

Study of Gastro Esophageal Reflux Disease in COPD Patients

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Abstract: The association between gastro-esophageal reflux disease (GORD) and chronic obstructive pulmonary disease (COPD) exacerbation has so far remained unclear.

AIMS AND OBJECTIVE: To Study the prevalence of GERD in COPD patients (in western part of UP).

To analyze the association of GERD and stage of COPD.

Methods: A total of 100 patients of diagnosed COPD as defined by GOLD guidelines were taken. Symptoms of GERD was evaluated by taking a proper history and the patients who were having the symptoms of heartburn and regurgitation were underwent for UGI endoscopy and graded accordingly.

Inclusion criteria was -Age >30 year, Stable COPD patients and **Exclusion criteria** was Respiratory disorder other than COPD, Known esophageal disease such as cancer, achalasia, stricture, Patient with ALD, CKD and ASCITES, Recent history of MI or STROKE, Acute cardio-respiratory failure. Statistical analysis was performed for categorical data and the independent *t* test for interval data.

RESULT: There are (54)% patients who have symptoms of GERD present and they underwent UGI endoscopy to look for presence of inflammation, erosions or ulcerations. Stage 1 COPD have 15 patients in which symptoms of GERD were absent and 1 had symptoms, which is of Grade A, and in Stage 2 COPD have 10 patients in which symptoms of GERD were present, out of which 9 were from Grade B and 1 from Grade A and in Stage 3 COPD have 9 patients in which symptoms of GERD were absent and 43 had symptoms, out of which 5 were from Grade-A 24 were from Grade B and 14 were from Grade C.

Conclusion: Reveals much high association between the COPD and GERD, and more the stage of COPD higher the chance of GERD.

Keywords: COPD Patients, gastro-esophageal reflux disease GERD.

1. INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is defined as a state characterized by airflow limitation that is not fully reversible. COPD includes emphysema, chronic bronchitis, small airway disease.

It is fourth leading cause of death and affect >10 million people in the United States. Estimate suggest that COPD will rise the sixth to the third most common cause of death worldwide by 2020¹.

"A diagnosis of COPD should be considered in any patient who has symptoms of cough, sputum production, or dyspnea, and or a history of exposure to risk factors for the disease. The diagnosis is confirmed by spirometry. The presence of a post bronchodilator FEV1 < 80% of the predicted value in combination with an FEV1/FVC < 70% confirms the presence of airflow limitation that is not fully reversible.

2. GERD

Gastro 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 manifestation of GERD include –Heart burn, Regurgitation, Dysphagia, Chest pain, Cough and other esophageal symptoms.

GERD is known to cause erosive esophagitis and Barrete esophagus. Currently upper GI endoscopy is the main clinical tool for visualizing esophageal lesions. 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. ⁽²⁾

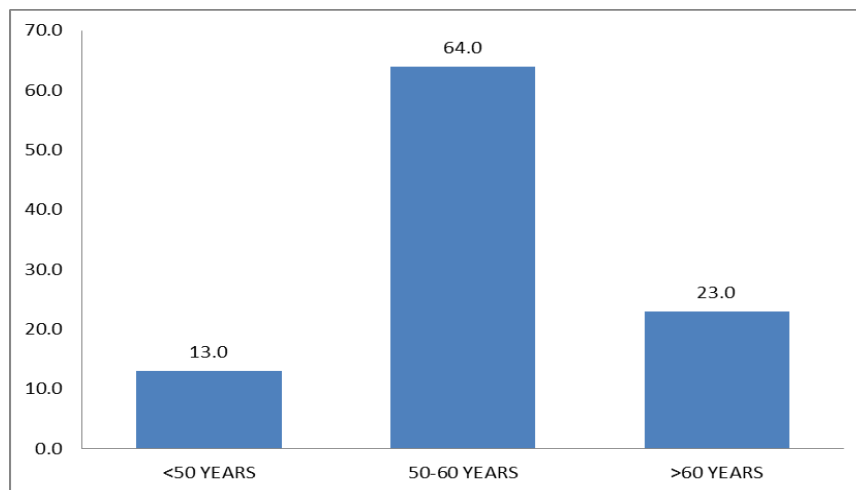
3. STUDY DESIGN

A total of 100 patients of diagnosed COPD as defined by GOLD guidelines attending the outpatient medicine and Inpatient of Subharti hospital affiliated with Swami Vivekananda subharti university, Meerut were screened. Detailed history regarding the disease, any systemic illness, smoking history, medication history was taken. Detailed histories regarding the symptoms of GERD were taken.

Following investigation were done

- (A) Routine laboratory investigation-CBC, LFT, KFT, RBS
- (B) Chest x-ray (postero-anterior view)
- (C) Pulmonary function test: in form of spirometry
- (D) Upper GI endoscopy.

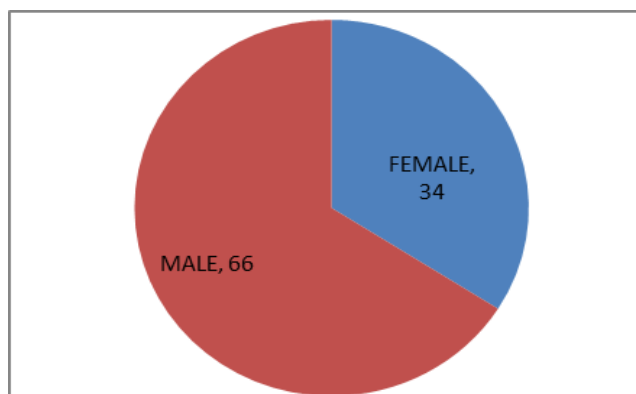
4. RESULT



GRAPH 1: AGE WISE DISTRIBUTION

As seen in above table majority of patients were in age group 50-60 years. 64 In number.

