The Antiplatelet Activity of Clopidogrel is Inhibited by Atorvastatin but not by Pravastatin

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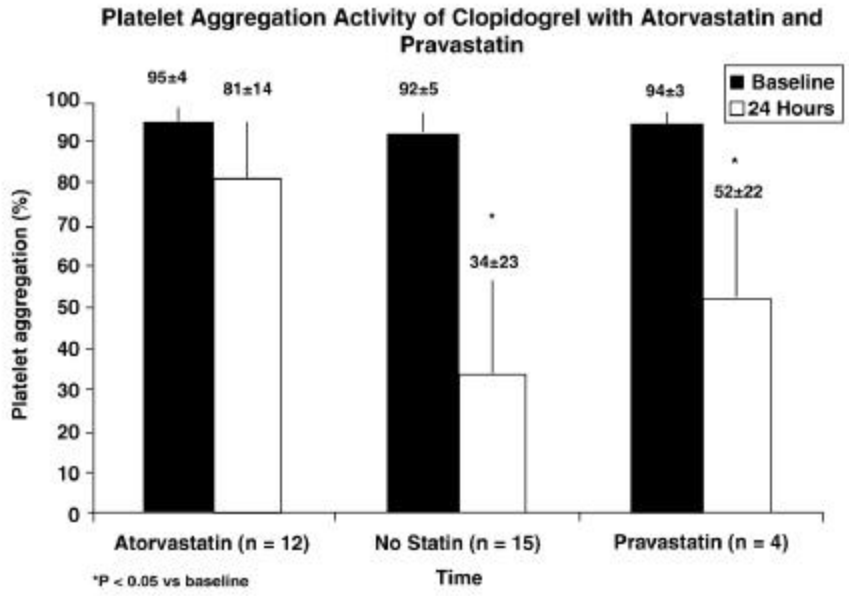
Background: Clopidogrel requires metabolic activation by hepatic cytochrome P450 – 1A (CYP1A) or possibly other mechanisms prior to effectively inhibiting platelet aggregation. Atorvastatin is metabolized by the CYP -450 3A4 system, whereas pravastatin is metabolized by sulfation. Clopidogrel and statin agents are often used in combination in patients undergoing stent implantation.

Objective: To evaluate the effect of statin therapy on platelet inhibition by clopidogrel.

Methods: Baseline and 24-hour platelet aggregation were measured using a point-of-care platelet function analyzer with 20 µM ADP agonist (ICHOR Medical, South Bend, IN) after clopidogrel (300 mg load, 75 mg/d) in 31 patients (12 atorvastatin, 15 no lipid lowering agent, and 4 pravastatin) undergoing coronary stenting.

Results: Clopidogrel did not inhibit platelet aggregation in patients on atorvastatin therapy. (See figure)

Conclusion: These data suggest that atorvastatin is a competitive inhibitor of clopidogrel activation, where pravastatin is not. This suggests that clopidogrel activation may also utilize the CYP -450 3A4 system.



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