



## Are we causing early undesirable situations by using a tourniquet in total knee arthroplasty?

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One of the most significant achievements in orthopedic surgery in the 20<sup>th</sup> century was the introduction and further development of total knee arthroplasty (TKA).<sup>[1]</sup> Perioperative blood loss during TKA with excess bleeding may be a major concern for negative postoperative consequences, including longer hospital stay and complicated rehabilitation in some cases.

Tourniquets can reduce blood loss during operations; provide a better view for surgeons and bone-cement interdigitation. However, the use of a tourniquet may be related to muscle damage, severe thigh pain, delayed rehabilitation, and reduced patient satisfaction.<sup>[2]</sup>

Total blood loss and postoperative pain were significantly higher among patients in whom a tourniquet was used during TKA.<sup>[3]</sup> There was a small difference in recovery between TKA with and without tourniquet use the first three months after surgery in a randomized-controlled trial (RCT).<sup>[2]</sup>

A systematic review and meta-analysis including 14 RCTs with 1,329 patients suggested that tourniquet use was associated with an increased overall risk of infection, intraoperative blood loss, need for blood transfusion, and longer hospital stay. Findings of this meta-analysis do not support the routine use of tourniquet in TKA and surgeons should consider any potential additional risks associated with its use.<sup>[4]</sup>

Another systematic review and meta-analysis for primary analysis on pain and range of motion (ROM), a total of eight studies (n=221 in the tourniquet group, n=219 in the no-tourniquet group) were examined. They found no clinically important differences in pain or ROM between patients treated with and without tourniquets during TKA and no significant differences between the groups in terms of length of stay.<sup>[5]</sup>

In a study with 33 RCTs involving a total of 2,393 patients and the mean age was 65.58 years old compared to no tourniquet group, the use of a tourniquet resulted in suppressed ROM on the third postoperative day. Pain increased significantly while using tourniquets on the third day after surgery. Findings of this meta-analysis do not support routine use of tourniquets during TKA, as inflating the tourniquet was associated with more pain, slower functional recovery, and more complications.<sup>[6]</sup> However, these findings should be interpreted cautiously, considering the small differences in outcomes.

In conclusion, adequately powered and better designed RCTs with long-term follow-up are required to validate this controversial issue.

**Data Sharing Statement:** The data that support the findings of this study are available from the corresponding author upon reasonable request.

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