Journal Club Synopsis
Block 10, March 31, 2015
Discussion Leader: Taylor Baldwin
Mentor: Dr. Catherine Marco

Scenario

You are working your first real shift as an attending… at night… alone. You feel up for anything, bring it on. However, the next patient an EMS crew brings in is an elderly gentleman suffering from a nosebleed. A stinking nosebleed. You, being a normal person, hate dealing with epistaxis. The patient's vital signs are stable on arrival. The patient takes a baby aspirin a day and HCTZ for hypertension. The bleed started a few hours ago and he was unable to control it at home. Exam reveals a steady stream of blood from the right nostril. It is difficult to tell exactly where the bleeding is coming from but you suspect an anterior bleed. Steady pressure for 15 minutes followed by intranasal afrin is unable to halt the onslaught. You can't find the source to cauterize. The patient requests that you don't use nasal packing as this was incredibly uncomfortable last time. You remember in residency that intranasal TXA was the popular new treatment for epistaxis. Does it actually work?

Introduction

Epistaxis is a relatively frequent chief complaint by patients who present to the ED. In the vast majority of these cases the bleeding is minor and patients can eventually be discharged to home. Why then do most emergency physicians loathe treating epistaxis in the department? Likely because they can be messy, drawn out encounters that not infrequently end up with the patient being discharged with some sort of nasal packing. In short, these are rarely very satisfying encounters. What we want is a definitive first line treatment that works more often than not, something that makes is more likely the patient will go home without something stuffed into their nose. Could that be TXA? It's been around forever and it's been tried for epistaxis before so this is hardly a novel idea. But thanks largely to EMRAP and a recent publication the treatment of epistaxis with TXA has drifted back into the picture. What does the evidence say? Has the treatment we want and need been right in front of us the whole time or is this just wishful thinking?

Article 1

Topical application of tranexamic acid for the reduction of bleeding. Ker K, Beecher D, Roberts I. Cochrane Database Syst Rev. 2013 Jul 23;7:CD010562.

This article was a Cochrane Review from 2013 that performed a meta-analysis of randomized controlled trials that looked at the effectiveness of the topical application of TPA. Primary outcome of the study was the need for blood transfusion and the secondary outcomes included any increased risk for thrombotic events. The results of the study showed that TXA did reduce the need for transfusion and showed decreased blood loss. There was no increased risk of thrombotic events. The majority of the patient populations studied were surgical patients, with only one of the included studies looking specifically at epistaxis. Obviously this is not the ideal patient population we are interested in but TXA showing a trend towards decreased blood loss is still encouraging. The study suffered from a poor confidence interval for any results on

thrombotic events so little can truly be drawn relating to the secondary outcomes. In general this study shows encouraging trends but was not really answering the question we are asking.

Article 2
Effect of local tranexamic acid gel in the treatment of epistaxis. Tibbelin A, Aust R, Bende M, Holgersson M, H Petruson B, Rundcrantz, Alander U. ORL J Otorhinolaryngol Relat Spec. 1995 Jul-Aug;57(4):207-9.

This is a randomized controlled trial comparing the use of topical TXA gel vs placebo gel in arresting epistaxis published in 1995. The results of the study showed no difference in time taken to arrest epistaxis but did show a decrease in the rate of re-bleeding within 8 and 30 days. This paper suffered from a very small sample size with only 68 patients in the study. The characteristics of the groups studied were not equal, with the TXA group having a significantly larger number of patients with moderate and severe nosebleeds. The method of administration in this study (gel form) is dissimilar from the method we currently use in the ED (liquid form). There is some thought that the gel itself could contribute to arresting epistaxis, which could have further skewed the results of the study. All in all this was a poor study and I don't think that we can take much away from it, and definitely not anything that should currently change your practice.

Article 3
A new and rapid method for epistaxis treatment using injectable form of tranexamic acid topically: a randomized controlled trial. Zahed R, Moharamzadeh P, Alizadeharasi S, Ghasemi A, Saeedi M. Am J Emerg Med. 2013 Sep;31(9):1389-92

This study was a randomized controlled trial released in 2013 that compared the use of topical TXA against that of nasal packing. Areas studied include frequency of arresting epistaxis within 30 minutes, re-bleeding within 24 hours and 7 days, length of stay in the ED, and patient satisfaction. Results trended towards the TXA group in all of the areas studied. This study was much more promising than the previous one but still does have some issues. Nasal packing is typically the end point for treatment of epistaxis and is used after several other treatments have been attempted. This study did not use any topical vasoconstrictors and instead went straight to nasal packing, which is unrealistic. We would rather see TXA vs a vasoconstrictor, which seems like a more relevant question. There was a significantly higher number of patients with recurrent epistaxis in the TXA group, which could have been a confounding factor. Despite the fact that this was a reasonably well designed study, it was not quite the study that we were hoping for. It's promising, but we need more.

Bottom Line
I think that this journal club demonstrates that there is just not very much evidence out there on the use of TXA for epistaxis. There is, however, some evidence that TXA used topically is effective. There is also some evidence to suggest that it is safe. Taking all of this into account I think it is reasonable to consider using it when treating patients with epistaxis. So as of now, the landmark study to dictate the use of TXA does not exist. The bottom line is that if you like using TXA there is some evidence that it may be effective, so plug it in your algorithm. We just can't say where exactly in the algorithm it belongs because the studies we really want and need do not exist yet.