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Original Research Article

Assessment of depression among chronic obstructive pulmonary disease (COPD) patients at rural tertiary care centre of Northern India

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ABSTRACT

Background: Chronic obstructive pulmonary disease COPD is a more complex systemic disease that has significant extra pulmonary effects along with pulmonary involvement. Complexity and mortality of COPD is increased by its co-morbidities and exacerbations. Depression is One of the commonest co-morbidity that occurs in patient with COPD and is associated with poor quality of life therefore we planned to assess depression among COPD patients.
Methods: This was a cross-sectional study done in the respiratory medicine department of tertiary care centre, during the period from January 2015 to June 2016. A total of 200 patients of COPD of either sex having age more than 40 years included in the study. Patients who were critically ill and uncooperative excluded from the study. Patients who did not give consent and having previous history of any psychiatric illness also excluded from the study. The diagnosis of COPD was made on the basis of the clinical history, examination, X-ray chest and spirometry. Further, depression was evaluated with the validated Hindi version of nine items PHQ-9 (a subset of patient health questionnaire).
Results: The data of all 200 COPD patients were analysed and it was observed that- prevalence of depression in COPD was found to be 49%. Prevalence was higher in male patients 147 (73.5%) as compared to female 53 (26.5%) patients in the present study. Minimal depression was found in 14.28 % COPD patients and mild depression in 25.51 % moderate depression in 39.79 % cases and severe depression in 20.40% cases.
Conclusions: Symptoms of depression are common in patients with COPD and its presence may have significant impact on the quality of life of such patients and may be associated with a higher mortality rate.

Keywords: COPD, Co-Morbidity, Depression

INTRODUCTION

COPD is a more complex systemic disease that has significant extra pulmonary effects along with pulmonary involvement.[1-3] Complexity and mortality of COPD is increased by its co-morbidities and exacerbations.[4-7] Depression is one of the commonest comorbidity that occurs in patient with COPD and is associated with low quality of life.[8,9] Depression is associated with increased frequency of hospital admissions, prolonged length of stay, increased number of consultations, low compliance with medical treatment and premature death.[10,11] The actual etiology of depression in COPD is unknown. It is supposed that a genetic predisposition is more likely to exist, followed by the environmental assaults imposed by the respiratory illness itself and the direct

neuropsychiatric effects of chronic respiratory disease.[12] Little is known regarding variables associated to COPD that may predict depression.[13-15]

METHODS

This was a cross-sectional study done in the respiratory medicine department of tertiary care centre, during the period from January 2015 to June 2016. The study protocol was taken from the institutional ethical committee. Before enrolment of study written informed consent from each subject was obtained in response to fully written and verbal explanation of the nature of the study.

A total of 200 patients of COPD of either sex having age more than 40 years included in the study. Patients who were critically ill and uncooperative excluded from the study. Patients who did not give consent and having previous history of any psychiatric illness also excluded from the study. The diagnosis of COPD was made on the basis of the clinical history, examination, X-ray chest and spirometry [ratio of post bronchodilator forced expiratory volume in first second and forced vital capacity (FEV1/FVC <70%)], further staging of COPD done on the basis of post bronchodilator forced expiratory volume in first second (FEV1), into four categories:

- GOLD 1: mild FEV1 > 80% predicted
- GOLD 2: moderate FEV1 >50% to < 80% predicted
- GOLD 3: severe FEV1 > 30% to < 50% predicted
- GOLD 4: very severe fev1 < 30% predicted.

Further Depression was evaluated with the validated Hindi version of nine items PHQ-9 (a subset of patient health questionnaire).

PHQ-9 is a self-report version of primary care evaluation of mental disorders (PRIME-MD). PHQ-9 consists of nine criteria on which the diagnosis of DSM-IV depressive disorders is based.[16-18] Severity of depression was determined as per scoring of PHQ-9 questionnaire.

Table 1: PHQ 9 scale.

Over past 2 weeks how often have you been bothered by any of the following problem	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	0	1	2	3
Feeling down, depressed or hopeless	0	1	2	3
Trouble falling asleep, staying asleep or sleeping too much	0	1	2	3
Feeling tired or having little energy	0	1	2	3
Poor appetite or overeating	0	1	2	3
Feeling bad about yourself or that you are a failure or have let yourself or your family down	0	1	2	3
Trouble concentrating on things such as reading newspaper or watching television	0	1	2	3
Moving or speaking so slowly that other people could have noticed	0	1	2	3
thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

Table 2: Severity score and treatment.

