

## **Local and systemic application of tranexamic acid in heart valve surgery: a prospective, randomized, double blind LOST study**

### **SUMMARY**

The study was performed to examine a possible augmentation of systemic administration of tranexamic acid by the additional topical application during heart valve surgery in the post-aprotinin era. One-hundred patients were enrolled in the study and all the patients were given tranexamic acid intravenously. The participants were randomized into two groups (A, n = 49; B, n = 51), and before commencing the sternal suturing, the study solution (group A: 250 ml of normal saline + tranexamic acid 2.5 g, placebo group B: 250 ml of normal saline) was poured into the pericardial cavity. The cumulative blood loss (geometric means [95% confidence intervals]) 4 h after the surgery was 86.1 [56.1, 132.2] ml in group A, and 135.4 [94.3, 194.4] in group B, test for equality of geometric means  $P = 0.107$ , test for equality of variances  $P = 0.059$ . Eight hours after the surgery, the blood loss was 199.4 [153.4, 259.2] ml in group A, 261.7 [205.1, 334.0] ml in group B,  $P = 0.130$  and  $P = 0.050$ , respectively. Twentyfour hours postoperatively the blood loss was 504.2 [436.0, 583.0] ml in group A, 569.7 [476.0, 681.7] ml in group B,  $P = 0.293$  and  $P = 0.014$ , respectively. The proportion of patients transfused postoperatively by fresh frozen plasma differed significantly between the two study groups (group A: n = 21, group B: n = 36,  $P = 0.008$ ). Our hypothesis is supported by a significant difference in the inter-group variance of blood loss and the proportion of patients requiring fresh frozen plasma; however evident differences in mean postoperative blood loss were not statistically significant.

**Key words:** Heart valve surgery, Fibrinolysis, Fibrinolytic inhibitors, Tranexamic acid