

Original Research Article

Prevalence of psychiatric co morbidities in bronchial asthma and chronic obstructive pulmonary disease patients in north Indian population cohort

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ABSTRACT

Background: Psychiatric co morbidities tend to occur quite frequently in patients of chronic respiratory diseases mainly bronchial asthma and Chronic Obstructive Pulmonary Disease (COPD) but still it is highly under diagnosed. Aim and objective of the study was to find out the prevalence of psychiatric co morbidities in asthma and COPD and to correlate them with disease severity according to Global Initiative against Obstructive Lung Disease (GOLD) and Global Initiative against Asthma (GINA) guidelines.

Methods: Study was conducted in Department of TB and Chest in association with Department of Psychiatry of Punjab Institute of Medical Sciences, a secondary care medical college in north India. A total 204 patients, 68 of bronchial asthma, 68 of COPD and 68 were controls included in the study. Diagnosis and severity of respiratory diseases was assessed by spirometry. Evaluation of psychiatric co morbidities was done using the MINI international neuropsychiatric interview questionnaire.

Results: The frequency of psychiatric co morbidities in COPD patients was significantly higher (32.4%) compared to patients of bronchial asthma (20.6%). The most common co morbidity in both arms was generalized anxiety disorder (17.6% in COPD patients and 10.3% in patients of bronchial asthma).

Conclusions: COPD patients have a higher frequency of psychiatric co morbidities compared to bronchial asthma patients and control population. These should be properly screened and treated.

Keywords: Anxiety disorder, Bronchial asthma, COPD, Spirometry

INTRODUCTION

A very high prevalence rates of psychiatric disorders have been reported for patients suffering from bronchial asthma and COPD which was earlier not being taken care of.¹ Emotional lability has been considered as a common cause of exacerbation of bronchial asthma and in turn long term treatment and frequent wheeze can lead an

asthma patient to have depressive disorder. Psychiatric symptoms can be present in even mild respiratory diseases. Disruption of noradrenergic and dopaminergic synthesis by chronic hypoxia which is a part of severe bronchial asthma and COPD is considered as a hypothesis for its etiology.² It has also been found that the severity of airflow obstruction is correlated with the level of all measured neuropsychological factors which means that the deterioration of cognitive functions and levels of

anxiety and depressive symptoms become even more severe as the pulmonary disease progresses.³ Domiciliary oxygen and non invasive ventilation on long term basis is also considered as a common cause of anxiety and depression in chronic respiratory disease patients. Increased awareness about this associated entity is essential to diagnose and treat this part of the disease which is still highly under diagnosed. This study aims to find the frequency of psychiatric co morbidities in outpatients of bronchial asthma and COPD. Although the prevalence of psychiatric co morbidities among patients with chronic respiratory diseases is significantly higher than the general population, there are serious barriers to the recognition and treatment of these conditions. Routine assessment and screening for anxiety and depression in all patients diagnosed with COPD and bronchial asthma should be considered.⁴

METHODS

The study was conducted in a secondary care hospital attached with medical college in north India. All the patients diagnosed as cases of COPD and bronchial asthma in outpatient department (OPD) of TB and Chest between 1st July 2016 and 31st December 2016 were selected for this study. Age and sex matched caregiver of the patient who was not having COPD or bronchial asthma was taken as control. It was a cross - sectional, observational, case control, hospital based study of 6 months duration.

Inclusion criteria

All patients diagnosed to have COPD or bronchial asthma by spirometry were included in the study. Patients of bronchial asthma elder than 20 years only were included. Severity of COPD and bronchial asthma was assessed as per GOLD and GINA guidelines respectively.

Exclusion criteria

Patients of COPD and bronchial asthma not giving consent for the study or presenting as exacerbation in last 6 weeks were excluded. Patients having co morbid medical conditions (Diabetes mellitus, congestive heart failure, cerebrovascular accident) and having primary psychiatric or neurological disorders or on treatment for the same were not included.

