

#2466 - Systematic Review

The Risk Of Infection With Tourniquet Use In Total Knee Arthroplasty : A Meta-Analysis Of RCTs

Orthopaedics / Knee & Lower Leg / Joint Replacement - Primary

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Keywords: Tourniquet, Total Knee Arthroplasty, Infection

Background

The intra-operative use of tourniquets during Total Knee Arthroplasty (TKA) is common practice. The advantages of tourniquet use include decreased operating time and the creation of a bloodless visualisation field. However, tourniquet use has recently been linked with increased post-operative pain, reduced range of motion, and slower functional recovery. Importantly, there is limited evidence of the effect of tourniquet use on infection risk.

Objectives

The purpose of this systematic review and meta-analysis is to fill this gap in the literature by synthesising data pertaining to the association between tourniquet use and infection risk in TKA.

Study Design & Methods

Methods: A systematic literature search was performed on Pubmed, Embase, Cochrane and clinicaltrials.gov up to May 2021. Randomized control trials (RCTs) were included, comparing TKA outcomes with and without tourniquet use. The primary outcome was the overall infection rate. Secondary outcomes included superficial and deep infection, skin necrosis, skin blistering, DVT rate, and transfusion rate.

Results

Results: 14 RCTs with 1,329 patients were included. The pooled incidence of infection in the tourniquet group (4.0%, 95% CI=2.7-5.4) was significantly higher compared to the non-tourniquet group (2.0%, 95% CI=1.1-3.1) with an OR of 1.9 (95% CI=1.1–3.76, p=0.03). The length of hospital stay, haemoglobin drop (0.33 95% CI =0.12 – 0.54), P=0.002) and transfusion rates (OR of 2.7, 95%CI = 1.4 - 5.3, P=<0.01) were higher in the tourniquet group than the non-tourniquet group. The difference in the length of in-hospital stay was 0.24 days favouring the non-tourniquet group (95% CI = 0.10 – 0.38, P=<0.01). The incidence of skin blistering (OR 2.6, 95% CI=0.7-9.9, p=0.17), skin necrosis (OR 3.0, 95% CI=0.50-19.3, p=0.25), and DVT rates (OR 1.5, 95% CI=0.60- 3.60, p=0.36) did not differ between the two groups.

Conclusions

Conclusion: Quantitative synthesis of the data showed tourniquet use was associated with an increased overall risk of infection, intraoperative blood loss, need for blood transfusion and more extended hospital stay. Tourniquet use did not increase the risk of skin blistering or DVT. The findings of this

systematic review and meta-analysis do not support the routine use of tourniquets in TKA. Arthroplasty surgeons should consider these additional risks and complications associated with tourniquet use in TKA.