Thromboelastography Testing During Cranial Tumor Surgery for Intraoperative Transfusion Decision-Making

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Introduction

Thromboelastography (TEG) provides information about platelet function, clot strength, and fibrinolysis. In addition, testing can be performed as a point-of-care assay intraoperatively for fast decision-making and intraoperative corrective action with transfusions of platelets and coagulation factors, if needed during instances of extensive bleeding during cranial surgery. Thromboelastography has been used in the trauma population. We propose its use during cranial surgery, particularly during vascular intracranial tumor resections that may predispose a patient to significant blood loss, to guide further need for transfusion with platelets/FFP for a coagulopathy. In addition, as a rapid point of care test, it can be performed intraoperatively and provides information that can be used to direct decision-making.

Methods

A 78 year old man presented with seizures and was found to have a large parieto-occipital glioblastoma on biopsy. He underwent craniotomy for resection of the tumor. Though he denied use of antiplatelet agents preoperatively, intraoperatively more than expected oozing was encountered. He was adequatly resuscitated, and an intraoperarive TEG test was performed to determine if a coagulopathy was present and if further resuscitation was necessary with additional platelets/fresh frozen plasma (FFP) prior to tumor resection.

Results

Intraoperarive TEG testing was performed which demonstrated good clot formation and integrity. This helped guide continuation of tumor resection and expectant need for further platelet/FFP transfusions.

Conclusions

Intraoperative TEG testing can be performed during intracranial tumor resection to determine if a coagulopathy is present and to guide further need for transfusions of platelets and/or coagulation factors.

Learning Objectives

- TEG testing can be performed intraoperatively to determine if a coagulopathy is present

- TEG testing can guide further need for platelet/coagulation factor transfusion