

Correlate the Symptoms and Endoscopic Findings of GERD with Severity of Obstructive Airway Disease as Assessed by Spirometric Parameters

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ABSTRACT

GERD is found to be one of the risk factors for various pulmonary disorders, like Obstructive Airway Disease, Obstructive Sleep Apnea, Interstitial Lung Diseases either directly or as a confounding factor. This study focuses to study the prevalence and types of pulmonary disability in patients with GERD in a tertiary care hospital and to correlate the Symptoms and Endoscopic findings of GERD with severity of Obstructive Airway Disease as assessed by Spirometric Parameters. Gastroesophageal reflux disease (GERD) is a complaint in which the esophagus develops inflamed since of reflux of acid from the stomach that exceeds the normal limit causing symptoms with or without mucosal injury. This research focuses on the Bronchial Asthma and COPD were predominant Respiratory impairment in patients of GERD with prevalence of 52.67% and 47.33% respectively in our study. 150 subjects of endoscopically proven GERD patients were evaluated for the prevalence and types of Respiratory disability by detailed history, clinical examination, Chest x-ray, Peak Expiratory Flow Rate (PEFR) and Spirometry. There was a male preponderance of 63% in our study. Majority (69.4%) of patients were under the age group of 18-30 years and 48% of the subjects were overweight. Predominant Respiratory Symptoms were Breathlessness 78%, Cough 69%, Wheeze 65%. Nocturnal symptoms of GERD were reported in 59%, Predominant GERD Symptoms Epigastric Chest pain 81% followed by Regurgitation 77%, Heart burn 76.67% and Belching 68%. Endoscopic findings revealed 89% were diagnosed with Lax LES, Antral Gastritis was observed in 87% of the patients, 67% of subjects had Reflux Esophagitis and 35% of patients were diagnosed to have Hiatus Hernia. Out of 67% subjects who had Reflux Esophagitis, 29% had GRADE A reflux esophagitis followed by Grade B and C which is 26% and 15% respectively.



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INTRODUCTION

In this segment represents introduction of this research work. Prevalence of GERD related Cough is found to be 10-40%. [1, 2] Prevalence of Bronchial Asthma in endoscopically proven esophagitis is found to be 30%. The physiological link between GERD with pulmonary disorders like bronchial asthma, chronic bronchitis (COPD), and chronic cough has been extensively studied. [3] Occurrence of Obstructive Airway Disease in GERD could be attributable to four main mechanisms. GERD is found to be one of the risk factors for many pul-

monary diseases, especially Obstructive Airway Disease, either directly or as a confounding factor and Data on severity of OAD in symptomatically and endoscopically proven GERD patients are limited in Indian population, This study was undertaken to find out the prevalence of pulmonary diseases in patients with proven Gastro Esophageal Reflux Diseases (GERD) and to find out the correlation of Symptoms of GERD and Endoscopic finding findings of GERD with severity of Obstructive Airway Disease using Spirometric Parameters. [4, 5] Asthma is a heterogeneous disease, frequently categorized by chronic airway infection. [6, 7] It is distinct by the history of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that vary over time and in intensity, together with variable expiratory airflow limitation. [8, 9]

In these articles represents sector 2 of these articles explains the feature on the related works. In section 3 presents the materials and methods adopted and section 4 presents the particulars of the experimentation and discussions. Finally, segment 5 accomplishes the articles by allocation our implications and upcoming strategies.

RELATED WORKS

In this segment represents emphases the related works of this research work. Gastroesophageal reflux disease (GERD) is an ailment in which the esophagus converts inflamed because of reflux of acid from the stomach that exceeds the normal limit causing symptoms with or without mucosal injury. [10–12] Patients usually presents with Heart burn, breathing difficulty which is exacerbated after taking food, Nocturnal time dry cough, Belching, Bloating of abdomen, Regurgitation. [13–15]

