

Study to Find Out the Efficacy of 6 Minute Walk Test in Assessing Response to Medical Intervention in Chronic Obstructive Pulmonary Disease Patients

Dr Brij Lal Sharma

Principal Specialist Medicine, Government Hospital Medicine, Sri Ganganagar

Article Info: Received 25 January 2022; Accepted 19 March 2022

doi: <https://doi.org/10.32553/ijmbs.v6i3.2486>

Corresponding author: Dr Brij Lal Sharma

Conflict of interest: No conflict of interest.

Abstract

Background: The aim was to find out the correlation of 6 minute walk test (6MWT) with spirometry values, in patients who are on treatment for chronic obstructive pulmonary disease, also to study the efficacy of the 6 MWT in assessing response to medical intervention in patients suffering from COPD. This was undertaken with an objective to study whether 6 MWT can be recommended for a primary care setting in resource-constrained countries in effective management of COPD

Methods: We included 50 patients with stable COPD attending the outpatient department in the stipulated study period and diagnosis of COPD was established by clinical symptoms and spirometric data of ratio of FEV₁ and forced vital capacity (FVC) ≤ 0.7 .

Results: The 6 minute walk distance (6MWD) of the patients was assessed once the health status of the patients has been stabilized. This was done under strict monitoring, just before discharge of the patient from the hospital. Participants aged less than 60 years had a 6MWD of 342.13 \pm 19.36 m while those aged above 60 years clocked 286.36 \pm 20.13 m.

Conclusions: 6MWT can be a useful replacement of spirometry in assessment of severity of COPD.

Key words: Chronic obstructive pulmonary disease, six-minute walk test, spirometric indices, severity

Introduction

Chronic Obstructive Pulmonary Disease (COPD) is a preventable and treatable disease with some significant extrapulmonary effects that may contribute to the severity in individual patients. Its pulmonary component is characterized by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and associated with an abnormal inflammatory response of the lung to noxious particles or gases. Chronic Obstructive Pulmonary Disease (COPD) is a major cause of chronic morbidity and mortality throughout the world. Many people suffer from this disease for years and die prematurely from it or its complications. COPD

is the fourth leading cause of death in the world¹, and further increases in its prevalence and mortality can be predicted in the coming decades². The aim was to find out the correlation of 6 minute walk test (6MWT) with spirometry values, in patients who are on treatment for chronic obstructive pulmonary disease, also to study the efficacy of the 6 MWT in assessing response to medical intervention in patients suffering from COPD. This was undertaken with an objective to study whether 6 MWT can be recommended for a primary care setting in resource-constrained countries in effective management of COPD

Methods

This was cross-sectional study. We included 100 patients with stable COPD attending the outpatient department in the stipulated study period and diagnosis of COPD was established by clinical symptoms and spirometric data of ratio of FEV₁ and forced vital capacity (FVC) \leq 0.7.

We excluded patients who had clinical or radiological evidence of pneumonia, blood pressure \geq 180/100mmHg, and resting heart rate $>$ 120/min prior to 6MWT, evidence of left ventricular failure (LVF), ischemic heart disease

(IHD), or any major cardiac disease, neuromuscular disease of the lower extremities, peripheral vascular disease, and those who refused to give informed written consent for the study.

Data Analysis:

Data was recorded as per Performa. The data analysis was computer based; SPSS-22 was used for analysis. For categoric variables chi-square test was used. For continuous variables independent samples's *t*-test was used. *P*-value $<$ 0.05 was considered as significant.

Results

Table 1: Socio-demographic variable

Mean age in yrs	61.32 \pm 4.36
Male : female	64:36

A total of 100 patients admitted with primary diagnosis of chronic obstructive pulmonary disease (COPD) were included in the study. A majority of the participants were aged 60 years and above, and around 64.00% were males.

Table 2: Factor effected 6 minute walk distance

Variable	6 MWD	P-value
<60 Yrs	342.13 \pm 19.36 m	0.001
\geq 60 Yrs	286.36 \pm 20.13 m	

The 6 minute walk distance (6MWD) of the patients was assessed once the health status of the patients has been stabilized. This was done under strict monitoring, just before discharge of the patient from the hospital. Participants aged less than 60 years had a 6MWD of 342.13 \pm 19.36 m while those aged above 60 years clocked 286.36 \pm 20.13 m.

Discussion

The study was done on patients with chronic obstructive pulmonary disease (COPD) who had achieved cardiopulmonary stability. The 6 minute walk distance (6MWD) was the primary modality which was measured. Age was a significant factor which determined the 6 MWD;

with participants below 60 years of age performing significantly better than those aged 60 or above. The 6 minute walk distance (6MWD) of the patients was assessed once the health status of the patients has been stabilized. This was done under strict monitoring, just before discharge of the patient from the hospital. Participants aged less than 60 years had a 6MWD of 342.13 \pm 19.36 m while those aged above 60 years clocked 286.36 \pm 20.13 m. A similar trend was observed in other studies also, with a report from Japan showing poor performance indicators as age progress.³ A study done in Turkey also showed similar findings.⁴

Conclusions

6MWT can be a useful replacement of spirometry in assessment of severity of COPD

References

1. Qaseem A, Wilt TJ, Weinberger SE, Hanania NA, Criner G, Molen T, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. *Ann Intern Med.* 2011; 155(3):179-91.
2. Macintyre NR. Spirometry for the diagnosis and management of chronic obstructive pulmonary disease. *Respir Care.* 2009; 54(8):1050-7.
3. Fujimoto H, Asai K, Watanabe T, Kanazawa H, Hirata K. Association of six-minute walk distance (6MWD) with resting pulmonary function in patients with chronic obstructive pulmonary disease (COPD). *Osaka City Med J.* 2011; 57(1):21-9.
4. Gungor G, Karakurt Z, Adiguzel N, Aydin RE, Balci MK, Salturk C, et al. The 6-minute walk test in chronic respiratory failure: does observed or predicted walk distance better reflect patient functional status? *Respir Care.* 2013; 58(5):850-7.