PHQ 9 score	Severity
5-9	Minimal symptoms
10-14	Major depression-mild
15-20	Major depression-moderate
>20	Major depression-severe

The PHQ-9 is a dual-purpose instrument that, with the same nine items, can establish provisional depressive disorder diagnosis as well as grade depressive symptom severity. Each of the nine items of PHQ-9 was scored from 0 (not at all) to 3 (nearly every day). Total score ranged from 0 to 27 and depending upon the total score, severity of depression was classified.

RESULTS

The data of all 200 COPD patients were analyzed by statistical package for social science (SPSS) software (window version 23) and chi-square and Z-test was used to analyses the collected data. The mean ages of patients included in the study were 58.34±8.18 years. There were 147 (73.5%) male as compared to female 53 (26.5%). Smoking was more common in male patients (75.51%) as compared to female (18.86%) while biomass fuel exposure was more common in female patients (92.45%) as compared to male (7.48%).

Depression was found in 98 (49%) cases in present study. Out of 147 male patients' depression was found in 74 (50.34%) males and out of 53 female patients depression

was found in 24 (45.28%) females (Table 3). There was no sex predisposition of depression found in COPD patients (p value- 0.528).

Table 3: Depression in COPD patients: sex distribution.

Sex	Present	Absent	Total
Male	74 (50.34%)	73 (49.66%)	147 (100%)
Female	24 (45.28%)	29 (54.72%)	53 (100%)
Total	98 (49%)	102 (51%)	200 (100%)

(P value-0.528).

Minimal depression was found in 14.28 % COPD patients and Mild depression in 25.51 %, Moderate depression in 39.79 % cases and Severe depression in 20.40% cases (Table 4).

Table 4: Severity of depression in COPD.

Severity	Number	Percentage
Minimal	14	14.28
Mild	25	25.51
Moderate	39	39.79
Severe	20	20.40
Total	98	100

Depression in COPD and have significant correlation with severity of COPD. As the severity of COPD increases the incidence of depression was also found to be increased. [p value 0.00, correlation coefficient (r) 0.400] (Table 5).

Table 5: Correlation Of depression with severity of COPD.

GOLD stage	Number	Percentage
I	4	17.39
II	10	27.02
III	26	44.06
IV	58	71.60

p value-0.00, correlation coefficient r value- 0.400.

As for as smoking is concerned patients with more number of smoking pack year have more severe depression but depression had no significant correlation with smoking (p value- 0.375).

Table 6: Correlation of depression with smoking.

Severity of depression in COPD	Smoking (pack year)		
	<10	10-20	21-40
Minimal	1	6	5
Mild	5	7	4
Moderate	2	11	10
Severe	4	6	11

p value-0.375.

DISCUSSION

In present study depression was found in 49% cases of COPD, slightly more in male as compared to female. There are many studies which suggest prevalence of depression ranging from 10 to 55 % that might be because of different scale and the different methodology used for the assessment of depression symptoms in COPD patients.[19]

In current study, Minimal depression was found in 14.28% COPD patients and mild depression in 25.51%, moderate depression in 39.79 % cases and Severe depression in 20.40% cases. Depression in COPD and have significant correlation with severity of COPD.

Findings of current study similar to study of Harish Negi et al (2014) who found 62 (49.2%) patients showed mild to severe depressive symptoms. A total of 26 (20.6%) patients had a moderately severe to severe depression or major depressive disorder, followed by 16 (12.7%) having moderate depression and 20 (15.9%) having mild depression. Severe depression was found to be higher among patients with severe stages of COPD.[20]

Waseem SMA et al found depression in 69 (57.02%). Out of them 5 (7.25%) were having minimal depression whereas 10 (14.5%), 20 (28.98%) and 34 (14.50%) subjects suffered from mild, moderate and severe depression respectively. conducted study on 121 COPD patients.[21] The probability of having depression was observed more in male gender, accordance with the previous study done by Waseem SMA et al but this correlation is statistically not significant (p value 0.528) in the present study. Though some studies show female predominance and some of the studies shows that gender is not a determinant of depression.[21-22]

As for as smoking is concerned patients with more number of smoking pack year have more severe depression but this correlation is not significant (p value 0.375). This finding is similar to a study conducted by Hananiaet al which found no association was seen between smoking status and depressive symptoms.[23]

CONCLUSION

Symptoms of depression are common in patients with COPD and its presence may have significant impact on the quality of life of such patients and may be associated with a higher mortality rate. It may also negatively affect compliance and smoking cessation. Depressive disorders are rarely diagnosed and treated appropriately because there are few published data to guide health-care professionals in the management of these symptoms. The high rates of depression found in this study raise the issue that clinicians should consider screening of COPD patients for depression especially those patients with physical symptoms and functional limitations, since

treating depressive symptoms is an important dimension that could improve outcomes in this group of patients.

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