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Original Research Article

To Assess the Quality of Life (St George's Respiratory Questionnaires) and 6 Minute Walk Test in Patient of Chronic Obstructive Pulmonary Disease

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ABSTRACT

Background: Chronic obstructive pulmonary disease (COPD) is the leading cause of death in advance state and leads to public health importance around the world, the 6-min walk test (6MWT) has historically been used to characterise the functional status of COPD. Quality of life (QOL) is an important domain for measuring the impact of chronic disease. Among the disease specific questionnaires frequently used to evaluate the QOL of pulmonary patients is St. George's Respiratory Questionnaire (SGRQ)**.**
Objective: To assess the quality of life (St George's Respiratory Questionnaires) and 6 minute walk test in Patient of COPD**.**
Materials and Methods: It is a Cross-sectional prevalence study. The study was done over a period of 1 year from Oct 2015 to Sep 2016. The study included 96 COPD patients, diagnosed by spirometry and severity was determined according Global Initiative For Obstructive Lung Disease (GOLD) classification criteria, Quality of life was assessed by SGRQ-C Questionnaires and 6 minute walk test had been done**.**
Results-Out of 96 patients GOLD Stage A, B, C, D consists of 43,30,12,11 patients. In 6 minute walk test, patients with GOLD stage D, fail to perform the test while patients with GOLD A to C walked short distance. In SGRQ-C Questionnaires symptom, activity, impact and total score was high with severity of GOLD stage.
Conclusion: Quality of life is impaired in advance stage of COPD as all component of SGRQ is increased with increasing stage of COPD, 6 minute walk distance is also reduced with advance stages.

Key Words: Chronic obstructive pulmonary disease, 6 Minute walk test, SGRQ questionnaires, Gold Stages

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is defined as a disease state characterized by airflow limitation that is not fully reversible. It is the leading cause of death in advance state and leads to public health importance around the world. [1] The 6-min walk test (6MWT) has historically been used to characterise the functional status of COPD. Much of the attraction of the 6MWT as an assessment tool in COPD is due to its simplicity of performance, inexpensiveness. New insights that the manifestations of COPD go well beyond the lung, and include its cardiac and peripheral muscle wasting effects, are additional factors that make a test of functional performance like the 6MWT attractive as an assessment tool. [2] Because the 6-min walk is a simple measure of integrated cardiopulmonary and musculoskeletal function, it is rightly becoming an essential

tool in the assessment profile of the COPD patient. Patients with COPD frequently report dyspnea related to everyday tasks. [3,4] Therefore, it has been suggested that patients with COPD may be in a downward spiral of symptom-induced inactivity leading to deconditioning and muscle weakness. [5] A variety of constructs can be assessed in response to therapies in COPD, including not only lung function but also physical function, patient-reported outcomes such as health-related quality of life and respiratory symptoms, exacerbation frequency and severity, the course of the disease, systemic consequences, and others. [6] Quality of life (QOL) is an important domain for measuring the impact of chronic disease. Both general and disease-specific instruments have been used to measure QOL in patients with COPD. [7] Among the disease specific questionnaires frequently used to evaluate the QOL of pulmonary patients is St. George's Respiratory Questionnaire (SGRQ). A new version of the SGRQ, the SGRQ-C specific only to COPD, is now available [5]

MATERIALS AND METHODS

This cross-sectional prevalence study enrolled 96 patients attending OPD and IPD in department of Medicine, King George's Medical University, Lucknow in the duration of One year. Written consent was taken and ethical committee was approved this study. Present study included male and female COPD patients diagnosed by spirometry, and severity was determined according to GOLD classification criteria. After inclusion and exclusion criteria all patients were examined in detail. Investigations included routine blood examinations; Functional assessment was done by 6 Minute Walk Test and Quality of life done by St George respiratory Questionnaires. COPD patients aged 40 to 70 years of either sex were included and Patients having COPD of age <40 year and >70 year, left sided heart failure, pregnancy, autoimmune disease, HIV disease patient, thyroid disease, rheumatic heart disease, congenital heart disease, ischemic heart disease, renal and liver disease were excluded from the study. Statistical analysis: The statistical analysis was done by using SPSS (Statistical Package for Social Sciences) Version 15.0 statistical analysis software. The values were represented in number (%) and Mean±SD. Statistical formulas such as mean, standard deviation, chi square test, analysis of variance (ANOVA), post-hoc tests (Tukey-HSD), bivariate correlation, level of significance were used. Level of significance- $p > 0.05$ not significant, $p < 0.05$ significant, $p < 0.01$ highly significant, $p < 0.001$ very highly significant.

