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Titel des Beitrags: Platelet function and coagulation in patients with STEMI and peri-interventional clopidogrel plus heparin vs. prasugrel plus bivalirudin therapy (BRAVE 4 substudy).

Abstract: In this prespecified BRAVE 4 substudy we examined the antiplatelet and anticoagulant efficacy of clopidogrel plus heparin vs. prasugrel plus bivalirudin in patients with ST-segment elevation myocardial infarction. 26 patients received clopidogrel/heparin, 25 patients received prasugrel/bivalirudin and 20 additional untreated patients served as controls. Platelet aggregation was tested using whole blood impedance aggregometry. Dynamic platelet adhesion and aggregate formation to collagen were quantified under flow conditions. Coagulation tests included activated partial thromboplastin time (aPTT), international normalized ratio (INR) as well as rotational thrombelastography (ROTEM®). Analyses were performed 3 and 72h after drug administration. At 3, but not at 72h we observed a significant increase in the inhibition of platelet aggregation in response to adenosine diphosphate (P<0.01), but not to arachidonic acid, collagen or thrombin receptor agonist in the prasugrel/bivalirudin group compared to the clopidogrel/heparin group. Inhibition of platelet adhesion to collagen under flow was significantly stronger in the prasugrel/bivalirudin group at 3 and 72h after drug administration (P<0.01). APTT was
significantly higher in the clopidogrel/heparin group (P<0.05) and INR was significantly higher in the prasugrel/bivalirudin group (P<0.01) 3h after drug administration. Concerning ROTEM® analysis the drug combinations did not differ in reducing clot formation time (CFT) and both combinations did not influence maximum clot firmness (MCF) compared to the controls. We could demonstrate a more pronounced inhibition of platelet aggregation as well as platelet adhesion and aggregate formation to collagen under flow in prasugrel plus bivalirudin treated patients.