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Chronic Obstructive Pulmonary Disease

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CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND PULMONARY REHABILITATION: AWARENESS AMONG THE PATIENTS

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ABSTRACT

Objective: To determine the frequency of awareness among the patients with Chronic Obstructive Pulmonary Disease (COPD) about the disease and pulmonary rehabilitation.

Study Design: Cross sectional study.

Place and Duration of Study: Department of Medicine, Combined Military Hospital (CMH), Multan, from Sep 2015 to Feb 2016.

Methodology: A total of 115 patients diagnosed as Chronic Obstructive Pulmonary Disease, including both males and females and meeting the inclusion criteria were selected. Outcome variables were awareness regarding Chronic Obstructive Pulmonary Disease and the pulmonary rehabilitation. Demographic data and outcome variables were recorded on specially designed questionnaire.

Results: Level of awareness regarding the disease was below average in 75 (65.2%) of the patients while average level of awareness was observed in 40 (34.8%) of our study cases. None of our study cases presented with level of awareness more than 66%. Level of awareness regarding pulmonary rehabilitation was below average in 98 (85.2%) while it was average in only 17 (14.8%) of our study cases and none of them had awareness more than 66%.

Conclusion: The awareness regarding the disease and pulmonary rehabilitation was poor in our patients.

Keywords; Awareness, Chronic obstructive pulmonary disease, Rehabilitation.

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is among the leading causes of disability and death throughout the world[1-3]. It is third main cause of death and is continuously increasing[4]. Around 4.5 million people die of this disease every year and it is expected to rise to 5.8 million deaths in a year by 20301.

The most important factor leading to COPD is cigarette smoking. Other important risk factors include male sex, low educational status, recurrent respiratory tract infections, exposure to occupational dust, chemicals and hereditary alpha-1 antitrypsin deficiency[5,6]. COPD usually presents with shortness of breath, chronic cough which may or may not be productive and impaired exercise tolerance which usually gets worse during the disease exacerbations[7,8].

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The management of COPD involves both pharmacological and non-pharmacological measures[9-10]. The important non pharmacological measure is pulmonary rehabilitation which includes patient education, exercise training and psychosocial support that is helpful in improvement of exercise capacity and quality of life[10-12]. It is an important therapeutic concept in the management of COPD. It is explained as evidence based, multidisciplinary, and comprehensive intervention for patients with chronic respiratory disorders who are symptomatic and are usually having an impaired quality of life. If integrated carefully into the disease management, pulmonary rehabilitation is aimed at improving the disease symptoms, enhance the patient's functional status and reduce health care cost by stabilizing or reversing the disease manifestations. It is one of the effective modalities in improving long term mortality as well as morbidity besides smoking cessation and long term oxygen therapy[10]. Studies have suggested

that educating patients regarding various aspects of COPD including its risk factors, warning signs and symptoms, and treatment modalities has resulted in the improvement of disease management and better involvement of the patients in the self-management programs which eventually lead to reduced frequency of hospitalization and improvement in the quality of life[13,14]. A recent study conducted in India among the patients of COPD has revealed overall awareness of the disease domain to be 47.84% and that of the pulmonary rehabilitation to be 25.14%[7].

This study was conducted to assess the level of patients' awareness about the disease and pulmonary rehabilitation, in order to emphasize upon the need to educate the patients about various aspects of COPD and scope of pulmonary rehabilitation in its management in clinical settings and hence improving the quality of patients' lives.

METHODOLGY

This cross sectional study was conducted in the outpatient department of Medicine, Combined Military Hospital Multan from September 2015 to February 2016. Sample size was calculated by using WHO sample size calculator. Non-probability consecutive sampling technique was used. A total of 115 patients who met the following inclusion criteria were selected; male and female gender, patients with age ≥30 and ≤70 years, diagnosed patients of COPD (FEV1/FVC <70% and β2-agonist reversibility of predicted FEV1 of <15% and 200 ml). Patients with concomitant heart disease, patients with confusion secondary to exacerbation of COPD, patients with inability to comprehend and complete the questionnaire were excluded from the study, after due permission from concerned authorities. The purpose of the study was explained to each patient and informed consent was obtained. Patient's basic data and demography was noted. All patients were subjected to and documented on specially designed COPD awareness questionnaire (Annex A) and response was recorded. The questionnaire contained a total of 14 questions testing the knowledge in both the domains i.e. the disease (Questions 1-9) and pulmonary rehabilitation (Questions 10-14). The magnitude of the awareness was assessed as a whole as well as for each of the respective domains separately and were considered below average if the correct responses in the completed questionnaire were <33% whereas 33-66% of the correct responses were considered average and >66% of the correct responses were considered above average.

