# Topical fibrin sealant versus intravenous tranexamic acid for reducing blood loss following total knee arthroplasty: A systematic review and meta-analysis.

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Publication Date: 2016

## Abstract:

Purpose Efficacy and safety of topical application of a fibrin sealant (FS) compared with intravenous administration of tranexamic acid (TXA) for reducing blood loss after total knee arthroplasty (TKA) is controversial. We undertook a meta-analysis to compare the effects of topical application of FS or intravenous administration of TXA on blood loss after TKA. Methods PubMed, Medline, Embase, Web of Science and the Cochrane Library were searched to identify studies comparing FS with TXA for TKA patients. The mean difference (MD) of blood loss, hemoglobin value, and odds ratios (ORs) of transfusion requirements and adverse events in FS and TXA groups were pooled throughout the study. Relevant data were analyzed using RevMan v5.3. Results Five studies involving 359 patients were included (181 FS vs. 178 TXA). TXA use had a significantly lower prevalence of blood transfusion (OR = 3.14; 95% confidence interval (CI), 1.67 to 5.90, P = 0.0004) and higher hemoglobin level (MD = -1.23; 95% CI, -2.19 to -0.27, P = 0.01) than FS in the early postoperative period. No significant difference was seen in total blood loss between the two groups (MD = 198.06; 95% CI, -267.45 to 663.57; P = 0.40). There were no significant differences in adverse events, superficial infections, or deep-vein thrombosis among study groups. Conclusions Our meta-analysis suggests that intravenous administration of TXA for patients undergoing TKA may reduce blood-transfusion requirements and maintain higher hemoglobin levels compared with topical application of FS in the early postoperative period. There were no significant differences in total calculated blood loss and prevalence of complications between the two groups. However, owing to

the variation of included studies, no firm conclusions can be drawn.

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