

#### **14. Coagulopathy Associated with Thoracoabdominal Aneurysms Treated with Endovascular Devices**

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**OBJECTIVE:** Coagulopathies have been associated with aortic aneurysms after open surgery, and are more prevalent in aneurysms with thoracoabdominal involvement. The objective of this report is to describe the incidence and complications associated with coagulopathy after endovascular treatment of complex aortic aneurysms.

**METHODS:** We undertook a retrospective review of patients who underwent endovascular repair of type II thoracoabdominal aneurysms [TAAA] to identify bleeding complications (any post-operative bleeding in 2 or more anatomic locale or requiring reoperation). Pre, intra and post operative laboratory values, bleeding events, blood product use and aortic dimensions on computed tomography were collected. Descriptive and inferential statistical analysis sought to determine variables associated with bleeding.

**RESULTS:** Since 2001, 219 patients underwent endovascular repair of TAAA, of which 38 (17%) were type II. Thirteen of 38 were treated with hybrid repairs, and the remainder received branched endografts. Mean preoperative hemoglobin and platelet levels were 13.1g/dL (standard deviation [SD] 1.6) and 169 k/uL (SD 44), respectively. Mean operating room time was 7 hrs, 38 min (SD 1:48) and mean estimated blood loss was 1254mL (SD 1280). The mean volume of packed red blood cells transfused in the operating room was 785mL (SD 830). We found 16/38 (50%) patients developed post operative bleeding of which 8 were considered a bleeding complication. In those patients, there was a statistically significant difference in maximum platelet levels in the immediate postoperative period (79k/uL and 107 k/uL respectively,  $p=0.047$ ), and higher volumes of Hextend® was used intraoperatively (857mL [SD 244] versus 535mL [SD 549],  $p=0.044$ ). We found no difference in routine tests of coagulation or serum hemoglobin and the total volume of intraoperative fluid infused did not vary between groups.

**CONCLUSION:** Coagulation anomalies after repair of extensive TAAA are common, and may be associated with lower platelet counts and use of Hextend®. Causative factors may be intrinsic to the aneurysmal disease or other co-morbidities. Further investigation will determine factors to predict patients at risk of developing coagulopathy, and what treatment can be provided to prevent these complications.