COPD 2018:Predicting a clinical outcome in COPD patients applying the gold 2013 staging criteria GMC Kollam, India

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Background: Chronic Obstructive Pulmonary Disease (COPD) is a common disease, associated with high morbidity and mortality and is a leading cause of hospitalization and death in the elderly. Acute exacerbations contribute considerably to the diminished Quality Of Life (QOL) in patients with COPD. Several etiologic factors alone or in combination cause acute exacerbation of COPD (AECOPD). Prediction of outcome of Chronic Obstructive Pulmonary Disease (COPD) is a major concern for long-term management of this disease. No consistent Indian studies are available using the new GOLD update (2013 staging criteria) and for COPD outcome based on composite scores like DOSE, ADO and BODE index. Aim: The purpose of this study was to classify patients into different severity groups as per GOLD 2013 criteria, to describe the outcomes of patients with COPD in terms of exacerbation or death, to evaluate factors associated with recurrent exacerbations and to determine which of three multidimensional assessment systems (the Body mass index, Obstruction, Dyspnea and Exercise capacity (BODE) index, Dyspnea, Obstruction, Smoking, Exacerbations (DOSE) index or Age, Dyspnea, Obstruction (ADO) index) is superior for predicting exacerbations. The earlier guidelines determined the severity of disease primarily based on spirometric staging and this study based on the new GOLD updates includes airflow limitation, history of COPD exacerbation and symptoms to classify and grade COPD severity. Methods: This was a prospective cohort study of COPD patients conducted in the OPD or immediately prior to hospital discharge and followed up monthly for 1 year in a tertiary care centre of North Kerala from January 2014 to June 2015. Data on the outcome measures and associated factors were collected in a stable state. Pulmonary function tests, the 6-Minute Walk Distance (6MWD), Modified Medical Respiratory Council (MMRC) dyspnea scores, oxygen saturation levels, body composition, comorbidities, smoking status, age and GOLD staging were analyzed and predictions of exacerbation by the three assessment systems were compared. Statistical analysis was done using SPSS version 18. Results: Out of 300 patients 12 (4%) patients lost follow up 24 (8%) died during the study period. 62 (20.7%) in group B and 238 (79.3%) in group D of 2013 GOLD staging criteria. The mean annual exacerbation rate was 2.42 events per patients per year. Death and rate of exacerbation correlated significantly with lower predicted forced expiratory volume in 1 second (FEV1) (p value<0.001), lesser 6 MWD (p value<0.001), higher MMRC dyspnea score (p value<0.001), GOLD stage D (p value <0.001) higher DOSE index (p value <0.001), higher BODE index (p value <0.001) and higher ADO index (p value<0.001). For prediction of exacerbation the area under curve were larger for BODE index than for DOSE and ADO index (p value <0.001). Adjusted multiple logistic regression identified the BODE index as a significant predictor of risk of COPD exacerbation. Conclusion: These composite scores DOSE, ADO and BODE index can be used to assess outcome in COPD in Indian patients. BODE index was a better predictor of COPD exacerbation when compared with DOSE and ADO index.