Assessment of platelet response to clopidogrel with multiple electrode aggregometry, the VerifyNow P2Y12 analyzer and platelet Vasodilator-Stimulated Phosphoprotein flow cytometry.

Abstract:
Multiple electrode platelet aggregometry (MEA) adenosine diphosphate (ADP) test is able to detect the platelet response to clopidogrel. The values obtained with MEA ADPtest correlate with those obtained with light transmission aggregometry and peri-interventional MEA ADPtest measurements are highly associated with the risk of early stent thrombosis after percutaneous coronary intervention. The main purpose of the present study was to correlate MEA ADPtest with the VerifyNow P2Y12 analyzer, Platelet VASP flow cytometry and the MEA ADPtest HS in order to test if these assays can substitute for each other. Blood samples from 60 consecutive patients scheduled for coronary angiography before and after administration of 600 mg of clopidogrel were analyzed. The correlation of MEA ADPtest with the other whole blood tests was moderate. The following order for the degree of correlation with MEA ADPtest for postclopidogrel values was found: MEA ADPtest HS (R = 0.83)> VerifyNow P2Y12 (R = 0.47)> Platelet VASP (R = 0.35). Of the 12 patients in the upper quintile of postclopidogrel values according to MEA ADPtest, seven were in the upper quintile according to VerifyNow P2Y12 (P < 0.001), six were in the upper quintile according to MEA ADPtest HS (P =
0.004) and three were in the upper quintile according to VASP (P = 0.63). Therefore, the studied whole blood assays cannot substitute for each other. Each assay with prognostic significance will have to undergo the ultimate test for individualized antiplatelet therapy in form of an adequately powered randomized clinical trial that shows that adjustment of antiplatelet therapy is beneficial for the patient.