

AB039. The role of tourniquets in trans-tibial amputation for peripheral vascular disease—a systematic review & meta-analysis

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Background: The use of lower limb tourniquets is traditionally discouraged in severe atherosclerotic disease. However, blood loss and increased transfusion requirements are associated with post-operative morbidity in patients undergoing major lower limb amputation. The aim of this systematic review is to summarise and pool the available data to determine the impact of tourniquet application when performing trans-tibial amputation for peripheral vascular disease.

Methods: This systematic review was conducted according to preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines. A systematic search of Medline, Embase and Cochrane Library was undertaken for articles which compared the use of a tourniquet versus no tourniquet in patients undergoing trans-tibial amputation

for peripheral vascular disease. The main outcomes included intra-operative blood loss, post-operative transfusion requirement, need for revision surgery and 30-day mortality.

Results: Four studies met the inclusion criteria for analysis with a total of 267 patients. A tourniquet was used in 130 patients. Both groups were matched for age, gender, comorbidities and pre-operative haemoglobin. In patients undergoing trans-tibial amputation, tourniquets were associated with significantly lower intra-operative blood loss (mean difference = -147.6 mL; $P=0.03$) and lower transfusion requirements [pooled odds ratio (OR), 0.12, $P=0.03$]. The need for stump revision (OR, 0.7; $P=0.48$), proceeding to transfemoral amputation within 30 days (OR, 0.67; $P=0.25$) and 30-day mortality (OR, 0.65; $P=0.41$) all favoured tourniquet use but the differences were not found to be significant.

Conclusions: Tourniquets can reduce intra-operative blood loss and transfusion requirements in patients undergoing trans-tibial amputation without increasing ischaemic complications and need for revision surgery.

Keywords: Peripheral vascular disease; critical limb ischaemia; tourniquet; major amputation

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