

Abstract Type : Oral

Abstract Submission No. : PO-1157

The combined effect of red blood cell distribution width and vascular calcification on clinical outcomes in patients with end-stage kidney disease

Da Won Kim, Hye Eun Yoon, Yeonhee Lee, Dongryul Kim, Seok Joon Shin
Department of Internal Medicine-Nephrology, The Catholic University of Korea, Incheon St. Mary's Hospital, Korea, Republic of

Objectives: Red blood cell distribution width (RDW) is a simple parameter that reflects the degree of red blood cell volume variability. Recent evidence has shown that increased RDW is associated with adverse clinical outcomes in patients with end-stage kidney disease (ESKD). Vascular calcification (VC) is another major independent risk factor for mortality in ESKD patients. This study investigated the combined effect of RDW and VC on cardiovascular events (CVEs) and mortality in ESKD patients starting dialysis.

Methods: Data from 592 ESKD patients treated at a single center between January 2006 and July 2017 were retrospectively evaluated. VC was assessed by the aortic calcification index (ACI) using abdominal computed tomography. Patients were divided into four groups based on the median ACI (17.18) and serum RDW value (14.3) as low ACI-low RDW, low ACI-high RDW, high ACI-low RDW, or high ACI-high RDW. The association between RDW and VC and the composite of CVE and death was investigated.

Results: During a median follow-up of 3.1 years (range, 1.5–5.4 years), 140 (23.6%) CVE and 217 deaths (36.6%) occurred. The Cox regression analyses showed that the patients with high ACI-low RDW had a greater risk of the composite endpoint than patients with low ACI-low RDW (adjusted hazard ratio, 2.082; 95% confidence interval, 1.268-3.419; $P = 0.004$). Patients with high ACI-high RDW had the greatest risk (adjusted hazard ratio, 2.455; 95% confidence interval, 1.529-3.943; $P < 0.001$). The interaction between ACI and RDW on CVE and mortality was statistically significant ($P = 0.001$).

Conclusions: In ESKD patients starting dialysis, the combined effect of VC and higher RDW was associated with a higher risk of CVE and death. High serum RDW amplified the risk associated with VC.