



A COMPARISON OF THREE MULTIDIMENSIONAL INDICES FOR PREDICTION OF COPD MORTALITY AND FUTURE HOSPITAL ADMISSIONS

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Objective:

BACKGROUND: Patients with chronic obstructive pulmonary disease (COPD) frequently suffer episodes of exacerbation often leading to hospital admission and death. Research suggests that in a 36-month period 30% of COPD patients will suffer exacerbation severe enough to require hospitalization with in-hospital mortality of 8% and one-year follow-up mortality of 23%. Identifying patients in a particular risk of hospital admission and in high risk of fatal outcomes can be useful in preventing adverse health outcomes and identifying patients in need of additional health interventions. Several single risk factors have been identified as predictors of future hospital admissions and increased mortality: number of previous admissions and exacerbations, severity of air flow limitation and dyspnea, percentage of predicted forced expiratory volume in 1 second (FEV₁ %),



exercise capacity, concomitant comorbidity, presence of emphysema or systemic inflammation, poor health status, low body mass index (BMI) as well as older age and female sex. In order to improve accuracy of risk prediction several authors constructed predictive indices combining multiple predictive factors which could possibly predict adverse outcomes related to COPD more effectively compared to single factor prediction. The aim of this study was to assess comparability of different multidimensional indices (PEARL, DOSE and BODE) in prediction of COPD mortality and future hospital admissions. We aimed to investigate how individual patients are categorized by each index and compare their prognostic congruency.

METHODS: Five randomly selected patients COPD patients classified as GOLD 4C and GOLD 4D were examined, and their medical records reviewed in order to obtain necessary variables required to calculate multidimensional indices. PEARL, DOSE and BODE index were calculated as demonstrated in previous research.

RESULTS: Participants classified as GOLD 4C and GOLD 4D show similar predicted risk of COPD related death and hospital admission with DOSE index, which is in accordance with previous research demonstrating gradual increase of mortality rate from GOLD 1 to 4, but generally similar mortality rate between groups A-D. GOLD 4D patients demonstrated higher PEARL scores compared to GOLD 4C patients, but such regularity was not evident with BODE risk prediction. Different multidimensional indices predict different single-patient levels of risk for adverse outcomes with no apparent regularity.

CONCLUSION: Current multidimensional indices lack congruence in predicting risk of hospital admission and COPD related death in COPD patients. Further research is needed to identify single



risk factors and combination thereof that would be able to accurately predict adverse outcomes in COPD management.