DEM Journal Club

Article Appraisal

Article: Topical Tranexamic Acid Compared With Anterior Nasal Packing for Treatment of Epistaxis in Patients Taking Antiplatelet Drugs: Randomized Controlled Trial

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Background and Study Objective(s):

Epistaxis is a common Emergency Department (ED) complaint with a lifetime incidence of 60%. Anterior nasal packing (ANP) is a commonly performed in the management of epistaxis, but complications include discomfort and re-bleeding upon removal. The efficacy of topical tranexamic acid (TXA) in the treatment of idiopathic anterior epistaxis has previously been established; however, no prior studies have focused on the use of TXA in individuals taking antiplatelet drugs, where epistaxis appears to be more frequent and severe. This study compared the efficacy of topical TXA versus ANP in the management of epistaxis in patients taking aspirin, clopidogrel, or both, who presented to the emergency department (ED).

Study Design:

This was a prospective, non-blinded, randomized control trial conducted at two large general academic teaching hospitals in Tehran, Iran. The trial population included patients taking antiplatelet agents (ASA, clopidogrel, or both) with acute (new or recurrent) anterior epistaxis who presented to the ED and had persistent bleeding requiring further treatment after 20 minutes of manual compression of both nostrils. Patients were excluded if they had traumatic epistaxis, current anticoagulant drug use, inherited bleeding disorders, inherited platelet disorders, INR > 1.5, shock, a visible bleeding vessel, a history of renal disease, or a lack of consent. Patients were randomized into one of two treatment groups: those that received a 10% TXA soaked 15-cm cotton pledget (500 mg TXA in 5 mL), and those that received ANP with a cotton pledget soaked in epinephrine (1: 100,000) and lidocaine (2%), which was left in place for 10 minutes followed by subsequent ANP with several cotton pledgets covered with tetracycline ointment. The primary outcome was the proportion of patients in each group with stopped bleeding at 10 minutes. Secondary outcomes included re-bleeding rates at 24 hours and 1 week, ED length of stay (LOS), and patient satisfaction based on a 0-10 numeric rating scale with a higher score indicating greater satisfaction. Due to noticeable differences in the treatment regimens, neither patients nor physicians were blinded.

Results:

384 patients were assessed for eligibility, and 124 of those (69 men and 55 women) were included and randomized. For patients in the TXA group, bleeding was stopped in 73% of patients within 10 minutes of treatment compared to 29% in the ANP group ($p < 0.001$). The median time to bleeding cessation in the TXA group (IQR = 10-15 minutes) was significantly lower than the ANP group (IQR 10-20 minutes, $p<0.001$). During the first 24 hours, re-bleeding was reported in 5% and 10% of patients in the TXA and ANP groups, respectively ($p=0.299$). At 1 week, re-bleeding was reported in 5% and 21% of patients in the TXA and ANP groups, respectively ($p=0.007$). Patients in the TXA group reported higher satisfaction scores (IQR=8-9.25) compared to the ANP group (IQR=3-5). More patients in the TXA group (97%) were discharged from the ED <2 hours compared to the ANP group (13%, $p<0.001$). There were no reported adverse events in either group.

Validity of Results:

This peer-reviewed randomized control trial outlined objectives that address a clinically relevant question. The inclusion and exclusion criteria were appropriate for the scope of the study. More patients were enrolled than the study's target sample size, and randomization was appropriate; however patients were not blinded. It is unclear who assessed the outcomes. Baseline characteristics were similar between both groups except for prior epistaxis history, which was significantly higher in the TXA group (53%) compared to the ANP group (21%). No patients were lost to follow-up, and patients were analysed on a intention-to-treat basis. Other than the experimental intervention, the study groups were treated equally. No conflicts of interest or financial relationships relevant to the article were reported.

Generalizability of Results:

In discussion with residents and physicians of the University of British Columbia, it is felt that the study's population, intervention, and outcomes are relatible to that of a typical tertiary care centre in BC and therefore would be generalizable to our patient population. The use of ANP and TXA in anterior epistaxis is already common practice in British Columbia, but with this study we can expand safe use of TXA to those currently taking antiplatelet agents who suffer from epistaxis.

The Bottom Line:

This study demonstrated that the use of topical TXA is a better treatment option in the management of anterior epistaxis in patients on antiplatet medications compared to ANP. Topical TXA leads to faster hemostasis, less re-bleeding, shorter ED LOS, and increased patient satisfaction. The use of TXA soaked cotton pledgets in the managemet of anterior epistaxis a relatively simple and easy technique to learn. TXA is painless, relatively inexpensive, and no adverse events were reported in this treatment group. However, the efficacay of TXA compared to other commercially available epistaxis treatment devices was not assessed in this study, patients were not stratified based on the type of antiplatelets they were taking, patients with major risk factors for bleeding, and those on anticoagulants were excluded from the study. One final point that was not addressed in the study discussion, was the use of topical epinephrine and lidocaine soaked pledgets in the ANP arm prior to packing for 3 days. It was unclear as to why this approach was used, and whether or not if affected the validity of the results as it may not be a standard of practice and could limit the validity of this study. Further studies are needed to address these limitations.