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RESEARCH ARTICLE

STRESS INDUCED DISORDERS IN CHRONIC RESPIRATORY DISEASES

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ABSTRACT

In India, Chronic Respiratory diseases like chronic obstructive disease, Bronchial Asthma and pulmonary tuberculosis continue to be one of the common disease groups which are the cause of significant morbidity and mortality. These diseases cause significant physical incapacitation and they also cause psychogenic manifestations which may also affect the primary pulmonary disease and in many cases this may cause dangerous vicious cycle. Requirement of persistent and prolonged treatment and often frequent hospitalization are contributory factors for these psychogenic effects. Anxiety and Depression happen to be the common manifestations.

Objective: the aim of this study is to look in to the prevalence of Depression in these respiratory patients in Visakhapatnam district, Andhra Pradesh of India.

Methodology: 180 Patients of chronic respiratory illness with COPD, Bronchial Asthma and Pulmonary tuberculosis were selected for the study who attended the King George Hospital and Chest disease hospital connected to Andhra Medical College in Visakhapatnam of AP, India. After detailed work up by chest physician these patients were evaluated by psychiatrist for presence and severity of depression using Beck's depression inventory. After thorough clinical evaluation of chest disease they were subjected for Psychiatric evaluation for the presence of Depression and if present the severity of Depression among them.

Result: The study Sample includes 123 males and 57 female patients with pulmonary tuberculosis, COPD, and bronchial asthma was found in 69, 61 and 50 patients respectively. Depression was observed in 51.02 % of pulmonary tuberculosis, 64.28 % of chronic obstructive pulmonary diseases and 27.27 % of bronchial asthma patients. Seventy percent of female patients had depression in comparison to 45.68% of males. Severe depression was more frequent in COPD (22.22%) in comparison to pulmonary tuberculosis (16.00%) and Bronchial Asthma (0.00%).

Conclusion: This study shows that more than half of patients with COPD and pulmonary tuberculosis also suffer from depression. Pulmonary rehabilitation reduces anxiety and depression in patients suffering from chronic respiratory disorders

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INTRODUCTION

Psychiatric disorder is common in patients with chronic respiratory illness. Frequently such patients become depressed, anxious and often dependent on others to care for their needs. Exertional dyspnea is a frightening symptom and may lead to a vicious "fear-dyspnea" cycle: In course of time, lesser exertion results in dyspnea, which produces fear and anxiety, consequently increased severity of dyspnea. This phenomenon seems to be more marked in low socio-economic status people requiring more physical activity for their livelihood. The lifetime prevalence of mood disorder in patients with chronic disease is 8.9% to 12.9%, with a 6-month prevalence of 5.8% to 9.4% (Cassen *et al.*, 1990; Cassem *et al.*, 2004).

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In a study 28.1% of patients hospitalized in general or surgical hospital wards had depression (Lykouras *et al.*, 1987; Giannitsi *et al.*, 1985). Depression is a leading cause of disability worldwide and an increasing cause of physical and psychological impairment in persons with COPD (chronic-obstructive pulmonary disease (Cully *et al.*, 2006). Similarly stigma associated with tuberculosis puts patients at risk of developing depression (Dye *et al.*, 1999). The association between asthma and psychological factors has been recognized for centuries (Rosner, 1981). Although sadness and mild depression may be considered a fairly normal response to a diagnosis of chronic illness, more severe, chronic depression can lead to serious consequences for persons with asthma. We did not find any study which assessed depression in chronic respiratory diseases among inhabitants of hilly region has been recognized for centuries (Rosner, 1981) Although sadness and mild depression may be considered a fairly normal response to

a diagnosis of chronic illness, more severe, chronic depression can lead to serious consequences for persons with asthma (Thompson *et al.*, 1984) A surprisingly high prevalence of anxiety and depression was reported In one study on patients with chronic breathing disorders, included COPD (World Health Organization, 2012).

MATERIALS AND METHODS

Type of Study: Cross sectional hospital based study

Method: The study was conducted in King George Hospital and Chest diseases Hospital which are tertiary care teaching hospitals situated in Visakhapatnam of Andhra Pradesh in India. These hospitals cater health need of a large geographical area which includes 2 surrounding districts Srikakulam and Vizayanagaram. Also people from neighboring state Orissa. After taking appropriate permissions study was conducted from January 2013 to August 2014. All the patients with bronchial asthma, chronic obstructive pulmonary diseases, or pulmonary tuberculosis admitted in King George Hospital and chest diseases Hospital were included in the study.

Inclusion criteria: Those who had duration of respiratory illness more than 8 weeks, and agreed to give written informed consent were enrolled in study.

Exclusion Criteria: Patients who are habituated to Alcohol intake are excluded from this study. Patients with coexisting diseases especially Diabetes, Hypertension Ischemic heart disease, Valvular heart disease with or without Heart failure and chronic Hepatic disease like Cirrhosis of liver.

After detailed work up by chest physician these patients were subjected to psychiatric evaluation for presence and severity of depression using Beck's depression inventory. A semi-structured questionnaire prepared in Telugu language was used for details of socio-economic status and physical illness. Becks Depression Inventory was used for assessment of depression and grading was done as minimal, mild, moderate and severe. The questionnaires were filled in through interviewing the patients. Diagnosis was made as per Diagnostic and Statistical Manual of Mental Disorders, fourth edition. Results were analyzed using appropriate statistical tests.

