

**Prevalence of Anxiety and Depression in Chronic Obstructive Pulmonary Disease (COPD)**

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Conflicts of Interest: Nil

Abstract

AIM: To know the prevalence and severity of anxiety and depression in chronic obstructive pulmonary disease (COPD) patients.

Materials and Methods: A Hospital Based cross sectional study was conducted in COPD PATIENTS IN YENEPOYA MEDICAL COLLEGE HOSPITAL over a period of 3 months in 2017. The present study was carried out after obtaining the Ethical committee clearance. Patients of all ages, registered in YMCH admitted / attending and willing to participate in the study were enrolled after proper counseling. The procedure was explained to patients and were informed the purpose of the study. Informed consent was taken from each patient. Patient was assured about their confidentiality. Relevant clinical data (demographic- age, sex and education) was obtained from the patient. Answers related to knowledge and practices related to anxiety and depression was

evaluated as the grading in the questionnaire. Sample size was 49 (forty nine patients).

Results: In this study total of 49 COPD patients were taken of which males were 43 (87.8%) and females were 6 (12.2%).Based on Becks depression index, ,14.3% had normal ups and downs,16.3% had mild mood disturbances,28.6% had borderline depression,38.8% had moderate depression and 2% had severe depression. No cases were reported to have extreme depression. Based on Hamilton anxiety index 55.1% had mild anxiety, 36.7% had moderate anxiety and 8.2% had severe anxiety. Based on grading of COPD, in grade 1 among 5 cases: 3 had normal ups and downs, 1 had borderline depression and 1 had moderate depression. In grade II among 12 cases: 1 had normal ups and downs, 3 had mild mood disturbances, 4 had borderline depression,4 had moderate depression. In grade III among 21 cases: 3 were having normal ups and downs,3 had mild mood disturbances,6

had borderline depression,9 had moderate depression. In grade IV among 11 cases 2 had mild mood disturbances,3 had borderline depression,5 had moderate depression and 1 had severe depression.

Conclusion: The present study concludes that prevalence of anxiety and depression is significant in COPD patients. Thus we can conclude that timely and appropriate assessment of COPD patients for co-morbidities like anxiety and depression should be routinely screened and appropriate interventions to be provided to improve the quality of life.

Keywords: COPD, Anxiety, Depression, Becks depression scale, Hamiltons anxiety index, CAT score.

Introduction

According to the latest WHO estimates, currently 64 million people have COPD and 3 million people died of COPD . WHO predicts that COPD will become the third leading cause of death worldwide by 2030. COPD is a complex disease, triggered mostly by exposure to cigarette smoking. It leads not only to pulmonary damage but also to systemic impairment. There is also a growing awareness of systemic inflammation, cardiovascular, neurologic, psychiatric, and endocrine morbidities that are common co morbidities of the condition and have a long-term detrimental effect on the morbidity and mortality of COPD patients(1).

Anxiety and depression are major co-morbidities in COPD. The prevalence of anxiety and depression in COPD patients is markedly increased when compared to the general population (2). It is associated with poor compliance to treatment, frequent hospitalization or doctor visit, prolonged hospital stay, poor quality of life and high cost of treatment. Major contributing factors for anxiety and depression among the COPD Patients are dyspnoea, and other associated disability related to COPD. Pathogenetic mechanisms remain unclear, but

both psychological and organic factors seem to play a vital role.

Detection of anxiety and depression in patients with COPD will help respiratory physicians to provide better management of COPD with appropriate referrals. The clinical and social implications are severe and the concurrent psychiatric disorders may lead to increased morbidity and impaired quality of life. From various studies it is evident that the proper diagnosis and treatment of a concurrent psychiatric complication is being missed while managing COPD.

Anxiety and depression, one of the major co morbidities often has been undiagnosed and undertreated (3) and has received less interest in respiratory medicine community.(4)

Until now 2 only few interventional studies have been conducted and results suggest that treatment of concurrent psychiatric disorder leads to improvement in the physical as well as the psychological state of the patient. This in turn leads to better treatment compliance including smoking cessation and pulmonary rehabilitation and therefore a better quality of life.