All the data were collected, entered and analyzed on SPSS version 17. Mean standard deviation was calculated for age. Percentages were computed for the level of awareness of the disease (COPD) and pulmonary rehabilitation. Effect modifiers such as age, sex, educational status and socioeconomic class were controlled by stratification. Post stratification chi-square & Fisher's exact test was applied. The *p*-value <0.05 was considered significant.

RESULTS

Our study comprised of a total of 115 patients meeting the inclusion criteria. Of these 115 study patients, 63 (54.8%) were males while 52 (45.2%) were females. Mean age of the patients was 57.25 ± 9.06 years (with minimum age of our study cases was 43 years while maximum age was 69 years). Mean age of the male patients was 57.41 ± 9.07 years while that of female patients 57.06 ± 9.14 years (p=0.835). Our study results have indicated that majority of our study cases i.e. 86 (74.8%) were having their age ranging from 51-70 years of age, whereas 29 (25.2%) patients were of age group between 30-50 years.

Of these 115 patients, 51 (44.3%) were from rural areas and 64 (55.7%) were from urban areas. Most of the study patients had educational qualification upto matric or less as 92 (80%) of the study population belonged to this group, while only 23 (20%) had a qualification of intermediate or graduation and none of them had qualification more than graduation. Among them, 18 (15.7 %) were from poor socioeconomic class, 74 (64.3%)

from middle income class and 23 (20%) were from rich socio-economic class.

Level of awareness regarding the disease domain was below average in 75 (65.2%) patients while it was average in 40 (34.8%) patients (table-I). Level of awareness regarding pulmonary

Table-I: Awareness regarding disease and pulmonary rehabilitation (n = 115).

	Awareness level about disease		Awareness level about pulmonary rehabilitation		Overall awareness level	
	Below average	Average	Below average	Average	Below average	Average
No. of patients	75	40	98	17	71	44
Percentage	65.2%	34.8%	85.2%	14.8%	61.7%	38.3%

Table-II: Chronic obstructive pulmonary disease awareness according to demographic details

Demographic Variable	Chronic Obstructive Pulmonary Disease Awareness		
	Below average	Average	*p*-value
Gender			
Male n=63	46 (73%)	17 (27%)	0.053
Females n=52	29 (56%)	23 (44%)	
Age			
30-50 years n=29	23 (79%)	06 (21%)	0.065
51-70 years n=86	52 (60%)	34 (40%)	
Residential Status			
Urban n=51	28 (55%)	23 (45%)	0.038
Rural n=64	47 (73%)	17 (27%)	
Level of Education			
Matric or below n=92	69 (75%)	23 (25%)	<0.001
HSSC to graduation n=23	06 (26%)	17 (74%)	
Socioeconomic Status			
Poor n=18	12 (66%)	06 (34%)	0.58
Middle n=74	46 (62%)	28 (38%)	
Rich n=23	17 (74%)	06 (26%)	

Table-III: Awareness about pulmonary rehabilitation according to demographic details.

Demographic details	Awareness about pulmonary rehabilitation		
	Below average	Average	*p*-value
Gender			
Male n=63	57(90%)	06 (10%)	0.08
Females n=52	41 (79%)	11 (21%)	
Age			
30-50 years n=29	29 (100%)	-	0.012
51-70 years n=86	69 (80%)	17 (20%)	
Residential Status			
Urban n=51	40 (78%)	11 (22%)	0.067
Rural n=64	58 (91%)	06 (9%)	
Level of Education			
Matric or below n=92	86 (93%)	06 (7%)	<0.001
HSSC to graduation n=23	12 (52%)	11 (48%)	
Socioeconomic Status			
Poor n=18	18 (100%)	-	0.004
Middle n=74	57 (77%)	17 (23%)	
Rich n=23	23 (100%)	-	

rehabilitation was below average in 98 (85.2%) patients while it was average in only 17 (14.8%) patients. Overall awareness was average in 44 (38.3%) patients while it was below average in 71 (61.7%) patients. None of our patients presented with awareness level more than 66%.

Level of awareness with regards to disease domain, pulmonary rehabilitation and overall awareness was stratified with regards to gender, age, level of education, socioeconomic status and residential status (tables-II & III).

