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PFA-100, a test of platelet adhesion/aggregation, predicts cardiovascular events after an acute coronary syndrome and can help in the decision-making for dual antiplatelet extension

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Background: The dual antiplatelet therapy (DAPT) duration is a matter of great interest among cardiologists. Because of the conflicting evidences and the necessity to balance the reduction in major cardiac events (MACE) occurrence and the risk of major bleedings after an acute coronary syndrome (ACS), there is a general consensus on prolonging DAPT on an individual basis. There is less consensus on which parameters are to be evaluated. Nowadays tests of platelet reactivity are not included in the decision-making. Few data are available on the prognostic value of aspirin response tests that are sensitive to other mediators of platelet adhesion and aggregation in vivo under flow conditions.

Purpose: To demonstrate the role of the Platelet Function Analyzer (PFA-100) Collagen/Epinephrine (CEPI) cartridge, which is very sensitive to von Willebrand factor (VWF) levels, an emerging vascular risk factor, in risk stratification in ACS patients undergoing percutaneous coronary intervention (PCI).

Methods: We measured platelet reactivity by PFA-100 CEPI cartridges in a prospective cohort of 928 patients admitted for ACS between January 2006 to December 2009 and urgently treated by PCI at day 6±1 after ad-

mission. All the patients were treated with aspirin and clopidogrel according to current standard of that time.

Results: High platelet reactivity (HPR) defined as PFA-100 values <190" was found in 307 (33%) patients. No significant differences were found in demographic, angiographic and biochemical characteristics of both populations (PFA-100 <190" and PFA-100 >190"). At a mean follow up of 5±1 years patients with HPR had a significant increase in cardiac death: 12.3% vs 2.6% (hazard ratio 6.05; 95% confidence interval: 3.34–10.95; p<0.0001) and recurrence of myocardial infarction (MI): 49% vs 17% (hazard ratio 4,29; 95% confidence interval: 3,27–5,64; p<0.0001). The trend in events incidence in our cohort of patients, in line with recent evidences, was maintained beyond the first year of follow-up

Conclusions: Using a multivariable Cox-proportional hazard model, HPR was found to be an independent predictor of MACE. These results indicate that PFA-100 CEPI cartridge, which correlates well with VWF levels, may be a useful point-of-care test to stratify the cardiovascular risk after an ACS. This also underlines the additional value of this test in the decision-making about the correct extension of DAPT.