

Utility of Thromboelastography to Reduce Coagulation-Related Mortality and Blood Component Rate in Neurosurgery ICU

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Abstract : Background: Patients with head and spinal cord injury frequently have deranged coagulation profiles and require blood products transfusion perioperatively. Thromboelastography (TEG) is a 'bedside' global test of coagulation which may have role in deciding the need of transfusion in such patients. Aim: To assess the usefulness of TEG in department of neurosurgery in decreasing transfusion rates and coagulation-related mortality in traumatic head and spinal cord injury. Method and Methodology: A retrospective comparative study was carried out in the department of neurosurgery over a period of 1 year. There are two groups in this study. 'Control' group constitutes the patients in whom data was collected over 6 months (1/6/2009-31/12/2009) prior to installation of TEG machine. 'Test' group includes patients in whom data was collected over 6 months (1/1/2013-30/6/2013) post TEG installation. Total no. of platelet, FFP, and cryoprecipitate transfusions were noted in both groups along with in hospital mortality and length of stay. Result: Both groups were matched in age and sex of patients, number of head and spinal cord injury cases, number of patients with thrombocytopenia and number of patients who underwent operation. Total 178 patients (135 head injury and 43 spinal cord injury patents) were admitted in neurosurgery department during time period June 2009 to December 2009 i.e. prior to TEG installation and after TEG installation a total of 243 patients (197 head injury and 46 spinal cord injury patents) were admitted. After TEG introduction platelet transfusion significantly reduced ($p=0.000$) compare to control group (67 units to 34 units). Mortality rate was found significantly reduced after installation (77 patients to 57 patients, $P=0.000$). Length of stay was reduced significantly (Prior installation 1-211 days and after installation 1-115 days, $p=0.02$). Conclusion: Bedside TEG can dramatically reduce platelet transfusion components requirement in department of neurosurgery. TEG also lead to a drastic decrease in mortality rate and length of stay in patients with traumatic head and spinal cord injuries. We recommend its use as a standard of care in the patients with traumatic head and spinal cord injuries.

Keywords : blood component transfusion, mortality, neurosurgery ICU, thromboelastography

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