Mean Platelet Volume as a Predictor for Long-Term Outcome after Percutaneous Coronary Intervention

Eisen, Alon; Bental, Tamir; Assali, Abed; Kornowski, Ran; Lev, Eli
Rabin Medical Center, Cardiology Department, Petah-Tikva, Israel

Background: Mean platelet volume (MPV) is a value that is readily available from standard blood count. Increased MPV reflects larger platelets and is associated with increased platelet reactivity. In patients with acute coronary syndromes (ACS), increased MPV has been correlated with adverse cardiac outcomes. However, there is limited information about the prognostic value of baseline MPV in a large heterogenous patient population which undergoes percutaneous coronary intervention (PCI). We, therefore, aimed to examine whether baseline MPV is predictive of clinical outcomes in patients who undergo PCI.
Methods: Included were consecutive patients who underwent PCI during 2004-2010 (n=7585, mean age 67.5±12.0 years, 5761 males) and were followed for a median period of 4 years. Baseline MPV before angiography and long-term clinical outcomes were assessed.
Results: The mean MPV was higher in women compared to men (8.6±1.2 vs. 8.5±1.1 fL, p=0.02), in diabetic vs. non-diabetic patients (8.6±1.2 vs. 8.4±1.1 fL, p<0.001) and in patients who were admitted with ACS (n=4961) compared to patients who underwent an elective PCI (8.6±1.1 vs. 8.5±1.1 fL, p=0.001). On univariate analysis MPV level was associated with mortality with an hazard ratio of 1.23 (95% CI 1.17-1.28, p<0.001). On multivariate analysis adjusted for age, gender, type of stent, diabetes, prior heart failure, myocardial infarction and ACS, MPV was associated with mortality (HR 1.18, 95% CI 1.12-1.23, p<0.001) and with a composite end-point of death, MI and target vessel revascularization (HR 1.09, 95% CI 1.04-1.13, p<0.001). Baseline MPV was associated with mortality in patients undergoing an elective PCI as well as in urgent PCI (HR 1.30 ,95% CI 1.20-1.40, p<0.001 and HR 1.13, 95% CI 1.07-1.20, p<0.001, respectively).
Conclusion: In patients undergoing either an elective or urgent PCI, an elevated MPV is a significant predictor of cardiovascular adverse events including death.