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**Title:** Red blood cell distribution with in patients With chronic obstructive pulmonary disease

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**Body:** Background: Chronic obstructive pulmonary disease (COPD) increases the risk of cardiovascular disease (CVD). Red blood cell distribution width (RDW) is a newly recognized risk marker in patients with established CVD. It is unknown whether RDW is associated with in COPD patients. Aims: To study value of RDW in patients with COPD and to compare the value of this measurement with cardiac, respiratory, and hemotological status. Method: Two hundred five patients patients with stable COPD and 110 healthy controls cases were enrolled in the study. Demographic, clinical, echocardiographic, and laboratory characteristics were registered in COPD patient. Results: In the overall patients, the RDW level had a mean value of  $15.1 \pm 2.1$ . The RDW values were higher in the COPD group than in the controls ( $p < 0.001$ ). RDW was positively correlated with C-reactive protein (CRP) ( $p = 0.008$ ), right ventricular dysfunction (RVD) ( $P < 0.001$ ), presence of CVD ( $p < 0.01$ ) and pulmonary arterial hypertension (PAH) ( $P = 0.03$ ). In multivariable logistic regression, the presence of high RDW was the only parameter independently predicting RVD in patients with COPD (odds ratio, 2.098;  $P = .017$ ). Conclusion: RDW may be used to identify COPD patients with RV failure. RDW is independently associated with cardiovascular disease in patients with COPD.