Patients coming to OPD of Department of Chest and TB of Punjab Institute of Medical Sciences (PIMS) having history suggestive of bronchial asthma or COPD were subjected to detailed physical examination. Spirometry was done in the OPD with post bronchodilator reversibility to diagnose and stage the diseases. Demographic data of patients and controls was detailed in a proforma. They were explained about the study and written informed consent was taken. All patients and controls included were then referred to OPD of Department of Psychiatry for analysis and strict

confidentiality was maintained. Psychiatric co morbidities were assessed by the Mini International Neuropsychiatric Interview (MINI) questionnaire. The MINI is a short structured diagnostic interview, developed jointly by psychiatrists and clinicians in the United States and Europe, for Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision and International Classification of Diseases, Tenth Revision psychiatric disorders. It was designed to meet the need for a short but accurate structured psychiatric interview for multicenter clinical trials and epidemiology studies and to be used as a first step in outcome tracking in non research clinical settings. We have used MINI version 6.0.0 in this study. Patients diagnosed to have psychiatric co morbidities were further asked three questions about probable socio economic reason for the morbidity and were asked to answer the most common reason out of long duration of disease, long term medications and fear of exacerbation in their mind.

RESULTS

Baseline characteristics

A total of 204 subjects were enrolled in this study. Of these, 68 were normal healthy volunteers, 68 were bronchial asthma and rest 68 patients were COPD diagnosed both clinically and by spirometry. The study included 68 patients each for COPD, bronchial asthma and control arms with equal gender distribution (43 males and 25 females) in each group to make it more uniform and to remove the gender bias. The demographic details of selected patients are summarized in Table 1.

Mean age of COPD patients was 54±9.4 (42-64) years, bronchial asthma patients were 50±7.8 (38-58) years when compare with 52±9.0 (39-62) years for control. The percentage of males in cases and controls was equal at 63%. A majority of cases (76%), as well as controls (67%), were from a rural background.

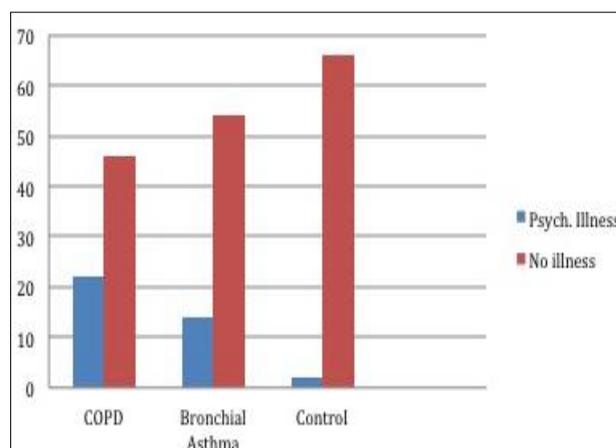


Figure 1: Distribution of psychiatric illness in COPD, bronchial asthma and control arm.

Clinical profile of cases

The clinical profile of 22 out of 68 patients of COPD had psychiatric co morbidities (32.4%) while 14 patients of

bronchial asthma out of 68 had the same making it 20.6%. Only 2 patients of the control arm were having psychiatric co morbidities and it was only 2.9% (Table 2) and (Figure 1).

Table 1: Demographic profile of selected patients and controls.

Sr. No.	Variables	Bronchial asthma patients	COPD patients	Controls
1.	Age Group	38-58 years Mean 50+7.8	42-64 Mean 54+9.4	39-62 Mean 52+9.0
2. Gender	Males	43 (63.23%)	43 (63.23%)	43 (63.23%)
	Females	25 (36.76%)	25 (36.76%)	25 (36.76%)
3. Domicile	Urban	16 (23.52%)	24 (34.49%)	22(32.40%)
	Rural	52 (76.47%)	44 (64.70%)	46 (67.64%)
4.	Psychiatric co morbidities	14 (20.6%)	22 (32.4%)	02 (2.9%)
	Anxiety disorder	7 (10.3%)	12 (17.6%)	01 (1.4%)
	Panic disorder	3 (4.4%)	5 (7.4%)	NIL
	Substance abuse disorder	2 (2.9%)	3 (4.4%)	01 (1.4%)
	Major depressive episode	2 (2.9%)	2 (2.9%)	NIL
5. *Stages of COPD Disease	Stage IV	NIL	12 (54.5%)	NIL
	Stage III	NIL	4 (18.2%)	NIL
	Stage I/II	NIL	6 (27.3%)	NIL
6.	Fear of exacerbation	7 (50%)	4 (18.2%)	NIL
	Long duration of disease	3 (21.4%)	16 (72.7%)	NIL
	Long term medications	4 (28.6%)	2 (9.1%)	NIL

* As per Global Initiative against Obstructive Lung Disease (GOLD) and Global Initiative against Asthma (GINA) guidelines

Table 2: Psychiatric comorbidities in respiratory diseases.