RESULTS

Out of 96 cases, 63 were male and 33 were females. Prevalence of patients in GOLD stages A, B, C and D were as 43 (44.7%), 30(31.2%), 12(12.5), 11(11.4) respectively. Mean age of patients ranged from 56.50± 12.01 years to 59.10± 8.28. (Table 1)

Patients with Stage D unable to perform 6-m walk test. Mean distance, DW showed a significant decline with increasing Stage of COPD ($p<0.001$). (Table2)

With increasing Stage of COPD, a significant increase in all the subscale as well as total scores of SGRQ scale was observed ($p<0.001$). (Table3)

Table 1: Demographic Profile- COPD Stage wise

SN	Characteristic	A (n=43)	B (n=30)	C (n=12)	D (n=11)	Statistical significance
1.	Mean Age±SD (Years)	57.70± 6.70	59.10± 8.28	56.50± 12.01	59.36± 4.01	F=0.462; p=0.709
2.	M:F	30 (69.8%): 13 (30.2%)	16 (53.3%): 14 (46.7%)	9 (75.0%): 3 (25.0%)	8 (72.7%): 3 (27.3%)	χ^2=3.050; p=0.384

Table 2: 6 min walk test - COPD Stage wise

SN	Parameter	A (n=40)	B (n=30)	C (n=5)	Statistical significance
1.	6MWD	416.40±34.34	421.57±35.51	280.40±17.63	F=34.49; p<0.001
2.	DW	22625.05± 1491.07	22892.03± 1828.75	14678.40± 1893.03	F=55.35; p<0.001

Table 3: SGRQ Scores - COPD Stage wise

SN	Characteristic	A (n=43)	B (n=30)	C (n=12)	D (n=11)	Statistical significance
1.	Symptom score	22.17±2.53	37.66±4.58	58.76±5.61	68.29±3.70	F=585.3; p<0.001
2.	Activity score	39.78±0.38	43.00±1.77	50.80±4.79	70.75±5.25	F=438.1; p<0.001
3.	Impact score	22.07±1.05	30.77±1.29	43.61±2.14	50.60±1.12	F=1861.7; p<0.001
4.	Total Score	26.56±0.71	39.53±1.69	49.65±1.05	57.81±1.47	F=2572.1; p<0.001

DISCUSSION

Patients with COPD are markedly inactive when compared with healthy elderly subjects in daily life. The 6MWD is the strongest correlate of walking and standing time during daily life in patients with COPD. Patients with a severely impaired 6MWD are likely to have very low physical activity level in daily life. In patients with COPD, only modest relations have been found between laboratory-based exercise tests and lung function impairment [8] The present study clearly showed that most patients with COPD spend significantly less time walking. The study also showed that a reduced 6MWD is the best surrogate marker of inactivity during daily life in patients with COPD [9] The 6-minute walk test is widely used for the evaluation of functional status in patients with lung disease in both clinical practice as well as clinical trials. The test is widely used because it involves a familiar daily activity and involves the use of minimal technical resources. [10] The impairment of 6-minute walk distance (70.1% predicted) on average was not as severe as one might predict from the severity of impairment of FEV_1 (26.3% predicted) or quality of life (St. George's Respiratory Questionnaire, (56.2 out of 100). the 6-minute walking distance is only one dimension of functional assessment of COPD treatments. [11] The importance of measurement of quality of life (QOL) in COPD subjects is indicated because of two important facts. The first is that no single measurement of lung function can satisfactorily summarize the various disturbances that may cause breathlessness in patients with COPD. For example, there is increasing evidence that increased functional residual capacity may cause breathlessness and exercise limitation, independently of disturbances in FEV_1. The second is that the correlation between measures of airways obstruction and exercise impairment is frequently poor [12] Aim of this work was to study QOL in patients with COPD and to examine its relationship with the severity of the disease. COPD is associated with significant reductions in QOL, even among patients with mild airway obstruction. A poor QOL has been shown to be associated with high levels of dyspnea, physical impairment, depression, and anxiety, and a poor prognosis in terms of readmission to hospital and death .Also, it was mentioned that the patients with the greatest impairment in their quality of life are those that present with cough and exertional dyspnea, have a longer duration of the disease and take more drugs [13] In a study shows that COPD had a considerable impact on daily activities in patients. Aspects of daily life are most affected, either due to the severity of the disease or the existence of social, economic, or occupational factors that could interfere with the management of the disease or complicate its progression. [14] With respect to the different domains of the SGRQ-C, One study found that found that patients showed higher scores in the impact domain than in the symptoms or activity domains; the impact domain was also strongly associated with anxiety (alone or with depression). The origin of the impact domain, covering psychological disturbances resulting from respiratory disease, partly explains these findings. [9] Quality of life is impaired in patients with COPD and it deteriorates considerably with increasing severity of disease. Increasing severity of COPD is associated with a significant increase in SGRQ-C score.

CONCLUSION

This is concluded that by doing 6 minute walk test we can asses functional capacity of patient in various stages of

COPD which can guide us about the effect of treatment in COPD patients. SGRQ helps us to assess the quality of life of COPD patient which can be reassessed if treatment can improve quality life.

Conflict of Interest: None

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