Tranexamic Acid (TXA) in Upper Gastrointestinal Bleeds – Systematic Review and Meta-analysis

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**Background**
- Tranexamic acid (TXA) is classified as an antifibrinolytic agent used to manage haemorrhage-related trauma.
- TXA has been applied medically in situations where patients face a potential for excessive bleeding. Physicians prescribe it to avert heavy menstrual bleeds during surgery, curb postpartum bleeding, and other situations. Recent studies have begun investigating further applications of TXA.
- The widespread hypothesis is that TXA has utility in upper gastrointestinal (GI) bleeds.

**Objective**
Does usage of TXA have a significant effect in management of upper GI bleeds?

**Methods**
A systematic review and meta-analysis. The investigation was conducted according to the Cochrane methodology and reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

We retrieved 1572 articles from all databases and reference searches. After removing duplicates, 1443 articles were screened against the eligibility criteria.

Eligibility Criteria: RCT/TcTs w/ subject involving patient w/ GI bleeds, receiving TXA intervention vs. placebo/control; outcomes involving mortality, rebleeding, adverse events, need for surgery, or need for blood transfusion.

Risk of Bias assessment was carried out by two authors to determine each study’s quality and risk of bias. This was performed using the Cochrane Collaboration Risk of Bias tool.

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**Results**

**Discussion**
- After evaluating P-value of the outcomes (P=0.59 in mortality, P=0.16 in rebleeding, P=0.07 in need for surgery, P=0.08 in transfusion required, and P=0.001 in adverse events), the difference between TXA and placebo in 5/6 of the outcomes was not statistically significant.
- HALT IT Trial by Roberts et al 2020 is the largest study of all, but it did not find any significant therapeutic effects of TXA in regards to mortality, total causes of mortality 3.77% vs. 4.17%.
- 11 studies evaluating rebleed risk combined to give RR 0.75 [0.60, 0.95] at 95% CI (P=0.16), compared to purported rebleeding OR of 9.2 by Hawkey et al 2001; 5.58% vs. 6.57%.
- Similar care was observed in the events of surgery needs [(189/6826 (2.76%) versus 233/6713 (3.47%)] and blood transfusion requirements [4293/6385 (67.23%) versus 4335/6403 (67.70%)].
- Lastly, patients receiving TXA had a higher occurrence of adverse events 102/6544 (1.55%) versus 55/6451 (0.85%), with effects such as nausea, thrombotic events, diarrhea, dizziness, and hypotension.

**Conclusion**
The strengths of this investigation were the fact that we strictly used RCTs for the meta-analysis. Additionally, the investigation had to moderate levels of heterogeneity and low levels of risk of bias. A weakness of the systematic review and meta-analysis is the use of studies with varying means of drug administration. All the same, the reliability of the evidence presented by these studies remains highly significant. In conclusion, we have found that TXA has a degree of therapeutic effects on upper GI bleeds, but it does not significantly affect the outcomes of treatment. Treating upper GI bleeds should be reserved for the currently used standard care procedures. More trials should be conducted on TXA to find a better application niche in upper GI bleeds therapeutic management.

**References**

[Diagram and tables related to the study are not included in the text.]