



ORIGINAL RESEARCH PAPER

General Surgery

ROLE OF TRANSAMIN IN REDUCTION OF SEROMA IN POST-OPERATIVE MASTECTOMY

KEY WORDS: Breast Cancer, Mastectomy, Seroma, Tranexamic Acid, Complications

Dr. Mounika Motupalli

Post graduate in Department of General Surgery, Chettinad Hospital & Research Institute, OMR, Kelambakkam, Chennai, Tamil Nadu, India.

Dr A. Prabhakar

Professor in department of general surgery ; Department of General Surgery, Chettinad Hospital & Research Institute, OMR, Kelambakkam, Chennai, Tamil Nadu, India.

Dr. Felix Anand Raj

Assistant professor in Department of General Surgery, Chettinad Hospital & Research Institute, OMR, Kelambakkam, Chennai, Tamil Nadu, India.

ABSTRACT

Objective: The purpose of this study to determine the effectiveness of transamin in reduction of seroma in post-operative mastectomy. **Study Design:** Retrospective study. **Place And Duration:** Chettinad hospital and research institute OMR Kelambakkam chennai tamilnadu . Duration of September-2022 to July 2023. **Methods:** There were 40 to females had breast cancer with age 20-65 years were included. Patients were underwent for mastectomy and admitted to hospital. After obtaining informed written consent detailed demographics of enrolled cases included age, body mass index and socio-economic status was recorded. After surgery patients received injection of tranexamic acid. Outcomes among all patients were assessed in terms of reduction in seroma formation, wound infection, amount of drainage and time of drainage. **Results:** We found that 7 (20%) patients had age 21-30 years, 12 (30%) cases had age 31-40 years, 17 (42.5%) cases had age 41-50 years and 4 (10%) cases had age 51-65 years. 26 (65%) patients had BMI >25kg/m² and 14 (35%) had BMI <25kg/m². There were 22 (55%) patients had poor socio- economic status. Mean amount of drainage was 812.7±99.24 ml and mean time of drainage was 7.5±12.40 days. Frequency of seroma formation was found in 5 (12.5%) cases in which mostly had BMI >25kg/m² and had increased age. Wound infection found in 3 (7.5%) cases. **Conclusion:** We concluded in this study use of tranexamic acid among patients undergoing mastectomy was affective and useful in terms of reduction in seroma formation and lower number of wound infection. Except this duration and volume of drainage was also seen lower in our study.

INTRODUCTION

An artificial amino acid called tranexamic acid prevents the conversion of plasminogen to the enzymatic plasmin. , plasmin causes clot lysis.

Haematoma and seroma production are complications that might arise during surgery either with or without surgical intervention [1 tranexamic acid reduces blood loss and blood transfusion requirement in surgery. We aimed at performing retrospective study in evaluating TXA reducing post operative haematoma and seroma formation for breast surgery.

There is still no agreement on the best TXA concentration of the solution administered, the method of application, or the length of contact time for topical use, the current technique in which the wound surface is just hydrated with mcg tranexamic acid before closure, resulting in a mean 39% reduction in drain volume.

The impact of external TXA on seroma development was also researched since postoperative seroma following mastectomy is a significant adverse event

MATERIAL AND METHODS

This retrospective study was conducted in department of general surgery at Chettinad hospital chennai and comprised of 40 patients. After obtaining informed written consent detailed demographics of enrolled cases included age, body mass index and socio-economic status was recorded. Patients who were pregnant or nursing, who were known to be allergic to TXA, and who had thromboembolic illness or a high risk of thrombosis necessitating additional anticoagulation in conjunction with the surgery were not included. A sequential list of patients over the age of 20 who were scheduled to have either a simple mastectomy, a mastectomy with strategic node biopsy (SNB), or a mastectomy to axillary lymph removal were compiled. Each patient was administered 20 ml of TXA25mg/ml. To make TXA25mg/ml, we took 5ml out of a 20

ml bottle of 0.9% saline and added 5 milliliter TXA 100 mg/ml into the same container, for a total of TXA 25 mg/ml. During surgery, the size, density, and weight of a breast specimen were recorded. The wound area was found to be elliptical in shape (height/2 width/2). Patients were given active vacuum drains with a precise time point to record drain output 24 hours after surgery was completed.

All other aspects of the procedure, including preoperative evaluation, surgical execution, postoperative care, and drain removal, were performed .consequently, randomization was stratified by study center. Drain output volume in the first 24 hours after surgery was used as the primary outcome measure of postoperative bleeding. Besides primary outcomes like blood loss and length of time spent draining it, secondary outcomes included the occurrence of early haematoma, postoperative complications, and seroma formation. To clarify, seroma has been defined as fluid retention requiring aspiration after the drain was taken out. We considered seroma that lasted longer than three months to be chronic. SPSS 22.0 was used to analyze all data.