Existing Knowledge

Chronic Obstructive Pulmonary Disease (COPD), a common preventable and treatable disease, is characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases. Exacerbations and co morbidities contribute to the overall severity in individual patients (5). Fletcher and colleagues, in an 8-year prospective study of working men in west London, showed that the average decline in FEV1 in susceptible smoker is faster (60 mL/year) than in non smokers (30 mL/year)(6). The pathogenesis of COPD is generally thought to involve an abnormal inflammatory response in

the lungs to the inhalation of toxic particles and gases, derived from tobacco smoke, air pollution, or occupational exposures. All smokers develop lung inflammation, but this is enhanced and fails to resolve after smoking cessation in those who develop COPD because of abnormal regulation of the inflammatory response in the lungs (7). The susceptibility factors are still poorly understood and likely involve genetic and epigenetic factors, infections, altered immune regulation, or impaired resolution of inflammation and abnormal repair mechanisms. Relationship between the inflammatory responses in the lungs

Chronic obstructive pulmonary disease (COPD) is a complex disease involving more than airflow obstruction, which has profound effects on cardiac function and gas exchange with systemic consequences. In addition, as COPD results from inflammation and or alterations in repair mechanisms, the spill-over of inflammatory mediators into the circulation may result in systemic manifestations of the disease, such as skeletal muscle wasting and cachexia . Systemic inflammation may also initiate or worsen comorbid diseases, such as ischaemic heart disease, heart failure, osteoporosis, normocytic anaemia, lung cancer, anxiety, depression and diabetes(8).

Anxiety and depression, one of the major comorbidities is often has been undiagnosed and undertreated (3) and has received less interest in respiratory medicine community (4). The influence of psychological distress on quality of life implies that bringing about change in psychological distress factors may have important consequences on quality of life. These findings should be taken seriously in developing appropriate interventions for this group of patients. There are very few studies in relation to COPD, Anxiety, Depression in India, Hence the researcher felt a need to assess the prevalence of anxiety and depression

among patients with COPD and its impact on their quality of life by using standardized assessment Scales like Beck Depression inventory (1996), Hamiltons Anxiety Inventory, COPD Assessment test scale.

Aims and Objectives

This study was conducted with the objective to know the prevalence and severity of anxiety and depression in chronic obstructive pulmonary disease (COPD) patients using Hamiltons Anxiety Inventory-Score and Beck-Depression-Inventory-II-Score.

Methodology

A Hospital Based cross sectional study was conducted in COPD PATIENTS IN YENEPLOYA MEDICAL COLLEGE HOSPITAL over a period of 3 months in 2017. The present study was carried out after obtaining the Ethical committee clearance. Patients of all ages, registered and in YMCH admitted / attending and willing to participate in the study were enrolled after proper counseling. The procedure was explained to patients and were informed the purpose of the study. Informed consent was taken from each patient. Patient was assured about their confidentiality. Relevant clinical data (demographic- age, sex and education) was obtained from the patient. Answers related to knowledge and practices related to anxiety and depression was evaluated as the grading in the questioner. Sample size was 49 (forty nine patients).

Statistical Analysis

Data were reported as frequency and percentage and chi square test was used to find the association between the parameters. Statistical analysis was done using SPSS – version 22.

Results

In this study total of 49 COPD patients were taken of which males were 43 (87.8%) and females were 6 (12.2%).Based on Becks depression index, among the

cases studied,14.3% had normal ups and downs,16.3% had mild mood disturbances,28.6% had borderline depression,38.8% had moderate depression and 2% had severe depression. No cases were reported to have extreme depression. Based on Hamilton anxiety index 55.1% had mild anxiety, 36.7% had moderate anxiety and 8.2% had severe anxiety.

Based on grading of COPD, in grade 1 among 5 cases : 3 had normal ups and downs ,1 had borderline depression and 1 had moderate depression. In grade II among 12 cases: 1 had normal ups and downs, 3 had mild mood disturbances, 4 had borderline depression, 4 had moderate depression. In grade III among 21 cases: 3 were having normal ups and downs,3 had mild mood disturbances,6 had borderline depression,9 had moderate depression. In grade IV among 11 cases 2 had mild mood disturbances,3 had borderline depression,5 had moderate depression and 1 had severe depression.

