

Efficacy of High-Dose Bolus Tirofiban Compared to Regular-Dose Glycoprotein IIb/IIIa Inhibitors on Platelet Aggregation Inhibition in Myocardial Infarction Patients Treated with Primary Angioplasty

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Background: Glycoprotein IIb/IIIa inhibitors reduce thrombotic complications in patients undergoing percutaneous coronary intervention. Little is known about the extent of platelet aggregation inhibition (IPA) in patients (pts) with acute myocardial infarction (MI).

Methods: IPA was measured at 5 time points in pts with acute MI who underwent primary coronary angioplasty (PCA) and were treated with Clopidogrel (C) alone, Clopidogrel in combination with Abciximab (A), Tirofiban (T) or high-dose bolus Tirofiban (HT). Clopidogrel was administered before acute angiography (300 mg orally). Glycoprotein IIb/IIIa inhibitor bolus was given after acute angiography (CAG) and before PCA, immediately followed by maintenance infusion. Abciximab was administered as bolus of 0.25 mg/kg followed by infusion of 0.125 µg/kg/min (max 10 µg/min). Tirofiban was administered as bolus of 10 µg/kg followed by infusion of 0.15 µg/kg/min. High-dose Tirofiban was administered as bolus of 25 µg/kg followed by infusion of 0.15 µg/kg/min. IPA was assessed on a routine blood cell counter (Sysmex K4500; demonstrated correlation coefficient of 0.90 with ICHOR CBC analyzer [Helena Laboratories]) with EDTA/PPACK as anticoagulant using 20 µM ADP as agonist (%).

Results: IPA was highly variable among pts. Mean IPA ± SD for the different agents at 5 time points are shown in Table I.

Conclusion: This is the first time study in which IPA is measured in acute MI pts treated with primary PCA and Clopidogrel in combination with different GPIIb/IIIa inhibitors. IPA was highly variable among pts. Only with high-dose bolus Tirofiban sufficient peri-procedural platelet aggregation inhibition was found. Further research is needed to assess the effect of bolus and maintenance infusion dose adjustment of GPIIb/IIIa inhibitors on clinical outcome.

Table I. Mean IPA (%) ± SD

	On admission	Before CAG	After PCA	1 hr after PCA	6 hrs after PCA
C (n=24)	13.1 ± 21.1	18.5 ± 22.0	16.8 ± 21.3	42.7 ± 33.3	42.0 ± 29.1
C + A (n=24)	21.2 ± 24.2	19.4 ± 22.2	55.5 ± 24.7	53.3 ± 24.3	57.6 ± 24.5
C + T (n=28)	11.5 ± 17.2	18.1 ± 24.7	57.4 ± 28.5	58.0 ± 27.3	73.3 ± 15.8
C + HT (n=16)	6.7 ± 5.4	7.8 ± 8.3	83.8 ± 13.4	69.9 ± 15.9	58.0 ± 20.7

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