

Platelet distribution width is a novel prognostic marker in end-stage kidney disease patients

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Background/Aims: Platelet distribution width (PDW) has demonstrated to be a prognostic indicator for various diseases including early colon cancer, heart failure, and COPD. PDW increases during platelet activation. Therefore, we evaluated the possibility of PDW as a novel prognostic marker for all-cause mortality and cardiovascular (CV) event in end-stage kidney disease (ESKD) receiving dialysis.

Methods: We explored the Incheon St. Mary's hospital medical records of 386 ESKD patients who started maintenance dialysis between January 2006 and July 2017. These patients were divided based on levels of PDW at the time of initiating dialysis: low, median and high groups. The primary endpoint was the comparison of all-cause mortality and CV events among the PDW groups. The secondary endpoint was the assessment of PDW as an independent risk marker for all-cause mortality and CV event.

Results: The overall 83 death events were comprised of 17 in the low PDW, 13 in the median PDW, and 53 in the high PDW. The all-cause mortality of the high PDW was significantly higher than that of the low PDW ($P = 0.012$). The total 110 CV events happened 20 in the low PDW, 34 in the median PDW, and 56 in the high PDW. The CV event of the high PDW was prominently higher than that of the low PDW ($P = 0.027$). As illustrated in the multivariate Cox regression analysis, the high PDW was an independent predictive marker for all-cause death not only without adjustment (HR 1.138, 95% CI, 1.062-1.220; $P < 0.001$), but also with the 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: The PDW of ESKD patients measured at the time of initiating maintenance dialysis is a promising prognostic marker for mortality risk and CV events.

