# In Vivo Platelet Redistribution and Acute Transient Thrombocytopenia after Eptifibatide Injection in Baboons

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## ABSTRACT

**Background:** The occurrence of thrombocytopenia has been reported during clinical eptifibatide (Integrilin) therapy, but the exact mechanism is not yet established to explain the varied duration and severity of thrombocytopenia associated with glycoprotein (GP) IIb/IIIa inhibitors. We assessed the redistribution of platelets in juvenile baboons during acute transient thrombocytopenia that was observed after eptifibatide injection.

**Methods:** Eptifibatide was administered intravenously to eight baboons by infusion at 20 μg/kg/min or a bolus injection of 10 mg. Platelet distribution was measured with a gamma scintillation camera using $^{111}$In-labeled autologous platelets. Platelet function and GP IIb/IIIa receptor inhibition were evaluated using the Plateletworks® system. The effects of pretreatment with abciximab (0.4 mg/kg) or human immunoglobulin concentrate (0.75 g/kg) were also investigated.

**Results:** Eptifibatide, administered as an infusion or a bolus, caused transient thrombocytopenia with uptake of platelets predominantly by the liver. The recovery of platelet aggregation was associated with the re-entry of platelets from the liver into the systemic circulation. Pretreatment with either abciximab (0.4 mg/kg) or human intravenous immunoglobulin (IVIG, 0.75 g/kg) attenuated eptifibatide-induced thrombocytopenia and the hepatic uptake of radiolabeled platelets.

**Conclusion:** Acute thrombocytopenia after eptifibatide injection was caused by the transient redistribution of platelets to the liver. Attenuation of the decrease in platelet count and hepatic sequestration by abciximab and IVIG suggests that thrombocytopenia may have been caused by ligand-induced binding site antigen induction and recognition by the reticuloendothelial system.

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