






ORIGINAL ARTICLE

Rotational thromboelastometry in critical phase of dengue infection: Association with bleeding

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Abstract

Background: The critical phase of dengue carries a high risk of bleeding. Associations of coagulation test parameters and the risk of bleeding in the critical phase is unclear. This study examines the association of rotational thromboelastometry (ROTEM *delta* and ROTEM *platelet*) with bleeding risk of patients with dengue in the critical phase.

Methods: A total of 105 patients with confirmed dengue in the critical phase were recruited, with two subsequent prospective time point analyses of ROTEM parameters and platelet count within 24 and 48 hours from the onset of the critical phase. Conventional coagulation tests were performed only at the initial time point.

Results: Twenty of 105 patients developed bleeding after onset of the critical phase. Within the first 24 hours of critical-phase onset, platelet count, coagulation tests, and ROTEM *delta* were unable to differentiate patients with bleeding manifestations from those without ($P < .05$). Area under the curve of thrombin receptor activating peptide-6 assay of ROTEM *platelet* (TRAPTEM) discriminated patients with bleeding manifestations from those without, at a cutoff value of $<12.5 \Omega \cdot \text{min}$ at a sensitivity and specificity of 73.7%, and 60.2%. In patients who developed bleeding, the maximum lysis of extrinsic pathway of ROTEM was significantly lower in patients with severe bleeding compared to those with mild to moderate bleeding. ($4.3 \pm 3.4\%$ vs $9.4 \pm 7.5\%$; $P = .01$).

Conclusion: An association with bleeding manifestations and TRAPTEM suggest a potential role for defective platelet aggregation in the pathogenesis of bleeding in the critical phase of dengue.

KEYWORDS

bleeding, coagulation, critical phase, dengue, rotational thromboelastometry

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