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Impact of the Platelet distribution width on mortality and cardiovascular events in End-stage kidney disease patients

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Objectives: Platelet distribution width (PDW) was known to a risk factor and an indicator of a variety of diseases. We evaluated impact of PDW on the all-cause mortality and cardiovascular(CV) event in end-stage kidney disease (ESKD) patients who started dialysis.

Methods: The primary outcome was a comparison of all-cause mortality and CV events among the PDW tertile groups. The secondary outcome is the possibility of PDW as an independent risk factor for all-cause mortality and CV event. The medical records of 386 ESKD patients who started maintenance dialysis between January 2006 and July 2017 were reviewed. Patients were divided into three groups; low, median and high groups based on the tertile PDW value.

Results: Overall death event was 83 cases; 17 in the low PDW group, 13 in the median PDW group, and 53 in the high PDW group. CV event was 110 cases; 20 in the low PDW group, 34 in the median PDW group, and 56 in the high PDW group. The all-cause mortality was significantly higher in the high PDW group compared to the low PDW group (40.2% vs. 14.5%, $P = 0.000$). The CV event rate was also higher in the high PDW group compared to the low PDW group (42.4% vs. 17.1%, $P = 0.027$). In multivariate Cox regression analysis, high PDW was an independent predictor for all cause death before adjustment (Hazard ratio(HR)=1.138, 95% CI, 1.062-1.220; $P=0.000$), and even after adjustment for age, smoking, diabetes, body mass index, C-reactive protein, and previous CV disease (HR 1.120, 95% CI, 1.035-1.213; $P=0.005$).

Conclusions: PDW value at the time of initiating dialysis in the ESKD patients may be a simple and useful method for predicting all-cause mortality and CV event.