Fibrin sealant before wound closure in total knee arthroplasty reduced blood loss: a meta-analysis.

Authors: Li ZJ, Fu X, Tian P, Liu WX, Li YM, Zheng YF, Ma XL, Deng WM

Publication Date: 2015

Abstract:

PURPOSE: Fibrin sealant (FS) comprises a mixture of fibrinogen and thrombin that controls bleeding, reduces blood transfusions, improves tissue healing and shortens postoperative recovery time after various surgical procedures. However, no single study has been large enough to definitively determine whether fibrin sealant is safe and effective. We report a meta-analysis of randomized controlled trials (RCTs) evaluating the efficacy and safety of fibrin sealant in total knee arthroplasty.

METHODS: Articles published before August, 2012 were identified from PubMed, Embase, The Cochrane Library and other internet databases. Relevant journals and the recommendations of expert panels were also searched manually. We included only high-quality RCTs. Two independent reviewers searched and assessed the literature. Relevant data were analysed using RevMan 5.0.

RESULTS: Seven RCTs met the inclusion criteria. Use of fibrin sealant significantly reduced haemoglobin decline mean difference (MD = -0.72), 95 % confidence interval [95 % CI (-0.83, -0.62), p < 0.00001], postoperative drainage volume [MD = -354.53, 95 % CI (-482.43, -226.63), p < 0.00001], the proportion of patients requiring blood transfusion risk differences [RD = -0.27, 95 % CI (-0.45, -0.08), p = 0.006] and the incidence of wound haematoma [RD = -0.11, 95 % CI (-0.22, -0.00), p = 0.04]. There were no significant differences in deep vein thrombosis, pulmonary embolism, infection rate or other complications between groups.

CONCLUSIONS: Use of fibrin sealant in total knee arthroplasty was effective and safe, reduced haemoglobin decline, postoperative drainage volume, incidence of haematoma and need for blood transfusion, and did not increase the risk of complications. Due to the limited quality of the evidence currently available, more high-quality RCTs are required.

LEVEL OF EVIDENCE: II.