Topic: Antithrombotic Treatment

Twice-daily Aspirin Treatment Provides a More Consistent Platelet Inhibition in Patients with Essential Thrombocytosis

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INTRODUCTION

Once-daily administration of low-dose aspirin (75 mg) is standard treatment in patients with essential thrombocytosis. Due to an accelerated platelet turnover, twice-daily dosing may improve the antiplatelet effect of aspirin.
The aim was to investigate if low-dose aspirin given twice-daily (37.5 mg twice-daily) provides a more consistent platelet inhibition compared to the standard once-daily dosing regimen (75 mg once-daily) in patients with essential thrombocytosis.

METHODS

We included 22 patients with essential thrombocytosis. The study design is displayed in **Figure 1**.
Laboratory analyses:

- Platelet aggregation was measured by whole blood impedance aggregometry (Multiplate analyzer®) using arachidonic acid (ASPItest 0.5 mM) to induce platelet aggregation.
- Serum thromboxane B_2 was determined using an enzyme-linked immunosorbent assay.

Figure 1: Study design

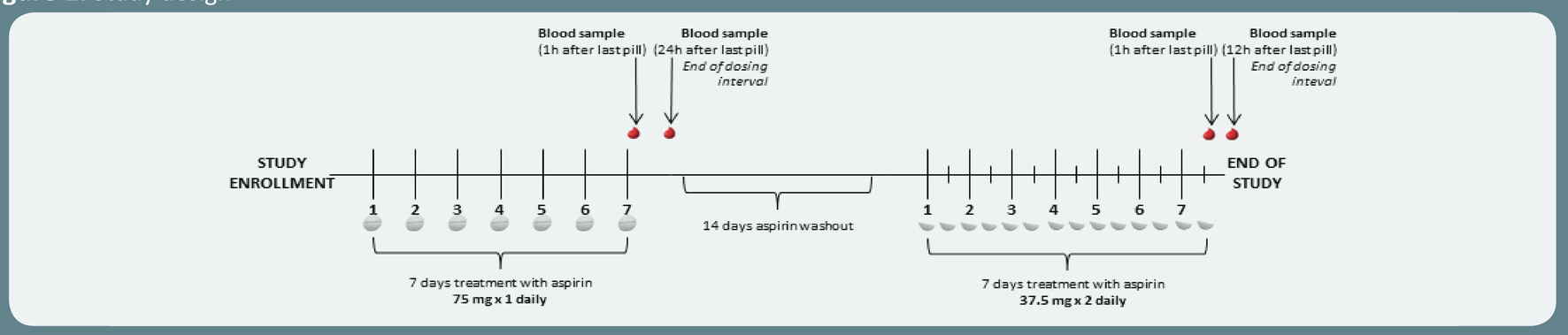
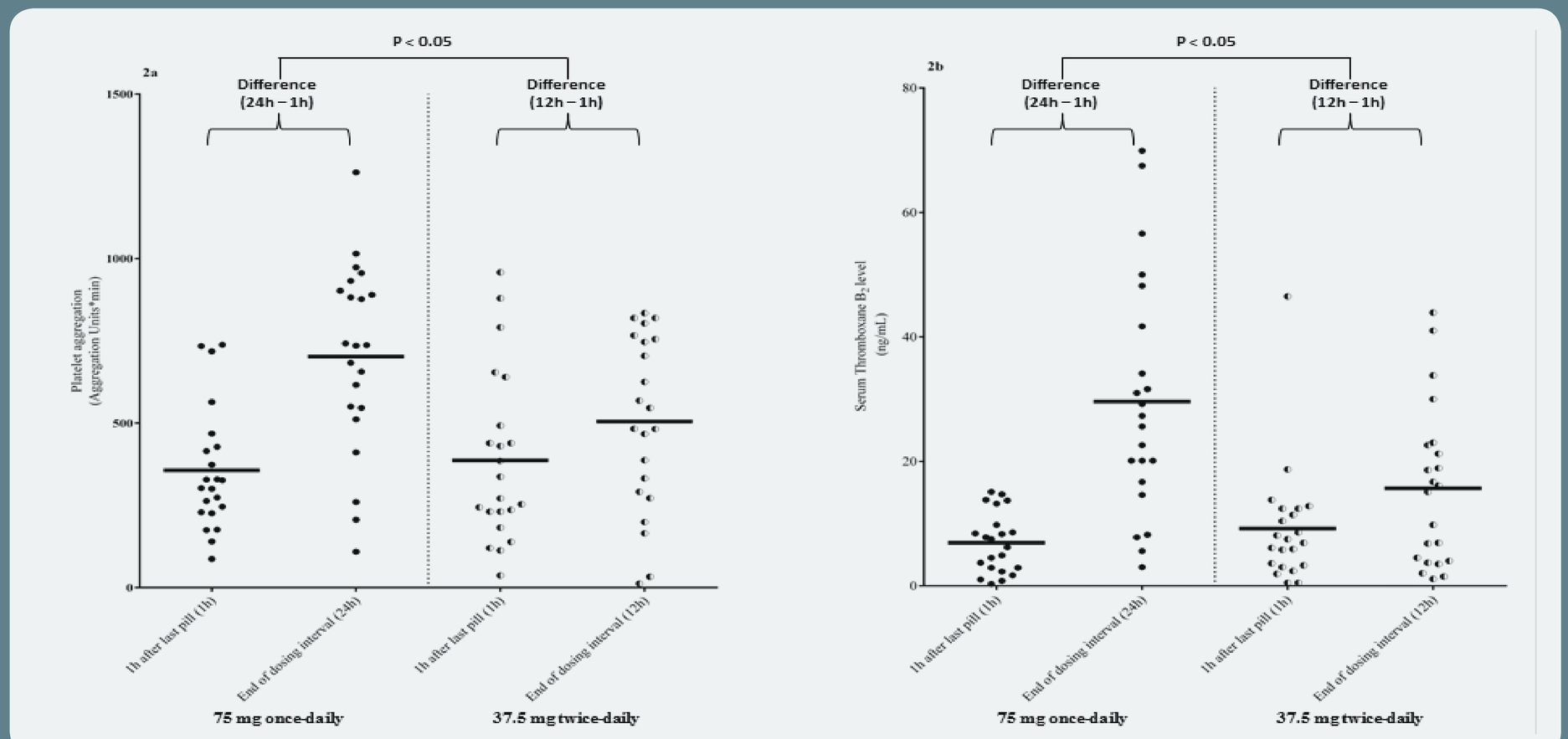


