

Older Age and Illness Duration Predict Poor Response to Platelet Transfusion in Adult Dengue

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Background

We conducted an open-label, randomized clinical trial of prophylactic platelet transfusion (PPT) in adult dengue patients with severe thrombocytopenia of $\leq 20 \times 10^3/\mu\text{L}$. We identified a subset of patients who had poor platelet responses to PPT and characterized them.

Methods

Prophylactically transfused patients on study day 1, who required a second platelet transfusion to maintain a platelet count above $20 \times 10^3/\mu\text{L}$ (poor responders) were compared to those not requiring further platelet transfusion (good responders). We assessed baseline demographics, comorbidities, dengue severity and clinical illness for predictors of poor response and compared clinical outcomes between poor and good responders.

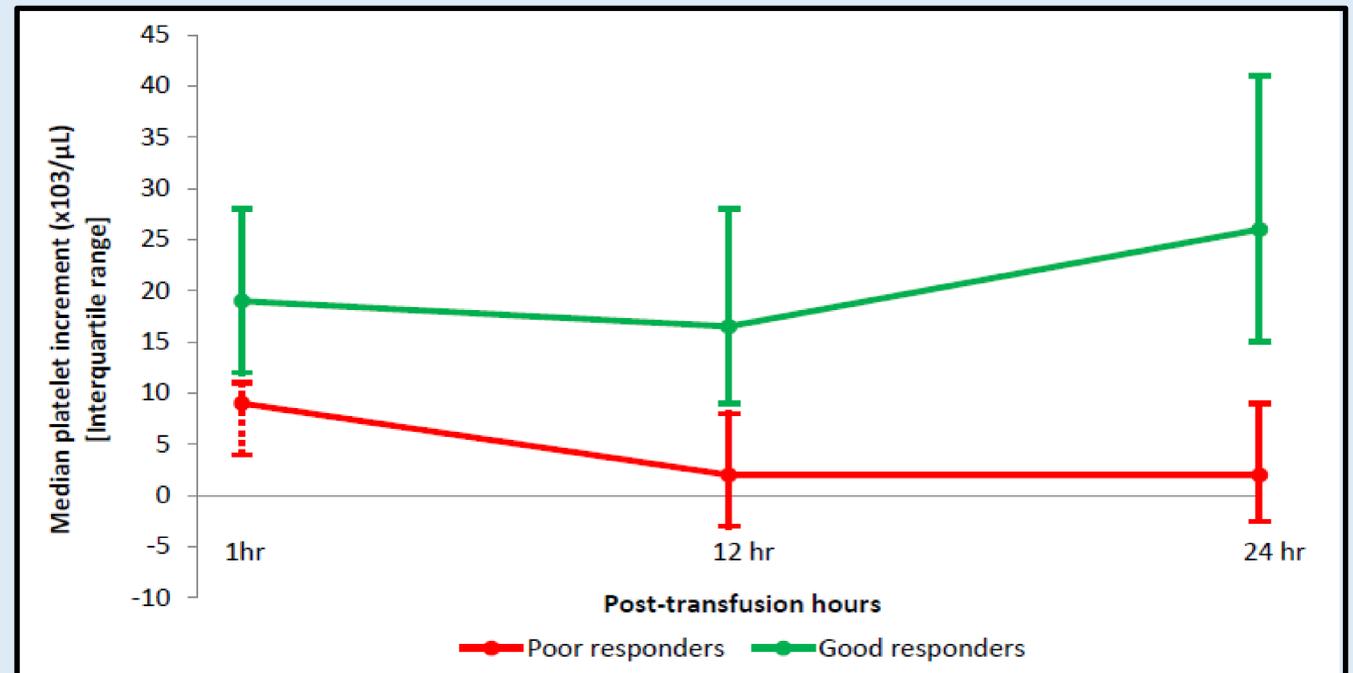
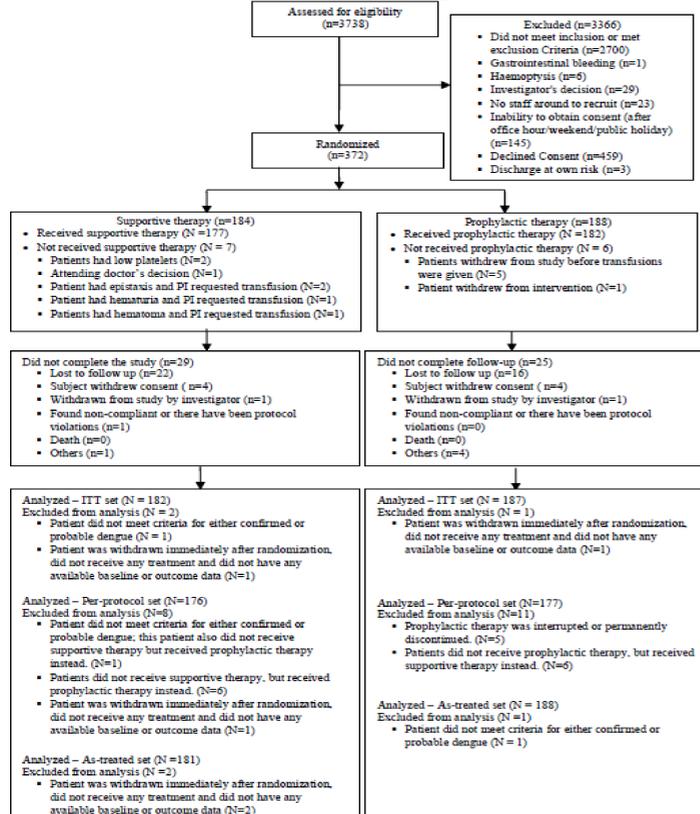


Figure 1: Consort flow diagram



Results

Among 182 patients with confirmed dengue given PPT, 46 (25.3%) were poor responders. The median platelet increment ($\times 10^3/\mu\text{L}$) at 1, 12 and 24 hours post-transfusion for poor responders was 9 (interquartile range [IQR], 4-11), 2 (IQR, -3-8) and 2 (IQR, -2.5-9) versus good responders 19 (IQR, 12-28), 16.5 (IQR, 9-28) and 26 (IQR, 15-41) respectively. At baseline, poor and good responders were similar in gender, comorbidities, warning signs, dengue hemorrhagic fever and severe dengue. Poor responders were older (mean age 48.9 versus 42.7 years, $p=0.009$) and had shorter illness duration (mean 4.8 versus 5.3 days, $p=0.018$) than good responders. Adjusting for confounders, significant predictors of poor response were age (adjusted odds ratio [OR] 1.03; 95% confidence interval [CI] 1.01-1.06, $p=0.009$) and duration of illness (adjusted OR 0.69; 95%CI 0.52-0.94, $p=0.018$). Poor responders had an increased risk of clinical bleeding (OR 3.33; 95%CI 1.58-7.04, $p=0.002$) and longer hospitalization (median length-of-stay 5 versus 4 days; difference in median = 1; 95%CI 0.00, 1.25, $p=0.001$). The two groups did not differ significantly in outcomes of developing severe dengue with complications, severe bleeding, intensive care admission or death.

Conclusions

Older patients with dengue who developed severe thrombocytopenia early in the course of their illness were more likely to have poor responses to prophylactic platelet transfusion. Clinicians should carefully monitor these patients for bleeding and ensure adequate blood product support.