

Introduction

Tranexamic acid (TXA) has been shown to decrease hemoglobin loss and reduce the need for transfusions in primary hip and knee arthroplasty. Recently, a study demonstrated aggravation of staphylococcal sepsis by tranexamic acid in a rat model. Our study evaluated the safety and efficacy of topical TXA in revision TKA for periprosthetic joint infection(PJI).

Methods

We performed a retrospective review of patients who underwent removal of hardware with antibiotic spacer placement (Stage-1) and/or revision TKA (Stage-2) for PJI at our institution between September 2007 and July 2013. During that time, 49 patients underwent Stage-1 procedures (20 knees with TXA, 29 without) and 47 patients underwent Stage-2 revisions (28 with TXA, 19 without). We evaluated hemoglobin loss, need for transfusion, reinfection rate, length of stay (LOS), complications and mortality with and without the use of TXA in these patients. All data sets were analyzed with a two-sample t-test.



Results

Average follow-up was 3.15 years (range 1 to 7 years). TXA use led to a significantly lower percentage drop in the postoperative lowest hemoglobin compared to the preoperative hemoglobin in Stage-1 surgeries (19.8% vs 30.05%, p=0.0004) and Stage-2 revisions (24.5% vs 32.01%, p=0.01). In both groups, TXA use was associated with a significant reduction in transfusion rates (Stage-1 25% vs 51.7%, p=0.04; Stage-2 25% vs 52.6%, p=0.05). There was a non-statistical decreased LOS in both groups in which TXA was used (Stage-1 5.15 vs 6.72 days, p=0.055; Stage-2 5.21 vs 6.84 days, p=0.09). There was no difference in re-infection rate (4 vs 4, p=0.56) or mortality rate between groups [0 vs 2 non-TXA group)]. A single upper extremity DVT occurred in a Stage 1 patient who received TXA, and no PEs occurred.

	TXA	Non-TXA	P-value
Stage-1 Hgb loss	19.8%	30.05%	0.0004*
Stage-1 transfusion rate	25%	51.7%	0.04*
Stage-2 Hgb loss	24.5%	32.01%	0.01*
Stage-2 transfusion rate	25%	52.6%	0.05*
Length of Stay Stage-1 (days)	5.15	6.72	0.055
Length of Stay Stage-2 (days)	5.21	6.84	0.09
Reinfection rate during study period	4	4	0.56
Mortality during study period	0	2	NA

Discussion

We show that topical tranexamic acid is safe and effective for use in both stages of revision TKA for PJI. A previous study suggested that TXA aggravated staphylococcal infection in mice; however, topical TXA doesn't appear to negatively effect on the treatment of PJI in our patients and did not increase the reinfection rates, complications or mortality rate.

References

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