Patients can also present with atypical symptoms of GERD like non cardiac chest pain, ear throat and nose disorders in which case the diagnosis should not be missed. Irritation of esophagus can widely cause symptoms such as discomfort of the chest, Indigestion, chronic cough and wheezing. [16–18] In case of reflux, when acid reaches the upper and lower respiratory tract, it causes bitter taste and aspiration of gastric contents to Lungs causing Aspiration Pneumonitis. [19–21] The Reflux of Acid can further cause hoarseness of voice, Post nasal drip, recurrent cough, chest congestion and bronchial hyper reactivity leading to Bronchial Asthma, Bronchitis. [22–24] The possible Mechanism between GERD and Respiratory diseases were widely studied in chronic cough, BA and COPD. This literature reveals and examines the possible pathophysiological Linkage of Pulmonary Manifestations in

ERD. [25, 26] Asthma is a heterogeneous disease, frequently categorized by chronic airway inflammation. It is distinct by the past of respiratory symptoms such as wheeze, shortness of breath, chest tightness and cough that differ over time and in intensity, composed with adjustable expiratory airflow restraint.

MATERIALS AND METHODS

In this segment represents the materials and methods of this research work. Prospective observational study showed in Department of Respiratory Medicine and Departments of Medical and Surgical Gastro-Enterology. 150 endoscopically diagnosed GERD patients were recruited in this study which was accepted by Institutional Human Ethical Committee. The selected patients were subjected to detailed clinical history, Spirometry, PEFr and chest x-ray. Data was analysed by using appropriate statistical methods.

RESULTS AND DISCUSSIONS

In this segment focuses the results and discussions of this research work. 150 subjects of endoscopically proven GERD patients were evaluated for the prevalence and types of Respiratory disability by detailed history, clinical examination, , Chest x-ray, Peak Expiratory Flow Rate (PEFR) and Spirometry. (Table 1)

In our study out of 47.33% COPD patients, 39% had Mild COPD, 7% had Moderate COPD and 1.3% had severe COPD. On correlation of severity of Reflux Esophagitis with Severity of COPD, We concluded that patient In 32.4% COPD Subjects who had Grade A Reflux Esophagitis, Out of which 86.96% had Mild COPD and 13.04% had Moderate COPD. Of 15.5% subjects who had Grade B Reflux Esophagitis, Majority of the people (63.34%) had Mild COPD and 27.27% had moderate COPD. By using Chi-Square Test we concluded that chi square value was found to be 25.43 with p value of <0.001 and is found to be statistically significant (Table 2).

150 subjects of endoscopically proven GERD patients were evaluated for the prevalence and types of Respiratory disability by detailed history, clinical examination, Chest x-ray, Peak Expiratory Flow Rate (PEFR) and Spirometry. There was a male preponderance of 63% in our study. Majority (69.4%) of patients were under the age group of 18-30 years and 48% of the subjects were overweight. Predominant Respiratory Symptoms were Breathlessness 78%, Cough 69%, Wheeze 65%. Nocturnal symptoms of GERD were reported in

Table 1: Correlation of Severity of Reflux Esophagitis with Severity of COPD

Grading of COPD		GERD Grading				Chi Square Test	
		No Reflux	Grade A	Grade B	Grade C	Value	significance
Mild	Count	32	20	7	0	25.44	<0.001
	Col%	91.43	86.96	63.34	0		
Moderate	Count	3	3	3	1	50	
	Col%	8.57	13.04	27.27	50		
Severe	Count	0	0	1	1	50	
	Col%	0	.00	9.09	50		

Table 2: Correlation of Severity of Reflux Esophagitis with Severity of Bronchial Asthma

Grading of COPD		GERD Grading				Chi Square Test	
		No Reflux	Grade A	Grade B	Grade C	Value	significance
Mild	Count	2	4	5	0	14.43	0.025
	Col%	18.18	20.0	17.86	0		
Moderate	Count	9	13	22	1	50	
	Col%	81.82	65.0	78.57	50		
Severe	Count	0	3	1	1	50	
	Col%	0	15.0	3.57	50		

59%., Predominant GERD Symptoms Epigastric Chest pain 81% followed by Regurgitation 77%, Heart burn 76.67% and Belching 68%. Endoscopic findings revealed 89% were diagnosed with Lax LES, Antral Gastritis was observed in 87% of the patients, 67% of subjects had Reflux Esophagitis and 35% of patients were diagnosed to have Hiatus Hernia. Out of 67% subjects who had Reflux Esophagitis, 29% had GRADE A reflux esophagitis followed by Grade B and C which is 26% and 15% respectively. 48% of GERD patients were smokers, out of which 28.67% smokes more than 10 pack-years, 19.33% smokes less than 10 pack years. On correlation of symptoms of Gastro Esophageal Reflux Disease with severity of Asthma and COPD, that there exists no significant statistical correlation between any symptoms of GERD and severity of BA and COPD. Bronchial Asthma and COPD in GERD were found to be 52.67% and 47.3% respectively. There was a co-existence of 14.6% of OSA and 6% of ILD in GERD patients with OAD respectively.

