

## Complications Following Aseptic Knee Revision Based on Tourniquet Use

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### Background:

Tourniquet use in revision TKA (rTKA) is used to enhance visualization and improve cement penetration. However, concerns exist about ischemic muscle injury, increased postoperative pain, wound complications, and venous thromboembolism (VTE). This study compared early clinical outcomes in aseptic rTKA performed with no/minimal tourniquet use versus standard tourniquet use.

### Methods:

In this retrospective matched cohort study, 105 aseptic rTKAs with no/minimal tourniquet use were matched to 105 rTKAs with standard tourniquet use ( $P \geq .210$ ). Average tourniquet times were  $12.9 \pm 15.8$  and  $80.1 \pm 23.6$  minutes, respectively ( $P < .001$ ). Postoperative complications, outcomes, and pain were compared between groups. Statistical analysis included Chi-square tests, t-tests, and Pearson correlation ( $\alpha \leq 0.05$ ). Estimated blood loss (EBL) was calculated using the Hahn-Klimroth et al. formula.

### Results:

Mean EBL (no/minimal  $5.9 \pm 1.2$  vs. standard  $5.8 \pm 1.1$  g/dL,  $P = .819$ ) and blood products received (no/minimal 2% vs. standard 4.8%,  $P = .445$ ) showed no significant differences between groups. There were no major inpatient events or significant differences in 90-day VTE, wound complications, or reoperations. Inpatient opioid requests were higher in the standard tourniquet group (no/minimal 95.2% vs. standard 100%,  $P = .059$ ). Opioid use in the first 24 hours was higher in the standard group ( $26.2 \pm 12.8$  vs.  $21.9 \pm 13.9$  MME,  $P = .023$ ) despite similar pain scores (standard  $4.1 \pm 1.7$  vs. no/minimal  $4.3 \pm 2.2$ ,  $P = .492$ ). After 24 hours, opioid use (standard  $4.2 \pm 10.9$  vs. no/minimal  $9.7 \pm 23.6$  MME,  $P = .035$ ) and pain (standard  $0.9 \pm 1.9$  vs. no/minimal  $1.7 \pm 2.7$ ,  $P = .016$ ) were significantly lower in the standard group. Final pain scores were similar (standard  $4.1 \pm 2.3$  vs. no/minimal  $3.8 \pm 2.8$ ,  $P = .362$ ). Some null results may be due to low statistical power.

### Conclusion:

In rTKA, the use of tourniquets does not seem to affect blood loss, early complications, or reoperation rates. Differences in postoperative pain and opioid use indicate an association worthy of further exploration. Tourniquet decisions based on individual patient and surgical factors may remain the best approach in rTKA.