

Thrombocytosis as a Predictor of Outcome In Severe TBI William J. Ares MD; Joshua S Bauer BS MS; David O. Okonkwo MD, PhD

Introduction

Post-traumatic development of thrombocytosis is felt to be secondary to a reactive process associated with cytokine release during the global inflammatory state and has been demonstrated in a general trauma population to be associated with decreased mortality. This has not been investigated in patients with severe traumatic brain injuries.2,3

Methods

This study included 120 consecutive patients with severe TBI (GCS<8) presenting to our institution between 6/2010 and 9/2012. Clinical data was retrospectively collected; clinical outcomes were part of a prospective registry. Exclusion criteria included non-survival to hospital discharge and lack of follow up data. Thrombocytosis was defined as peak platelet count greater than 600x103/mm3. Primary outcome was Glascow Outcome Score at 6 months. Secondary outcome was mortality at 6 months.

Results

Forty-four patients were available for analysis after applying exclusion criteria. All patients demonstrated an increase in platelet counts when compared to admission levels. Twenty-one (47%) patients developed thrombocytosis during their hospital stay with an average platelet count of 752 x103/mm3 and an average time to peak of 17 days. Patients who developed thrombocytosis had a trend towards decreased GOS at 6 months (3.3 vs 3.8, p=.08) and towards longer hospital stays (37.5 vs 21.5, p=.08). Six-month mortality was unchanged between the two groups (4% vs 4%, p=1). Additionally, patients with peak platelet counts that were greater than 200% of admission baseline had lower GOS at 6 months when compared to those that remained below 200% of baseline (3.4 vs 4.1, p=.03).

Conclusions

The development of post-traumatic thrombocytosis, while associated with lower mortality in the overall trauma population, may be associated with worse outcomes and longer hospital stays in patients with severe traumatic brain injuries. Relative reactive thrombocytosis greater than 200% of baseline may be more predictive of poor outcome than strictly defined laboratory cutoffs.

Learning Objectives

By the conclusion of this session participants should be able to 1) describe the importance of thrombocytosis in predicting outcomes of patients with severe TBI.

References

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3.Valade N, Decailliot F, Rebufat Y et al. Thrombocytosis after trauma: incidence, aetiology and clinical significance. British Journal of Anesthesia. 2005 Jan; (94(1):18-23.

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