Table 3. Categorization of Patients based on duration of illness

Duration of Illness	Number of Patients	Patients with Depression	Percentage
3-6 months	66	28	42.42%
6-12 months	15	6	40%
>12 months	99	49	49.49%
Total	180	83	

The State Trait Anxiety Inventory (STAI) questionnaire contains 20 items equally divided between positive and negative statements regarding anxiety (Spielberger *et al.*,)

RESULTS

During the study period 270 patients were admitted in chest ward and 192 patients suffers from either chronic obstructive pulmonary diseases, pulmonary tuberculosis & bronchial asthma .Of these 26 were excluded on basis of exclusion criteria and remaining 166 were enrolled in the study. Sample includes 116 males and 50 females' patients. Pulmonary

Table 1. Categorization of patients based on type of Resp. disease

Disease	Number of patients	Percentage	Percentage Having Depression	Severity of Depression
Pulmonary Tuberculosis	69	38.33%	51.02%	16.00%
COPD	61	33.88%	64.28%	22.22%
Bronchial Asthma	50	27.77%	27.2%	0%
Total	180			

Table 2. Categorization of patients based on socioeconomic, sex and Age factors

Educational Status	Total Number of Patients	Number of patients with Depressive illness	Percentage
illiterate	78	58	74.358%
Primary	42	23	54.761%
Secondary	60	25	41.666%
Total	180	106	58.888%
Marital status			
Married	155	93	60%
Unmarried	25	6	20%
Age in years			
15 – 30	40	22	55%
31 – 45	55	31	56.36%
46 – 60	60	25	41.66%
>60	25	5	20%
Total	180	83	
Sex			
Male	123	59	47.96%
Females	57	34	59.64%
Total	180		
Occupation			
Employed	41	29	46.34%
Unemployed	119	46	55.46%
Retired	20	8	40.00%
Per Capita Monthly income			
Below 10000	140	68	48.57%
10000 -15000	34	13	38.23%
15001 – 20000	6	2	38.23%
Total	180	85	

tuberculosis, COPD, and bronchial asthma were found in 49, 84, and 33 patients respectively. The mean age of study patients was 46.23 years. Seventy percent of female patients had depression in comparison to 45.68% of males. Disease wise analysis revealed that depression was observed in 51.02 % of pulmonary tuberculosis, 64.28 % of chronic obstructive pulmonary diseases and 27.27 % of bronchial asthma patients. On further analysis of tuberculosis patients it was revealed that depression was present in 45.71% of new sputum positive and 64.28 % of previously treated cases. Severe depression was more frequent in COPD (22.22%) in comparison to pulmonary tuberculosis (16.00%) and Bronchial Asthma (0.00%). Depression was more frequent in Illiterate (70.83 %), unemployed (55.18%), and retired (61.53%) patients. Prevalence of anxiety was found to be 28.22% most of them are Bronchial asthma patients.

DISCUSSION

This study found that depression was more frequent in COPD compared to bronchial asthma and pulmonary tuberculosis. Several factors may contribute to a higher rate of depressive symptoms in COPD when compared to other chronic disorder⁹. We found that prevalence of depression in COPD in our study was higher than earlier research (Light *et al.*, 1985). This may be due to variability of patients in severity of airway obstruction and demographic characteristics of study patients (Isoaho *et al.*, 1995). COPD is a slowly debilitating disease in which difficulty breathing is a progressive symptom that is distressing to patients (Mannino *et al.*, 2002; World Health Organization, 2012 and Rabe *et al.*, 2007). Furthermore, treatment of dyspnea is less effective in COPD than treatment of relevant symptoms in other chronic disorders. In addition, oxygen therapy can be associated with social stigma (Mannino *et al.*, 2002; World Health Organization, 2012 and Rabe *et al.*, 2007). Given the large number of persons with COPD who have depressive symptoms and the association of depression with worse outcomes in chronic diseases, it is possible that better identification and treatment of depressive symptoms in patients with COPD would offer an effective option to improve outcomes in this population.

We observed that almost half of pulmonary tuberculosis patients had depression which is similar to other studies (Purohit *et al.*, 1978; Sethi *et al.*, 1970). The prevalence of depression in patients of pulmonary tuberculosis varies depending upon number of factors like longer period of suffering, hospitalization, loss of earning, sense of hopelessness, social stigma (Dubey Lai, 1975). The prevalence of depression was increased in patients who received treatment in past in compare to newly diagnosed case of pulmonary tuberculosis. This may be due to longer period of illness¹⁵, prolong hospitalization, more severe disease. This study also shows that prevalence of depression in Patients of bronchial asthma was lower than COPD and Pulmonary Tuberculosis but higher than general population (Mancuso *et al.*, 2001; Sherwood Brown *et al.*, 2000) Several data suggest that depressed patients subjectively perceives themselves as having more severe asthma symptoms than euthymic patients, but this perception is supported by objective measure of diseases severity (Rushford *et al.*, 1998). Bronchial asthmatic symptoms can cause insomnia, anxiety that may increase the BDI scoring.

Conclusion

This study shows that more than half of patients with COPD and pulmonary tuberculosis also suffer from depression. Anxiety and depressive symptoms are common in patients affected by COPD, even when their disease is mild in terms of FEV1 and respiratory symptoms. Both anxiety and depression correlate with QoL. Female patients appear to be more susceptible to psychological impairment, which correlates with some specific symptomatic aspects of the disease, such as dyspnea. (van Ede, 1999). Pulmonary rehabilitation reduce anxiety and depression in patients suffer from chronic respiratory disorders.

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