Antiplatelet effects of clopidogrel and bleeding in patients undergoing coronary stent placement.

Abstract:
In patients undergoing percutaneous coronary intervention (PCI), a link between bleeding and excess mortality has been demonstrated. A potential association of platelet response to clopidogrel and bleeding has not been well established yet. The aim of the present study was to assess the impact of clopidogrel responsiveness on the risk of bleeding in clopidogrel-treated patients undergoing PCI. Patients (n=2533) undergoing PCI after pretreatment with 600 mg of clopidogrel were enrolled in this study. Blood was obtained directly before PCI. Adenosine-diphosphate (ADP)-induced platelet aggregation was assessed on a Multiplate analyzer. The primary endpoint was the incidence of in-hospital Thrombolysis in Myocardial Infarction (TIMI) major bleeding and the secondary endpoint was in-hospital TIMI minor bleeding. Receiver-operator curve (ROC) analysis was used to derive the optimal platelet aggregation value defining enhanced clopidogrel responders for the association of measurements with major bleeding. Thirty-four (1.3%) major bleeding events and 137 (5.4%) minor bleeding events were observed. The risk of a major bleeding was significantly higher in patients (n=975) with an enhanced response to clopidogrel as compared with the remaining patients (n=1558) (2.2 vs.
0.8%, unadjusted odds ratio (OR) 2.6, 95% confidence interval (CI) 1.3-5.2, P=0.005; adjusted OR 3.5, 95% CI 1.6-7.3, P=0.001. No significant differences between both groups were observed for the occurrence of minor bleeding events (P=0.68). Enhanced clopidogrel responsiveness is associated with a higher risk of major bleeding. Whether guidance of antiplatelet treatment based on platelet function testing proves useful for avoiding bleeding events warrants further investigation.