



A PROSPECTIVE COMPARATIVE STUDY FOR THE EFFECT OF TRANEXAMIC ACID IN ENDOSCOPIC NASAL SURGERIES.

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Dr. Raghav Mehta	Associate Professor and Head of the Department, Department of Otorhinolaryngology, RUHS-CMS, Jaipur.
Dr. Aditi Sharma	Senior Resident, Department of Otorhinolaryngology, RUHS-CMS, Jaipur.
Dr. Ankit Agarwal	Senior Resident, Department of General Surgery, RUHS-CMS, Jaipur.

ABSTRACT

Introduction: Tranexamic acid is a medication that belongs to a class of drugs known as antifibrinolytics. It is primarily used to control or prevent excessive bleeding. The aim of this study is to establish the relationship between the effect of perioperative tranexamic acid and control of intraoperative bleeding in case of endoscopic nasal surgeries.¹ **Material And Methods:** This is a prospective comparative study carried out in RUHS-CMS hospital with sample size of 100 patients during February to October 2022. **Result:** Wormald grading was used to define bleeding during endoscopic nasal surgery and two categories were formed. Wormald grading 0 to 7 were taken into category 1 i.e., no, reduced, or mild bleeding and grading 8 to 10 were taken into category 2 with moderate to severe bleeding. A 2 by 2 contingency table were formed. Chi square statistics were applied, and p value comes out to be 0.000014 which was significant at $p < 0.05$. **Conclusion:** Perioperative injection of 1gm tranexamic acid is found out to be an effective method to control intraoperative bleeding during endoscopic sinus surgeries.

KEYWORDS

INTRODUCTION

Tranexamic acid works by preventing the breakdown of blood clots, which helps to maintain haemostasis (the process of stopping bleeding). Tranexamic acid functions by binding to the receptors on plasminogen, a protein involved in the breakdown of blood clots. By doing so, it blocks the interaction of plasminogen with fibrin, which prevents the breakdown of fibrin clots and promotes blood clot stability.² Tranexamic acid is available in various forms, including oral tablets, intravenous injections, and topical preparations. The specific form and dosage depend on the condition being treated and the healthcare provider's recommendation. Tranexamic acid may not be suitable for everyone.³ It is generally avoided in individuals with a history of blood clots or those with a known hypersensitivity to the medication. Additionally, caution is advised when using tranexamic acid in patients with kidney disease, as dose adjustments may be necessary. Tranexamic acid may interact with certain medications, including hormonal contraceptives, selective serotonin reuptake inhibitors (SSRIs), and blood clotting factors. It's important to inform your healthcare provider about all the medications you are taking to avoid any potential interactions.⁴

MATERIAL AND METHOD

This is a prospective comparative study carried out in RUHS-CMS hospital with sample size of 100 patients during February to October 2022. Patients were selected by simple random sampling. Two groups were formed of 50 patients each, in group A, 50 patients were included and injection tranexamic acid 1gm were given perioperatively to all. In group B, 50 patients were included and were observed without any injection tranexamic acid. Similarly two categories were formed, in category 1 all those patients were included who have Wormald grading 0-7 that is no, reduced or mild bleeding intraoperatively. In category 2 all those patients were included who have Wormald grading 8-10 that is moderate to severe bleeding intraoperatively.

RESULTS

Wormald grading was used to define bleeding during endoscopic nasal surgery and two categories were formed. Wormald grading 0 to 7 were taken into category 1 i.e., no, reduced, or mild bleeding and grading 8 to 10 were taken into category 2 with moderate to severe bleeding. 50 patients were included in group A and remaining 50 patients were included in group 2. A 2 by 2 contingency table were formed. Chi square statistics were applied, and p value comes out to be 0.000014 which was significant at $p < 0.05$. In group A, that is patients who had been administered with injection tranexamic acid, 46 patient (92%) have Wormald grading 0-7 (category 1- no, reduced, mild bleeding) and only 4 (8%) patients have Wormald grading 8-10 (category 2 – moderate, severe bleeding). Similarly in group B, that is patients who had not been received any tranexamic acid, 22 patients (44%) have Wormald grading 0-7 (category 1 – no, reduced, mild bleeding) and 28 patients (56%) have Wormald grading 8-10 (category 2 – moderate to

severe bleeding).

Table 1. Table Showing Comparison Of Group A And B With Category 1 And 2.

	Wormald grading 0-7 (Category 1) No/reduced/mild bleeding	Wormald grading 8-10 (Category 2) Moderate/severe bleeding	Total
Group A (Perioperative 1gm Inj. tranexamic acid given)	46	04	50
Group B (Perioperative Inj. tranexamic acid not given)	22	28	50
TOTAL	68	32	100

Table 2 Table Showing Wormald Surgical Field Grading Scale.

Wormald Surgical Field Grading Scale.	
Grade	Assessment
0	No bleeding
1	1–2 points of ooze
2	3–4 points of ooze
3	5–6 points of ooze
4	7–8 points of ooze
5	9–10 points of ooze (sphenoid fills in 60 seconds)*
6	>10 points of ooze, obscuring surface (sphenoid fills in 50 seconds)*
7	Mild bleeding/oozing from entire surgical surface with slow accumulation of blood in the post nasal space (sphenoid fills by 40 seconds)
8	Moderate bleeding from entire surgical surface with moderate accumulation of blood in the post nasal space at (sphenoid fills by 30 seconds)
9	Moderately severe bleeding with rapid accumulation of blood in the post nasal space (sphenoid fills by 20 seconds)
10	Severe bleeding with nasal cavity filling rapidly (sphenoid fills in <10 seconds)

DISCUSSION

Several prospective studies have evaluated the effect of intravenous TXA on the surgical visualization of ESS. However, the results have been inconsistent. A systematic review^{5,6} found that TXA improved the surgical field and reduced blood loss during nasal surgery. The meta-analysis performed by Kim et al.⁵ found that TXA reduced blood loss and operative time in endoscopic sinus surgery based on a small number of enrolled studies. Langille et al.⁷ applied a bolus TXA of 15 mg/kg with a continuous TXA infusion at 1 mg/kg/h and did not find

decreased efficiency in the surgical field or intraoperative blood loss. The difference is that the median Lund-Mackay scores (10–11) of the patients in their study were lower than those in this trial (18.5–20.0). A previous study³ showed that the Lund-Mackay score can predict intraoperative bleeding for endoscopic ethmoidectomy, and specific measures (such as preoperative corticosteroids) are suggested for patients with high Lund-Mackay scores. In this trial, only patients with Lund-Mackay scale scores greater than 12 were enrolled, characterizing a group of the population that had advanced paranasal sinus disease and severe mucosal inflammation. In a randomized controlled study, Brunner found that total intravenous anaesthesia (TIVA) can result in better surgical visualization than inhaled anaesthesia for high-grade sinus disease. In our study we applied Wormald grading to identify the level of bleeding intraoperatively. Matching of patients done to remove any bias.

CONCLUSION

Perioperative injection of 1gm tranexamic acid is found out to be an effective method to control intraoperative bleeding during endoscopic sinus surgeries.

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