Red blood cell distribution width predicts 5-years all cause mortality in patients with preserved ejection fraction heart failure

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Background: Studies have already validated the prognostic role of red blood cell distribution width (RDW) on outcomes in patients with heart failure as well as other diseases. We investigated the association between RDW values at admission and 5-years mortality in patients with decompensated heart failure with preserved ejection fraction (HfEF).

Material and method: we prospectively followed-up for a period of 5 years, 144 patients with decompensated HfEF admitted in Cardiology Unit during the period 2012-2013; mean age of the cohort 73.9± 9.36 years, 58% female. At the end of the follow-up, the patients were randomized in 2 groups: survivors vs. non-survivors. Patients with cancer, moderate to severe anemia, COPD, infectious diseases or autoimmune disorders were excluded during the first randomization.

Results: After a median follow-up of 37 months (range 18-60 months), 84 pts. died (58%), non-cardiac mortality accounting for half of this. Non-survivors had higher baseline RDW value (median value 13.9±2.72% vs.12.38±0.61%, p=0.0001), NT-proBNP levels (3885±834pg/ml vs. 2315±78pg/ml, p=0.05), New York Heart Association functional class, presence of atrial fibrillation, the indexed left atrial volume (48.5±15 ml/m2 vs. 45±7.5 ml/m2, p=0.0125) and systolic pulmonary artery pressure ( 47.3±12 mmHg vs. 38±15.6 mmHg, p=0.03). A multivariate Cox regression analysis revealed that RDW levels were independently correlated with all-cause and non-cardiac mortality after adjusting for other risk factors, including age, brain natriuretic peptide, echocardiographic parameters. In a receiver-operating curve analysis, a cut-off value of RDW above 14.2% have a 87% sensitivity and 75% specificity to predict the adverse outcome.

Conclusion: The current study demonstrated that besides NTproBNP, functional NYHA class, left atrial size and systolic pulmonary pressure, the RDW levels independently predict poor outcomes in patients with decompensated HfEF.