Tranexamic acid

Tranexamic acid (TXA), a synthetic lysine-analogue antifibrinolytic, was first patented in 1957 and its use has been increasing in contrast to aprotinin, a serine protease inhibitor antifibrinolytic.

Many questions remain unanswered regarding other clinical effects of TXA such as the anti-inflammatory response to cardiopulmonary bypass, the risk of thromboembolic events, adverse neurological effects such as seizures, and its morbidity and mortality, all of which necessitate further clinical trials on its usage and safety in various clinical settings [1].

Even though, there is a significant reduction in the total amount of blood loss in TXA group in neurosurgical patients. However, there was no reduction in intraoperative transfusion requirement [2].

The use of TXA in patients undergoing spinal surgery appears to be effective in reducing the amount of blood loss, the volume of blood transfusion, the transfusion rate, and the postoperative PTT. However, data were too limited for any conclusions regarding safety. More high-quality RCTs are required before recommending the administered of TXA in spinal surgery [3]

Tranexamic acid administration was associated with fewer postoperative events. A predictive clinical algorithm for pediatric patients having major craniosynostosis surgery was developed and validated to risk stratify these patients [4].

Phi et al. administered tranexamic acid to two infants with CPP during surgical removal to potentially aid hemostasis and therefore lessen intra-operative bleeding. Gross total surgical resection was accomplished; the patients were hemodynamically stable perioperatively, and the total calculated blood loss was minimal at <20% of the patients' total circulating blood volume. This is the first report of tranexamic acid administration for CPP surgery in children. TXA is an easily administered hemostatic agent and may merit further study as an agent to help reduce intra-operative blood loss in this vulnerable population [5].

Forty consecutive patients with cervical compressive myelopathy were prospectively randomized into groups that received 15 mg/kg body weight of TXA or placebo intravenously before the skin incision was made. “French-door” cervical laminoplasty from C3 to C6 was performed for all patients by using a consistent procedure. Intraoperative and postoperative blood loss was compared between the groups. The surgery and follow-up were conducted at a single institution.

There were no statistically significant differences between the TXA and control groups in terms of age, sex, body mass index, and operating time. Intraoperative blood loss in the TXA group (49.1 ± 30.6 mL) was not significantly different from that in the control group (63.4 ± 53.0 mL, P = 0.30). However,

in the TXA group, postoperative blood loss during the first 16 hours was reduced by 37% as compared to the control group (132.0 ± 45.3 vs. 211.0 ± 41.5 mL; P < 0.01). The total blood loss (intraoperative plus postoperative blood loss during the first 40 hours) in the TXA group (264.1 ± 75.1 mL) was significantly lower than that in the control group (353.9 ± 60.8 mL, P < 0.01). No thromboembolic events or complications occurred in either group [6].

Indications

see Tranexamic acid indications.

1)
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