

Patient-Reported Outcomes following Primary Total Knee Arthroplasty: A Multicenter Comparison Based on Tourniquet Use

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INTRODUCTION: Tourniquet use during total knee arthroplasty (TKA) has become an issue of debate. Proponents cite improved surgical field visualization, decreased blood loss, and improved cement fixation among other benefits. Conversely, those opposed are concerned with potentially increased postoperative pain, wound complications, neuromuscular injuries, thrombotic events, and distorted patellofemoral tracking. The aim of this study was to compare patient-reported outcomes and pain after TKA with and without a tourniquet at 1, 3, and 6 months postoperatively.

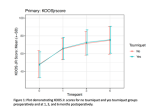
METHODS: A multi-center national study was performed using prospectively acquired data from centers participating in the PEPPER Trial (NCT 02810704). A total of 5,683 patients undergoing primary TKA were identified to compare outcomes in those that had surgery with a tourniquet compared to those without tourniquet. Of the 5,683 patients, there were 4,865 in the tourniquet group (TG) and 818 in the no-tourniquet group (NTG). Primary outcomes included KOOS Jr., PROMIS 10 Physical Health (PROMIS-PH), and numerical pain rate scores (NPRS). Secondary outcome was length of stay (LOS).

RESULTS:

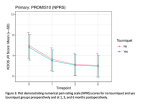
There were significant differences in age (mean 64.5 vs. 63.8 p=0.035, TG vs. NTG, respectively), and comorbidity count (comorbidity count 2+: 13.1% TG vs. 16.3% NTG, p<0.025). There were significant differences in PROMIS-PH scores at 1-month only (46.5 vs. 45.6, p=0.015) and in NPRS preoperatively and at 1-month (5.6 vs. 5.9, p=0.0003, and 3.0 vs. 3.2, p=0.005). There were no differences in KOOS Jr. Scores at any timepoint. More patients achieved the Minimal Clinically Important Difference (MCID) in the TG vs. NTG at 3 months (71% vs. 64%) as well as PROMS-PH (43% vs. 40%). However, no difference in NPRS (60% for both groups at 3 months) There was no difference in LOS.

DISCUSSION AND CONCLUSION:

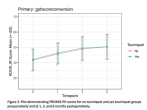
These data suggest slight improvement in functional outcomes and pain at short term follow up in patients that had TKA with tourniquet compared to those without. However, patients in whom tourniquet was not used tended to have greater comorbidities which may explain the differences in functional outcomes between these two groups. Further study is required to determine which strategy is best and whether tourniquet use should be based on surgeon preference or customized on the basis of patient factors.



Characteristic	TG (n=4865)	NTG (n=818)
Age (mean)	64.5	63.8
Comorbidity count 2+ (%)	13.1	16.3



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LOS (mean)	3.0	3.2
MCID at 3 months (%)	71	64
PROMS-PH at 3 months (%)	43	40
NPRS at 3 months (%)	60	60