies as compared with GERD negative patients.

Apart from the questionable relationship between GERD and COPD, there is not enough regional or international

data is present to establish their association. Keeping in view this observations, we planned to measure the frequency of gastro esophageal reflux disease (GERD) in patients with chronic obstructive pulmonary disease (COPD) and to create awareness among health care professionals that GERD is an important risk factor for COPD severity. If frequency of GERD is determined to be higher in COPD patients, it will help in deciding whether to routinely assess COPD patients for the likelihood of GERD or not. Moreover this study will provide base for further studies to determine the relationship between GERD and COPD.

### Definitions

#### COPD

1. Diagnosis of COPD was accepted if:
2. FEV1/FVC <0.7
3. Age > 40 year
4. Smoker with >20 pack-year history of smoking

#### GERD

GERD was evaluated with frequency scale for symptoms of GERD (FSSG) questionnaire consisting of 12 questions attached as an annexure. The frequency of each question was quantified on a scale ranging from 0 to 4 points as follows:

0: none (not in past year).

1: occasionally (a few times in past year)

2: sometimes (a few times in past month)

3: often (a few times in past week)

4: always (everyday).

Patients with FSSG score of more than 8 were considered as GERD positive.<sup>[8]</sup>

**COPD exacerbations** COPD exacerbation was defined as per the criteria of "Global Initiative for Chronic Obstructive Lung Disease (GOLD)"<sup>[12]</sup>. An acute COPD exacerbation was defined as worsening dyspnea, increasing volume of sputum, or purulent sputum in conjunction with physician initiated use of corticosteroids or antibiotics and hospital admission.

### METHODOLOGY

It is a Cross-sectional study done at Department of Pulmonology, Nishtar Hospital Multan from January 2018 to June 2018. We enrolled 190 patients of diagnosed Chronic Obstructive Pulmonary Disease through pulmonary function test (PFTs) having age > 40 years, either Gender. These patients were evaluated through GERD questionnaire for presence of GERD. All the patients who fulfilled above definition criteria of COPD were included in the study. Patients with known respiratory disorders other than COPD (such as asthma or idiopathic pulmonary fibrosis) (ruled out by history, physical examination and pulmonary function tests) and known esophageal diseases such as cancer, achalasia, stricture, active peptic ulcer disease, gastric carcinoma, patients on gastro-toxic medications like steroids, NSAIDs, SSRIs and so forth, with a history of hiatus

hernia or previous surgery for GERD were excluded from the study.

### RESULTS

In our study, out of 190 cases of COPD (diagnosed through pulmonary function test), 17.9% (n=34) were between 40-50 years of age, 28.4% (n=54) were between 51-60 years of age, while 53.6% (n=102) had >60 years of age. The mean age was 55.34±7.33 years. In our study male to female ratio was very high i.e. 5.3:1, 84.2% (n=160) were male and 15.8% (n=30) were females. We recorded Frequency of GERD in COPD patients was 42.1% (n=80).

**Table. 1: Age distribution (n=190).**

Age(in years)	No. of patients	%
40-50	34	17.9 %
51-60	54	28.4 %
>61	102	53.6 %
Total	190	100 %

mean±sd: 55.34±7.33

**Table. 2: Gender distribution (n=190).**

Gender	No. of patients	%
Male	160	84.2
Female	30	15.8
Total	190	100

**Table. 3: Frequency of GERD in COPD patients (n=190).**

GERD	No. of patients	%
Yes	80	42.1
No	110	57.9
Total	190	100

### DISCUSSION

GERD is a common comorbidity in those with COPD and has a variety of clinical presentations. The index of clinical suspicion should remain high, and objective measures should be used for diagnostic confirmation. The best way to identify pulmonary microaspiration of gastric contents in COPD remains to be established. The association between gastroesophageal reflux (GERD) and chronic obstructive pulmonary disease (COPD) has been previously investigated.<sup>[10]</sup> Cross-sectional studies with limited sample size have reported, with some exceptions, that esophageal disease-related symptoms are more common and more severe in COPD patients than in other general medicine patients.<sup>[11-13]</sup> The cause of this important association is unknown, but these data suggest not only that is GERD more common in COPD, but also that by increasing exacerbations, GERD may alter COPD presentation and course. We planned this study to explore the frequency of GERD in COPD patients and to create awareness among health care professionals that GERD is an important risk factor for COPD severity so that the results may help us in future to establish the fact

that appropriate management and prevention of GERD in COPD patients will decrease morbidity.

In our study, out of 190 cases of COPD (diagnosed through pulmonary function test), 17.9% (n=34) were between 40-50 years of age, 28.4% (n=54) were between 51-60 years of age, while 53.6% (n=102) had >60 years of age. The mean age was 55.34±7.33 years. In our study male to female ratio was very high i.e. 5.3:1, 84.2% (n=160) were male and 15.8% (n=30) were females. Our findings are similar to a study done at the department of Pulmonology, SHIFA Karachi, where they measured the frequency of gastro esophageal reflux disease (GERD) in patients with chronic obstructive pulmonary disease (COPD) was 39.7%.<sup>[8]</sup>

Adel Khattab and others<sup>[14]</sup> studied the prevalence of GERD in COPD patients and its effect on the number of exacerbations of COPD, they recorded that the prevalence of GERD in COPD 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 COPD. GERD severity increases as the degree of COPD increases (there were more patients with advanced grades among severe COPD 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 COPD 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 COPD, however, being the limitation of the current study we did not stratify the frequency according to the severity of COPD and causative factors of GERD i.e. smoking etc.

Another study by Mokhlessi et al<sup>[15]</sup> using GERD questionnaire given to 140 patients and observed a high prevalence of GERD symptoms in patients with COPD with a trend to higher prevalence in severe COPD and increased use of acid suppressive medications among patients with COPD 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 COPD patients may decrease morbidity.

## CONCLUSION

The results of our study favors that the frequency of GERD is high among patients with COPD. So, it is recommended that every patient who present with COPD, should be evaluated for GERD. It is also recommended that every tertiary care center should evaluate association between GERD and COPD, so that a large more valuable data can be collected.

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