Red blood cell distribution width as a predicts as predictor outcome in acute exacerbation of COPD

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Objective: Red blood cell distribution width (RDW) has been shown to predict clinical outcomes in many diseases. To our knowledge, the prognostic significance of RDW in acute exacerbation of chronic obstructive pulmonary disease (AECOPD) has not been reported so far. The aim of the present study is to investigate the relation of RDW to in-hospital mortality in patients with AECOPD.

Methods: We retrospectively reviewed hospital records of inpatients with AECOPD in two referral teaching hospitals in two provinces of east Azerbaijan and west Azerbaijan, Iran. Associations between RDW and in-hospital death were analyzed with using correlation, logistic regression analysis, and receiver operating characteristic (ROC) curves is SPSS software.

Results: We studied 330 patients, of whom 75 (22.7%) did not survive to hospital discharge. In univariate analysis higher RDW-SD values were associated with increased hospital mortality (30.2% vs. 15.8% p=0.002 odds ratio 2.31). Using the first quartile of RDW as reference, odds ratio (OR) mortality among patients in the highest RDW quartile was 5.34 (95%CI, 2.70-12.57;9=0.001). In multivariate analysis RDW-SD remained an independent risk factor for mortality after correction for age, thrombocytopenia, leukocyte count, mean corpuscular volume, anemia. In receiver-operating curve analysis the AUC for RDW was 0.663, which was more than that of hemoglobin, platelets.

Conclusion: RDW on admission day proves to be a useful indicator to predict in-hospital death in AECOPD.