Discussion

The present study was conducted to know the Prevalence of anxiety and depression among patients with chronic obstructive pulmonary disease (COPD) . Anxiety was measured using HAMILTONS anxiety inventory and depression was measured using Beck Depression inventory. The Study was conducted from August 2017 to November 2017. Osama M Gado ,Lamia A. Basiony et.al.,(2015) conducted a study on prevalence of anxiety and depression among 220 patients which included severe and very severe COPD patients ,and 220 non COPD patients as controls in Egyptian population. Anxiety and Depression was assessed through Hospital Anxiety and Depression scale (HAD) , the prevalence of anxiety-depressive symptoms was 44.5% in severe and very severe COPD patients and 14% among the controls(9). This study depression was seen more in moderate, severe, and very severe COPD . A research

article by Peian lou,Yanan zhu et.al.,(2012) studied chinese population of 1100 patients with COPD and 1100 residents without COPD , anxiety and depression were evaluated with hospital anxiety and depression scale (HAD) and correlated with body mass index, degree of airflow obstruction, dyspnoea and exercise capacity (BODE INDEX) to assess COPD severity. The Study found the prevalence of 88 depression to be 35.7% and anxiety 18.3% among COPD patients were as in controls 7.2% were having Depressive symptoms and 5.3% were having anxiety symptoms(10). A mixed method study by Sara Fleehtart, Vincent S.fan et.al.,(2014) on prevalence and correlates of suicide ideation in 202 American patients with moderate to very severe COPD were assessed for depression,60% were found to have depressive symptoms using Hospital anxiety and Depressive scale (HAD) and structured clinical interview for depression(SCID) scale(11).

The above studies done in different populations across the world show a significant prevalence of anxiety and depression which is similar to the present study. In the present study positive correlation was found between GOLD staging of COPD and Scores of Beck Depression and Hamiltons Anxiety Inventory. Previous studies have shown a positive correlation between GOLD stagings of COPD, BODE Index, SGRQ with Anxiety and depression Symptoms. Instead of GOLD staging, in the present study Combined COPD assessment groups was used to assess status of COPD which did not have a positive correlation with anxiety and depression symptoms. More Studies are required to correlate the above two parameters. Positive correlation between GOLD staging and Scores of Beck Depression and Anxiety Inventory indicates poor quality of life of COPD patients with Anxiety and Depression.

Conclusion

The present study concludes that prevalence of anxiety and depression is significant in COPD patients. Thus we can conclude that timely and appropriate assessment of COPD patients for co-morbidities like anxiety and depression should be routinely screened and appropriate interventions to be provided to improve the quality of life

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Table 1: Distribution of gender for depression

			Becks depression index					Total
			1-10	11-16	17-20	21-30	31-40	
Sex	F	No:	1	1	1	2	1	6
		% within sex	16.7%	16.7%	16.7%	33.3%	16.7%	100.0%
	M	No:	6	7	13	17	0	43
		% within sex	14.0%	16.3%	30.2%	39.5%	0.0%	100.0%
Total		No:	7	8	14	19	1	49
		% within sex	14.3%	16.3%	28.6%	38.8%	2.0%	100.0%

Table 2: distribution of gender for anxiety.

Gender			Hamilton anxiety index			Total
			<17	>25	18-24	
Sex	F	No:	3	0	3	6
		% within sex	50.0%	0.0%	50.0%	100.0%
	M	No:	24	4	15	43
		% within sex	55.8%	9.3%	34.9%	100.0%
Total		No:	27	4	18	49
		% within sex	55.1%	8.2%	36.7%	100.0%

Table 3:

		Becks depression index					Total
		1-10	11-16	17-20	21-30	31-40	
Grade 1	No:	3	0	1	1	0	5
	% within Grade	60.0%	0.0%	20.0%	20.0%	0.0%	100.0%
2	No:	1	3	4	4	0	12
	% within Grade	8.3%	25.0%	33.3%	33.3%	0.0%	100.0%
3	No:	3	3	6	9	0	21
	% within Grade	14.3%	14.3%	28.6%	42.9%	0.0%	100.0%
4	No:	0	2	3	5	1	11
	% within Grade	0.0%	18.2%	27.3%	45.5%	9.1%	100.0%
Total	No:	7	8	14	19	1	49
	% within Grade	14.3%	16.3%	28.6%	38.8%	2.0%	100.0%

Table 4:

		Hamiltons Anxiety Score			Total
		<17	>25	18-24	
Grade 1	No:	4	0	1	5
	% within Grade	80.0%	0.0%	20.0%	100.0%
2	No:	7	0	5	12
	% within Grade	58.3%	0.0%	41.7%	100.0%
3	No:	13	1	7	21
	% within Grade	61.9%	4.8%	33.3%	100.0%
4	No:	3	3	5	11
	% within Grade	27.3%	27.3%	45.5%	100.0%
Total	No:	27	4	18	49
	% within Grade	55.1%	8.2%	36.7%	100.0%