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Abstracttitel: Safety and efficacy of tranexamic acid compared with aprotinin in patients undergoing thoracic aortic surgery with deep hypothermic circulatory arrest

Purpose: Aprotinin was associated with increased mortality and increased risk of cardiac and renal events in patients undergoing cardiac surgery (1). Tranexamic acid (TA) replaced aprotinin (AP) as the first line antifibrinolytic at our medical center for high risk cardiac surgery. This retrospective study was conducted to evaluate the safety and efficacy of TA as compared to AP in patients who underwent thoracic aortic aneurysm repair (TAA) with deep hypothermic circulatory arrest (DHCA).

Methods: We reviewed records of patients who underwent TAA repair with DHCA between January 2006 and December 2007. AP 2×10^6 KIU was given as loading dose followed by continuous infusion of 5×10^5 KIU/hour till end of surgery and TA was given as 30 mg/kg loading dose followed by an infusion of 15 mg/kg/hour till end of surgery. Outcome measures included post bypass bleeding, transfusion, perioperative mortality and major organ morbidity. Preoperative, intraoperative data and outcome measures were compared by appropriate statistical tests

Results: AP was given to 48 patients and TA was used in 36 patients. Demographics and co morbid conditions were similar between the two groups. Aortic pathology, surgical procedures and operative data were comparable. Chest tube drainage in the first 24 hours was 964 ± 477 ml in AP group versus 763 ± 490 ml in TA group ($P = 0.11$). There was a trend towards more transfusion in the operating room in TA group but this did not reach statistical significance. Postoperative transfusion and re-exploration were similar. Neurological, cardiac and respiratory complications were comparable and as well as ICU and hospital stay. In AP group, there was a significant decrease in creatinine clearance in the first 24 hours postoperatively compared to preoperative creatinine clearance, which was not seen in TA group. Creatinine clearance improved by 1 week in AP group. Multivariate logistic regression revealed the following risk factors for postoperative renal dysfunction: preoperative creatinine clearance, RBC transfusion and sepsis. Survival as of June 2008 was similar in both groups (89.6 % in AP group versus 83.3 % in TA group, $P = 0.42$). Thirty days mortality in AP group was 5/48 (10.4 %) versus 5/36 (13.9 %) in TA group, $P = 0.44$.

Conclusion: Tranexamic acid was as effective as aprotinin for antifibrinolysis for thoracic aortic surgery. Creatinine clearance decreased after aprotinin in the first 24 hours but aprotinin was not an independent risk factor for postoperative renal dysfunction after TAA repair with DHCA. Cardiac, neurologic, respiratory outcomes and survival were not affected by the antifibrinolytic used.