

EVALUATION OF BODE INDEX AS A PREDICTOR OF SEVERITY AND ITS CORRELATION WITH PULMONARY HYPERTENSION IN COPD PATIENTS

ABSTRACT

INTRODUCTION:

Chronic obstructive pulmonary disease (COPD) is a major cause of mortality and morbidity and health care costs worldwide. The COPD severity is generally assessed on the basis of a single parameter i.e forced expiratory volume in one second (FEV₁). However, the systemic manifestations of COPD were not reflected by the FEV₁. Hence, a multidimensional grading system which assesses the respiratory and systemic expressions of COPD is designed to predict outcome in these patients. These variables were used to construct the multidimensional BODE index which is a 10-point scale in which higher scores indicate the more severe nature of the disease and higher risk of complications and death.

AIMS AND OBJECTIVES

- To compare the severity of COPD using BODE index than primary lung function test alone.
- To determine whether higher BODE index in chronic obstructive pulmonary disease correlates with more years of cigarette smoking and more days of hospitalisation.
- To determine whether higher BODE index is associated with more severe systemic complications in the form of cardiac involvement (PHT).

METHODOLOGY:

COPD patients who attended our outpatient clinic / admitted as inpatient at the Govt.Kilpauk Medical College & hospital in the department of General Medicine were enrolled into the study.

The BODE index was calculated for each patient using the body mass index, the threshold value of FEV₁, the distance walked in 6 min, and the score on the Modified Medical Research Council (MMRC) dyspnea scale. The patients received points ranging from 0 (lowest value) to 3 (maximal value). For Body mass index the values were 0 (>21) or 1 (<21). The scores for FEV₁ were 0 (more than or equal to 65%), 1 (50 – 64%), 2 (36 – 49%) and 3 (less than or equal to 35%). The 6 minute walk test scores were 0 (> 350 ms), 1 (250 – 350 ms), 2 (150 – 249 ms) and 3 (< 150 ms). The MMRC dyspnea class 0 and I were given 0 points, class II – 1 point, class III – 2 points and class IV – 3 points. The BODE score of 0 – 2 was taken as mild COPD. Scores between 3-5 was considered as moderate disease and those more than or equal to 6 was considered as severe COPD.

RESULTS:

A total of 81 patients with COPD were enrolled in the study. All 81 patients were males. Among the patients with COPD, 21 (25.9%), 27 (33.3%), 28 (34.6%) and 5 (6.2%) belongs to age 41 – 50years, 51 – 60 years, 61 – 70years and 71 – 80 years respectively. Most patients are in the age group of 51 – 70 years. Of the total 81 patients enrolled in the study, 42(51.9%) comes under Mild COPD, 15(18.5%) comes under Moderate COPD and 24(29.6%) comes under Severe COPD categories. On analysing the distribution of number of exacerbations in relation to the severity of COPD categories, it was observed that the mean number of exacerbations were 0.62 ± 1.15 , 5.53 ± 1.96 and 14.38 ± 1.95 in mild, moderate and severe category of COPD. Among 81 patients enrolled in the study, 53 (65.4%)

patients had no changes in ECG but only 28 (34.6%) patients had ECG changes i.e 'P' Pulmonale and Right axis deviation (RAD). Among the 81 patients included in the study, 30(37%) had Mild PHT, 14(17.3%) had Moderate PHT, 26(32.1%) had Severe PHT and 11(13.6%) had no evidence of PHT. On analysing the distribution of BODE scores in relation to the PHT categories, it was observed that the mean BODE Scores were 1.00 ± 1.29 , 3.50 ± 1.79 and 7.62 ± 1.68 in mild, moderate and severe category of PHT. On analysing the distribution of BODE score in relation to the severity of COPD categories, it was observed that the mean BODE Scores were 0.57 ± 0.63 , 4.13 ± 0.92 and 8.00 ± 1.25 in mild, moderate and severe category of COPD.

CONCLUSION:

BODE Index can be used as a very useful and reliable index to assess the severity of Chronic Obstructive Pulmonary Disease (COPD). BODE index is directly correlated with the number of exacerbations. As the Smoking intensity and the Smoking Pack Years increases the BODE Index also increases. PHT increases with the severity of COPD as assessed by BODE index.

KEYWORDS: BODE Index, Pulmonary Hypertension, MMRC dyspnea grading, Number of exacerbations, FEV₁.