Platelet Activity Does Not Associate with Hemoglobin Level in Patients with Hemodialysis

Purpose: CKD is associated with low response to clopidogrel and low Hb. The authors assess the effect of hemoglobin level (Hb) as a confounding factor to VerifyNow P2Y12 reaction unit (PRU) in patients with chronic kidney disease (CKD) on hemodialysis.

Methods: We analyzed the correlation between PRU and Hb in 43 hemodialysis patients and compared it with a control group of 127 patients with normal renal function. Both groups underwent percutaneous coronary intervention for stable coronary artery disease. We also compared PRU and light transmission aggregometry (LTA) between the two groups considering Hb as a confounding factor.

Results: The correlation was significant between Hb and PRU in the control group (correlation coefficient $r = -0.340$; $p < 0.001$), but not in the hemodialysis group (correlation coefficient $r = -0.099$; $p = 0.526$), and platelet aggregation value by LTA did not show correlation ($r = 0.003$; $p = 0.984$) with Hb level. PRU was higher in the hemodialysis group than the control group after adjusting for the influence of Hb (299.2 [95% confidence interval: 278.4 to 316.7] vs. 248.7 [95% confidence interval: 227.7 to 269.0]; $p < 0.001$), even after propensity score matching (299.2 [95% confidence interval: 278.4 to 316.7] vs. 241.7 [95% confidence interval: 221.8 to 262.2]; $p < 0.001$).

Conclusion: Hb is a significant confounding factor of PRU in patients with normal renal function. But, in hemodialysis patients, a higher PRU value was not due to lower Hb but to enhanced platelet reactivity.