Comorbidity	COPD A) RMn=68 Number (%)	Bronchial Asthma ARMn=68 Number (%)	Control ARM n=68 Number (%)
Psychiatric comorbidity	22 (32.3%)	14 (20.5%)	02 (3%)
No psychiatric comorbidity	46 (67.7%)	54 (79.5%)	66 (97%)

Y-axis number of study subjects

Most common problem in COPD patients was generalized anxiety disorder present in 12 (17.6%) followed by panic disorder in 5 (7.4%), substance abuse disorder in 3 (4.4%) and major depressive episode in 2 (2.9%). In patients of bronchial asthma, the most common psychiatric co morbidity was again generalized anxiety disorder in 7 (10.3%) patients followed by panic disorder in 3 (4.4%), substance abuse disorder in 2 (2.9%) and major depressive episode in 2 (2.9%) patients. In control arm one patient was having generalized anxiety disorder and one was diagnosed with substance abuse disorder (Table 3).

Table 3: Frequency of different psychiatric comorbidities.

*Psychiatric comorbidities	COPD arm	Bronchial asthma arm	Control arm
Generalized anxiety disorder	12 (17.6%)	07 (10.3%)	01 (1.5%)
Major depressive episode	02 (2.9%)	02 (2.9%)	00
Panic disorder	05 (7.4%)	03 (4.4%)	00
Substance abuse disorder	03 (4.4%)	02 (2.9%)	01 (1.5%)

*AS PER Mini International Neuropsychiatric Interview (MINI)

There were 12 (54.5%) out of 22 patients of COPD having psychiatric co morbidities were having stage IV disease, 4 (18.2%) having stage III and 6 (27.3%) having stage I/II (GOLD criteria) in (Figure 2).

There were 10 (71.4%) out of 14 patients of bronchial asthma having psychiatric co morbidities had minimum 2 exacerbations in last one year. Long duration of disease was most common concern of 16 (72.7%) followed by fear of exacerbation in 4 (18.2%) and long term medications in 2 (9.1%) of 22 patients of COPD having

psychiatric co morbidities. In patients of bronchial asthma having psychiatric co morbidities, fear of exacerbation was most common in 7 (50%) followed by long term medications in 4 (28.6%) and long duration of disease in 3 (21.4%).

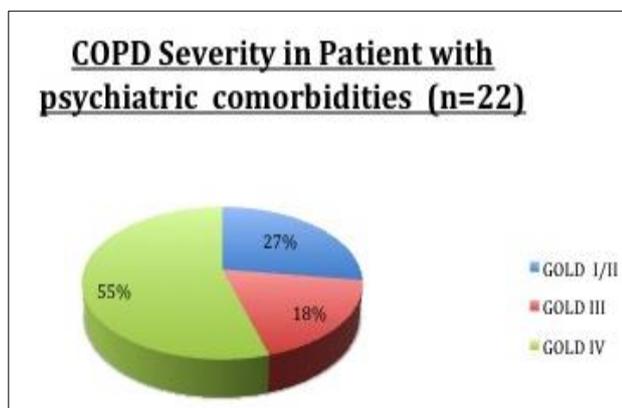


Figure 2: Distribution of COPD patient with psychiatric illness according to severity grade.