Among 52.67% Bronchial Asthma patients with GERD, 7% of subjects had Mild Asthma, Moderate Asthma was found in 38% and 7% had severe Asthma. As regards the comparison of severity of endoscopic findings of Reflux Esophagitis with severity of Bronchial Asthma 25.3% of them had Grade A Reflux Esophagitis on Endoscopy, Majority (65%) of them belonged to Moderate Asthma group. In 35.4% Asthmatic Subjects who had Grade B

Reflux Esophagitis, 78.57% had Moderate Bronchial Asthma, Mild Asthmatics were found to be 17.86% and 3.57% of subjects were diagnosed with severe Asthma.

As regards the comparison of severity of endoscopic findings of GERD with severity of Bronchial Asthma, Majority (35.4%) had Grade B Reflux Esophagitis. Moderate Asthma was seen in all Grades A (65%), Grade B (78.5%) and Grade C (65%) of Reflux Esophagitis and correlation of severity of GERD and BA was shown to be statistically significant (p value <0.025). 11.39% of Bronchial Asthma patients had co-existing OSA in our study. Out of this 66.6% had mild OSA and 46.1% had severe OSA. Out of 6% Patients who had ILD 44.44% were found to be co-existing with Bronchial Asthma. In our study of 47.33% COPD patients, 39% had Mild COPD, 7% had Moderate COPD and 1.3% had Severe COPD. As regards the comparison of severity of endoscopic findings of GERD with severity of COPD, Majority (32.4%) had Grade A Reflux Esophagitis. Mild COPD was more predominant in Grade A and B Reflux Esophagitis with 86.9% and 63.3% respectively. The correlation of severity of GERD and severity of Bronchial Asthma was statistically significant (p <0.001) [27, 28].

Bronchial Asthma and COPD were predominant Respiratory impairment in patients of GERD with prevalence of 52.67% and 47.33% respectively in our

study. There exist an important correlation among Endoscopic Grading of GERD with Severity of BA and COPD. Since GERD is one of the potential risk factor for respiratory disorders, screening of all Patients of GERD with respiratory symptoms are recommended for early diagnosis and optimum management.

CONCLUSION

Finally this work concludes that 150 subjects of endoscopically proven GERD patients were evaluated for the prevalence and types of Respiratory disability by detailed history, clinical examination, Chest x-ray, Peak Expiratory Flow Rate (PEFR) and Spirometry. There was a male preponderance of 63% in our study. Majority (69.4%) of patients were under the age group of 18-30 years and 48% of the subjects were overweight. Predominant Respiratory Symptoms were Breathlessness 78%, Cough 69%, Wheeze 65%. Nocturnal symptoms of GERD were reported in 59%, Predominant GERD Symptoms Epigastric Chest pain 81% followed by Regurgitation 77%, Heart burn 76.67% and Belching 68%. Endoscopic findings revealed 89% were diagnosed with Lax LES, Antral Gastritis was observed in 87% of the patients, 67% of subjects had Reflux Esophagitis and 35% of patients were diagnosed to have Hiatus Hernia. Out of 67% subjects who had Reflux Esophagitis, 29% had GRADE A reflux esophagitis followed by Grade B and C which is 26% and 15% respectively. 48% of GERD patients were smokers, out of which 28.67% smokes more than 10 pack years, 19.33% smokes less than 10 pack years. On correlation of symptoms of Gastro Esophageal Reflux Disease with severity of Asthma and COPD, that there exists no significant statistical correlation between any symptoms of GERD and severity of BA and COPD. Bronchial Asthma and COPD in GERD were found to be 52.67% and 47.3% respectively. There was a co-existence of 14.6% of OSA and 6% of ILD in GERD patients with OAD respectively.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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