Stability of the high on-treatment platelet reactivity phenotype over time in clopidogrel-treated patients.

Interindividual response variability to clopidogrel treatment is a well established phenomenon. In recent studies and ongoing large-scale trials where patients with high on-treatment platelet reactivity (HPR) to clopidogrel are being randomised to an intensified antiplatelet treatment, confirmation of the HPR phenotype is based on one single platelet function assessment. The stability of the HPR phenotype over time has never been investigated but should be considered crucial for justification of intensified antiplatelet treatment regimens beyond clinical trials. The goal of this study was to test for the stability of the HPR phenotype over time in clopidogrel-treated patients. Patients (n=31) under chronic clopidogrel treatment (75 mg/day) were investigated by serial adenosine diphosphate (ADP)-induced platelet aggregation assessment with multiple electrode aggregometry (MEA) on a Multiplate analyser and light transmission aggregometry (LTA) at three different time points (once per week) during monitored antiplatelet treatment. On the basis of a cut-off level approach (468 AU*min for MEA, 53% for LTA) patients were classified into patients with (n=27) or without (n=4) HPR. For MEA, the phenotype was stable in 93.5% (n=29) of patients whereas 6.5% (n=2) crossed the cut-off level. For LTA, the phenotype was stable in 68% (n=21) of patients whereas 32% (n=10) patients crossed the cut-off level (chi-square P=0.01 for
comparison of phenotype stability between both assays). In conclusion, the HPR phenotype is stable over time in the majority of clopidogrel-treated patients. Comparative assessment of phenotype stability across available platelet function assays warrants further investigation.