Rapid Platelet Function Assessment Using Two Concentrations of Adenosine Diphosphate After Clopidogrel Loading Dose in Patients Undergoing Cardiac Catheterization

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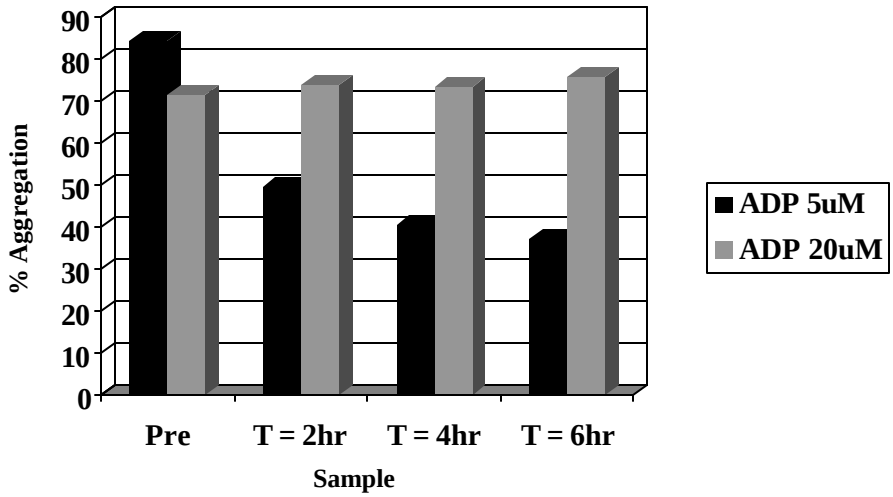
Background: Platelet activation is a contributing factor to early thrombotic occlusion in patients undergoing percutaneous coronary artery intervention. Clopidogrel, an ADP receptor antagonist, has been shown to inhibit platelet aggregation within 1 hour of a 375 mg loading dose, with peak effect at 5 hours, using a 5 μM ADP agonist. This study examined the inhibition of platelet aggregation after a 300 mg loading dose of clopidogrel using the bedside ICHOR platelet analyzer with 5 μM ADP and 20 μM ADP agonists.

Methods: Twenty patients undergoing cardiac catheterization were randomized to platelet function analysis using 5 μM (n = 10) or 20 μM (n = 10) ADP agonist. Platelet aggregation was analyzed at baseline, 2, 4 and 6 hours after a loading dose of 300 mg of clopidogrel. Data were compared using ANOVA with Bonferroni's correction.

Results:



Conclusion: These data suggest that the 300 mg clopidogrel loading dose commonly used with endothelium stenting does not reach maximal platelet inhibition at 5 hours. Earlier treatment or higher loading doses may be required to optimize platelet inhibition in the periprocedural period.

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