DISCUSSION

COPD manifests as significant physical and psychosocial challenges[11-15]. Studies have found that it imposes a great impact on economy of country, especially to highly populated and economically constraint countries[10,17]. The management of COPD includes pharmacological and non-pharmacological treatment. Along with pharmacological treatment, pulmonary rehabilitation is found to be cost-effective. It includes patient education, exercise training, and psychological intervention. Studies have shown that patient education regarding their condition, warning signs and symptoms, pathology, and treatment is believed to be the key element in the successful treatment of COPD[10].

For patients to be better involved in self-management programs and to utilize action plans effectively, they must understand their illness and its treatment. These in turn prevent hospitalization and improve health-related quality of life. An Indian study on knowledge and attitude of COPD patients with regard to their disease found that, their knowledge was poor[10]. Another study on Canadian patients aimed at assessing information needs and the knowledge of patients with COPD, concluded that there was need for more information and that a knowledge gap was identified in self-management strategies[18]. Nevertheless, there is a paucity of studies assessing the level of awareness about the disease itself and about pulmonary rehabilitation[19].

Our study comprised of a total of 115 patients meeting the inclusion criteria. Of these 63 (54.8%) were male patients while 52 (45.2%) were female patients. A study conducted by Waqas *et al* has reported 70% male patients predominating over female gender with 30% frequency, these findings show a marginal difference in results compared to our study results[20]. Similarly, Hassan *et al* reported 53% male patients with COPD[21]. On the other hand, Phulpoto *et al* documented very high male gender predominance with 100% frequency[22]. Yet another study by Motiani *et al* reported 80% male patients compared with 20% female patients with COPD[23]. These studies however, show male predominance of disease as reported in our study. Despite the fact that male population is more in our study population, it should also be noted that in contrast to above mentioned studies female participants are in significantly higher proportion.

Mean age of our study patients was 57.25 ± 9.06 years (with minimum age of 43 years while maximum age was 69 years). Mean age of the male patients was 57.41 ± 9.07 years while mean age of female patients was 57.06 ± 9.14 years (p=0.835). Our study results have indicated that majority of our study cases i.e. 86 (74.8%) were having their age ranging from 51-70 years of age. Nearly, similar results were shown in other studies conducted. For instance; Phulpoto *et al* reported 56.8 ± 7.8 years mean age of COPD patients, Farooqi *et al* reported 47.2 ± 4.2 years mean age, Motiani *et al* reported 60.87 ± 10.93 years mean age of the patients with COPD, Thakrar *et al* reported 63.54 ± 10.656 years mean age[22,23,7].

In our study, 51 (44.3%) patients were from rural areas, whereas 64 (55.7%) were from urban areas.These facts can be attributed to more risk factors predisposing to illness in urban areas. Most of the patients were from low literacy status, as 92 (80%) had educational qualification up to matriculation or less, while only 23 (20%) had a qualification of intermediate or graduation and none of them had qualification more than graduation. These results varied from the international studies, as Thakrar *et al* documented that 30.1% were below matric, and Scott *et al*

reported that 36% COPD patients did not complete their school education[7,18]. Among them, 18 (15.7 %) were from poor socioeconomic class, 74 (64.3%) from middle income class and 23 (20%) were from rich socio-economic class. Almost similar results were reported by Thakrar *et al* in his study[7].

There is limited data on this topic and these studies have documented poor awareness among the patients with COPD[7,24,25]. In our study, level of awareness regarding the disease domain was found to be below average in 75 (65.2%) patients while average level of awareness was observed in 40 (34.8%) patients. None of our study cases presented with level of awareness more than 66%. Level of awareness regarding pulmonary rehabilitation was below average in 98 (85.2%) while it was average in only 17 (14.8%) patients and none of them had awareness more than 66%. A recent study conducted in India among the patients of COPD has revealed overall awareness of the disease domain to be 47.84% and that of the pulmonary rehabilitation to be 25.14%[7]. Similar trends were observed by Hernandez *et al* and by Johnston *et al* in their studies[24, 25].

CONCLUSION

Our study results have indicated that the awareness regarding the disease and pulmonary rehabilitation was poor in our population with COPD. The awareness regarding the disease was significantly associated with residential status and level of education, as it is evident by increased level of awareness among urban and more educated population. Similarly, the awareness regarding pulmonary rehabilitation was associated with level of education, increasing age and socioeconomic status.

RECOMMENDATION

There is an urgent need for the awareness campaign regarding various aspects of the disease and its management especially the scope and significance of pulmonary rehabilitation, which will help in decreasing the disease morbidity, improving the quality of life of the patients and also providing them relief against social and financial stress.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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