Figure 2a and 2b: Platelet aggregation determined by Multiplate analyzer® (agonist: ASPItest) and serum thromboxane B_2 measurements. Dot plots with mean values are shown. (n=22)



RESULTS

Platelet aggregation (**Figure 2a**) was measured to evaluate the effect of aspirin. The difference from 1h to the end of the dosing interval (24h/12h) was used to compare the two regimens.

We demonstrated a significantly lower difference in the twice-daily regimen compared to once-daily dosing: mean of difference = 227 Aggregation Units*min (95% confidence interval (CI): 92 to 363, p<0.01), indicating a more consistent platelet inhibition by twice-daily aspirin dosing compared to the standard once-daily regimen.

Serum thromboxane B_2 (**Figure 2b**) was used as a measure of cyclooxygenase-1 activity and to evaluate the antiplatelet effect of aspirin. The difference from 1h to the end of the dosing interval (24h/12h) was used to compare the two regimens.

A significantly lower difference in serum thromboxane B_2 was demonstrated in the twice-daily regimen compared to once-daily dosing: mean of difference = 16.3 ng/mL (95% CI: 9.9 to 22.7, p<0.0001).

CONCLUSION

Twice-daily dosing with low-dose aspirin (37.5 mg twice-daily) provides a more persistent platelet inhibition compared with standard once-daily dosing.
Further studies are warranted to determine the clinical benefit of the twice-daily dosing regimen.

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