RESULTS

There were 26 (65%) patients had BMI >25kg/m² and 14 (35%) had BMI <25kg/m². There were 22 (55%) patients had poor socio- economic status. 24 (60%) patients had size of tumor T1. Mean lymph node was 15.8±6.28. 80 (61.5%) cases had T1 tumor size and mean duration of surgery was 67.19±14.63 minutes. (table 1)

able-1: Baseline characteristics of presented cases

Variables	Frequency (40)	Percentage
BMI		
>25kg/m ²	26	65
<25kg/m ²	14	35
Size of Tumor		
T ₁	24	60
T ₂	16	40
Socio-economic status		
Poor	22	55
Middle/upper	18	45
Mean Lymph node	15.8±6.28	
Mean Surgery Time (min)	67.19±14.63	

We found that 7 (20%) patients had age 21-30 years, 12 (30%) cases had age 31-40 years, 17 (42.5%) cases had age 41- 50 years and 4 (10%) cases had age 51-65 years. (figure-1)

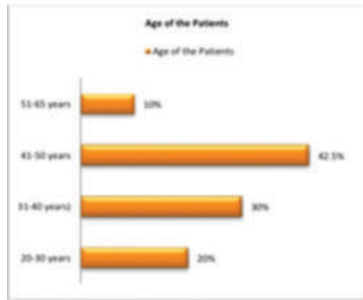


Figure-1: Included patients with age distribution.

Mean amount of drainage was 812.7±99.24 ml and mean time of drainage was 7.5±12.40 days. (table 2)

Table-2: Amount and time of drainage among all cases

Variables	Mean	Standard Deviation
Amount of drainage	812.7	99.24
Time of drainage	7.5	12.40

Frequency of seroma formation was found in 5 (12.5%) cases and 35 (87.5%) cases did not have seroma formation. (figure 2)



Figure-2: Association of seroma among all cases

Among 5 cases of seroma, 4 (80%) were obese had BMI >25kg/m² and 1 (20%) had BMI <25kg/m². (table)

Table-3: Association of BMI among seroma cases

Variables	Frequency	Percentage
BMI		
>25kg/m ²	4	80
<25kg/m ²	1	20

In all included cases, post-operatively wound infection was found in 3 (7.5%) cases. (table 4)

Table-4: Frequency of complication among all cases

Complications	Frequency (40)	Percentage
Wound Infection		
Yes	3	7.5
No	37	92.5

DISCUSSION

Most seromas develop after the breast (mastectomy) or arm (axillectomy). Prolonged drainage is problematic because it raises the risk for infections and can greatly postpone adjuvant therapy. Since the exact source of a seroma is a mystery, the multifactorial-cause hypothesis has gained acceptance. Flap fixation techniques, sclerosants, fibrinogen glue and sealants, everolimus, and compression garments have all been tried to eliminate void spaces, but the results have been inconsistent at best.

In current study, 40 cases of breast cancer were included. We found that 7 (20%) patients had age 21-30 years, 12 (30%) cases had age 31-40 years, 17 (42.5%) cases had age 41-50 years and 4 (10%) cases had age 51-65 years. We proposed that single dose of tranexamic acid inside the dead space following mastectomy and anterior evacuation is efficient in regulating the amount of post - operative liquid output; consequently, it could permit early sink removal and less abscess forming and wound infection as well as early adjuvant treatment.[19]. Transnexamic acid prepared by diluting in saline can moisten huge regions, which is useful after massive surgery for weight loss or in patients who have undergone mastectomies [18,19], Despite the absence of an rise in chronic seroma, wound infection, or wound rupture in the TXA treatment, the rise in abscess volume following TXA in

patients who had lymph node clearance suggests the possibility that TXA topical administration may cause a delay in tissue adhesion or lymph vessel healing. [21]

After the current HALT-IT study [22] discovered an increase in deep thrombotic events embolism with TXA treatment in acute intestinal bleeding among 12,009 individuals, with no advantages to mortality. Because the incident is rare, it's possible that this elevated thrombotic risk is only observed in large studies. Less is understood regarding the advantages of TXA in surgical procedures where significant haemorrhage is less frequent. A retrospective cohort research [24] published in 2015 in the magazine of military medicine reported no higher incidence of thromboembolic events, such as flap thrombosis, or other thromboembolic complications.

CONCLUSION

We concluded in this study use of tranexamic acid among patients undergoing mastectomy was affective and useful in terms of reduction in seroma formation and lower number of wound infection. Except this duration and volume of drainage was also seen lower in our study.

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