DISCUSSION

Psychiatric co morbidities are more prevalent among COPD patients than bronchial asthma patients and healthy age matched controls. In this study 32.4 % of patients of COPD had psychiatric co morbidities compared to only 2.9% of control group which was statistically significant ($p < 0.001$). In a similar study from North India using MINI as the criteria for diagnosing psychiatric co morbidities, prevalence of psychiatric co morbidities in COPD patients was 28.4% compared to 2.7% in controls.⁵ We have found that 32.4% of COPD patients had psychiatric co morbidities compared to only 20.6% of bronchial asthma patients and it was statistically significant ($p < 0.001$). In another study from south India, 96% of COPD patients, 56% of bronchial asthma patients and about 47% of healthy controls scored as having psychopathology on CPRS (Comprehensive Psychopathological Rating Scale) score.⁶ A recent study investigating the prevalence of anxiety and depression in large sample of patients with chronic breathing disorders including COPD, 65% of COPD patients reported a significant level of anxiety and depression on telephone screening and only 31% were being treated for the same.⁷ In a study conducted by Sharma et al, they found the prevalence of psychiatric co morbidities in stable chronic respiratory disorders to be 44.8% as compared to 24.3% in controls and they used Global Mental Health Assessment Tool, Primary Care Version (GMHAT/PC) for the study and they emphasized the need for training of physicians and practitioners for the diagnosis of the same.⁸

The most common psychiatric co morbidity in patients of both COPD and bronchial asthma arm was generalized anxiety disorder in this study. It was more prevalent in

COPD arm (17.6%) as compared to bronchial asthma arm (10.3%). This result of our study was similar to study by Kunik et al, who studied generalized anxiety disorder as the most common psychiatric co morbidity in chronic respiratory diseases including COPD but they used telephonic screening as a tool for enrollment of patients compared to our physical examination and MINI. Two more studies conducted in different parts of the world and using different criteria for diagnosis of psychiatric co morbidity showed generalized anxiety as the most common. The study by Sharma et al, found that generalized anxiety disorder was present in 20.6% of COPD patients and the other study by Kahraman et al, found the prevalence of anxiety in COPD patients was 30.7% as compared to 16.4% in controls.^{8,9} So it can be concluded that no matter which scale is used, the most common is generalized anxiety disorder in most of the studies conducted in different parts of the world. A literature review on the prevalence of anxiety in COPD patients reported rates of anxiety ranging from 10% to 40%.¹⁰ When we searched about similar studies, we found that Gania et al, have studied similar parameters and found that anxiety is present in 65% and depression in 35% of patients of COPD and bronchial asthma combined but our study used different scale for screening and we included nearly double the sample size which makes our study more statistically significant.¹¹ In yet another study conducted on mild to moderate COPD hospitalized patients using standardized clinic interview, they found that 55% of patients received a diagnosis of mental disorder compared to 30% in control arms. They confirmed the high prevalence of anxiety in patients of COPD and suggest further that anxiety in COPD patients may be mediated by cognitive processes.¹²

The next most common co morbidity in both COPD and asthma arms in this study came out to be panic disorder (7.4% in COPD arm and 4.4% in bronchial asthma arm) followed by major depressive episode (2.9% in both arms). In a similar study comparing the percentage of psychiatric co morbidities in both COPD and bronchial asthma patients by using Diagnostic Criteria for Research (DCR-10), they have found the depressive disorder in 10% of COPD patients and panic disorder in only 3%. It was found in the study that psychopathology in bronchial asthma patients is more than those of healthy controls but there was no significant difference between COPD and bronchial asthma groups. Our study however found generalized anxiety disorder as the most common and statistically significant difference in COPD and bronchial asthma arms with more cases of psychiatric co morbidities in COPD patients.

In this study the frequency of psychiatric co morbidities increased with increase in severity of COPD as per GOLD guidelines and with more number of exacerbations in bronchial asthma patients in last one year but the results were not statically significant. As far as gender disparity is concerned, we enrolled equal number of males and females in all three arms and

therefore the percentage of psychiatric co morbidities were not different statistically among males and females. We tried to enquire about the common socio economic reasons of psychiatric co morbidities and found that long duration of disease was most common complaint in patients of COPD arm while fear of exacerbation was most common in patients of bronchial asthma arm.

CONCLUSION

Present study concludes that patients with COPD have significantly more psychiatric co morbidities compared to bronchial asthma patients and healthy controls. Early diagnosis and proper treatment of the co morbidities is required in turn to improve the symptomatology of respiratory diseases and the quality of life. Future studies are required for objective assessment of improvement in respiratory symptoms after treatment of psychiatric co morbidities in patients of COPD and bronchial asthma.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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