Tranexamic acid infusion during pediatric craniosynostosis surgery is associated with perioperative hemostasis, higher postoperative hemoglobin levels and reduced Jackson-Pratt drain output

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BACKGROUND

Craniosynostosis is the premature fusion of one or more sutures in the developing skull. Uncorrected craniosynostosis can lead to increased intracranial pressure, headaches, seizures, developmental delay, and rarely, vision loss or death. Most patients have large volume blood loss during corrective surgery and require blood transfusion. Previous randomized controlled trials by other researchers showed Tranexamic Acid (TXA) reduced blood loss and transfusion requirements. TXA dosing varied in previous studies.

PURPOSE AND HYPOTHESIS

The primary aim of this retrospective study was to determine whether TXA reduced blood loss during craniosynostosis surgery in pediatric patients at KUMC. The secondary aim was to assess the effect of TXA on perioperative blood transfusion rates in this population.

Inclusion criteria:
- Craniosynostosis diagnosis
- Surgical repair
- Under age 18
- Induction: 10 mg/kg bolus followed by 5 mg/kg/hr based on pharmacokinetic studies by Goobie, et al.2
- Lower dose than used in previous RCTs of TXA3-6.

EXCLUSION CRITERIA
- Removal of hardware only
- Craniosynostosis without complete osteotomy
- Over age 18
- TXA protocol started at KUMC in 2013
- TXA dosing varied in previous studies.

RESULTS

The estimated red cell volume and first hemoglobin level post-operatively were both significantly increased in patients receiving TXA.

CONCLUSIONS

Further study is needed to compare the benefits and risks of higher and lower doses of TXA in pediatric craniosynostosis surgical patients.

BIBLIOGRAPHY