PIE DIAGRAM: Sex distribution of patients



Majority of the patients in the groups were Male (66%) and female were (34%).

TABLE 1: Correlation between stage of COPD and symptom, Grade of GERD

VARIABLES		STAGE OF COPD						Total		P-VALUE
		1		2		3				
		FRE	%	FRE	%	FRE	%	FRE	%	
PTO M OF GER	ABSENT	15	93.8		68.8	9	17.3	46	46.0	<0.001 (SIG)
	PRESENT	1	6.3	10	31.3	43	82.7	54	54.0	
GRADE OF GERD	A	1	6.3	1	3.1	5	9.6	7	7.0	<0.001 (SIG)
	B	0	0.0	9	28.1	24	46.2	33	33.0	
	C	0	0.0	0	0.0	14	26.9	14	14.0	
	ABSENT	15	93.8	22	68.8	9	17.3	46	46.0	
TOTAL		16	100.0	32	100.0	52	100.0	100	100.0	

Stage 1 COPD have 15 patients in which symptoms of GERD were absent and 1 had symptoms, which is of Grade A, and in Stage 2 COPD have 10 patients in which symptoms of GERD were present, out of which 9 were from Grade B and 1 from Grade A and in Stage 3 COPD have 9 patients in which symptoms of GERD were absent and 43 had symptoms, out of which 5 were from Grade-A 24 were from Grade B and 14 were from Grade C. This shows higher the stage of COPD more the grade of GERD. The p value is significant <0.001.

5. DISCUSSION

This work titled “A Study of Gastroesophageal Reflux disease in COPD patients” was carried out in the Dept. Of Medicine, Chhatrapati Shivaji Subharti Hospital, Subharti Medical College, Meerut from December 2014 to June 2016.

Gastroesophageal reflux is an important cause of chronic pulmonary disease. Particularly, chronic bronchitis and asthma are the two conditions in which there may be a chicken-and-egg association between the pulmonary problems and gastroesophageal reflux⁽³⁾.

The present study was undertaken to find out to the prevalence of GERD in COPD patients (in western part of UP) and to Analyze the association of GERD and stage of COPD in diagnosed patient of COPD.

The total number of patients was (100) out of which males was 66 while the females enlisted were 34. The age of the patients ranged from a minimum of 41 years to a maximum of 82 years. The age and sex difference was found to be statistically insignificant.

In the present study, GERD was observed in 35 male patients and 19 female patients’ total of (54) patients.

Liang BM et Al. in 2012⁽⁴⁾ in a total of 1486 patients explored the association of GERD in patients with impaired pulmonary function and they concluded that the severity of hyperinflation and dyspnea may be important associated risk factors for the incidence of GERD symptoms in patients with clinically stable COPD.

Kim J et al in (2013)⁽⁵⁾ in patients of age 40 or more done a study to investigate the prevalence and risk factors of GERD in patients with COPD and found the prevalence of GERD in COPD patients was 28% (39, 987/141, 057). In our study, we found that the prevalence of GERD in COPD patients is 54% (P<0.001).

Gadel AA et al in (2012)⁽⁶⁾ in 40 male COPD patients and 10 healthy controls found that there was a high prevalence of GERD in COPD patents especially elderly, severe stage of COPD, high smoking index and high body mass index (BMI). **So our findings are in accordance with this study as we found 43 patients having GERD are of Grade 3 COPD and 53.1% patients are smoker.**

Another study done by **Kamble NL et al in (2013)⁽⁷⁾** also stated that that there is an increased occurrence of GERD in patients with even mild-to-moderate COPD in 50 patients of COPD based on the Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines.. And concluded that rate of GERD was 78%.

Robert et al⁽⁸⁾ also concluded that GERD is common in advanced COPD patients.(35). On 41 COPD outpatient with a mean FEV1 of 24% (advanced COPD) on their baseline medical regimen at the time of study, using dual probe 24 hr

esophageal PH monitoring and manometry revealed that the prevalence of GERD was 57%. Our results are in accordance with previous studies

Casanova C in (2004)⁽⁹⁾ done a study and found the prevalence and clinical consequences of GERD in COPD patients was 62%, of which 58% did not report any reflux **symptoms**. This shows that the prevalence of GERD is high in COPD, another study done by Kempainen RR in (2007) found the prevalence of GERD was 57% in COPD patients. In our study the prevalence of GERD in COPD is 54%.

Recently, Mokhlessi *et al.* ⁽¹⁰⁾, using a modified version of a validated GERD questionnaire given to >100 patients, observed a high prevalence of mild GERD symptoms in patients with COPD. Mokhlessi *et al.* also showed a trend to higher prevalence in severe COPD patients, similar to the current study (54%). The current study confirms a high prevalence of GERD, but surprisingly, its presence was not associated with significant outcome changes.

6. CONCLUSION

- The Present Study has shown a high association of Gastro esophageal reflux disease and Chronic obstructive pulmonary disease.
- The prevalence of Gastro esophageal reflux disease is much higher in patients of Chronic obstructive pulmonary disease.
- Gastro esophageal reflux disease has been shown to have a direct proportional relation with amount and duration of smoking.

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