How Does Self-Reported Pain Compare After Total Hip and Total Knee Arthroplasty?

Manjot Singh, Dagny E Scannell, Aidan McAnena, Joyce Margot Harary, Peter Schilling, Wayne E Moschetti

INTRODUCTION: Severe hip and knee osteoarthritis can produce significant pain, pain-related disability, and functional limitations. While total hip (THA) and knee (TKA) arthroplasties can provide pain relief in these populations, an assessment and comparison of their postoperative course of improvement in pain scores is lacking. The present study aimed to answer the following research questions: (1) How do pre- and post-operative daily pain scores compare following THA and TKA? (2) What is the role of preoperative pain medication use on postoperative pain improvement after THA and TKA?

METHODS: In this retrospective review, patients who underwent primary unilateral THA (1,373 patients) or TKA (1,428 patients) between November 2018 to December 2023 and used a web-based home therapy program were included. Daily Visual Analog Scale (VAS) pain scores (0-10) were followed from 30 days preoperatively to 90 days postoperatively across all patients. Mean pre-/post-operative plateaus in pain scores were compared across all cohorts using multivariate linear regression analyses. Based on prior research using anchor-based methodology, a minimum clinically important difference (MCID) of two points was used in this study to assess the clinical significance of changes in pain scores. Differences below this threshold, while possibly statistically significant, were not considered clinically relevant.

RESULTS: Preoperatively, there were no clinically important differences in pain scores between THA and TKA patients (0.7-point higher in THA patients, p<0.001). The largest drop in pain scores occurred within the first week of surgery for THA patients (1.6-point drop) and within the second week of surgery for TKA patients (1.2-point drop). Postoperatively, THA patients noted an earlier plateau in pain scores (58 vs 77 days, log-rank p<0.001); however, there were no clinically important differences in pain scores between the two groups (0.9-point higher in THA patients, p<0.001) (**Figure 1**). After stratification by history of narcotics use, users had modestly higher preoperative (THA: 0.6-point higher, p<0.001; TKA: 1.1-point higher, p<0.001) and postoperative (THA: 0.4-point higher, p<0.001; TKA: 1.1-point higher, p<0.001) pain scores but these differences were not clinically significant (**Figure 2**).

DISCUSSION AND CONCLUSION: Primary unilateral THA and TKA resulted in substantial early postoperative pain relief, with the largest drop occurring within the first two weeks and a plateau by 8 weeks for THA and by 11 weeks for TKA. Although there were no clinically meaningful differences in pain scores across the two cohorts, even after considering narcotics use history, the modest observed differences may guide realistic recovery expectations following total joint arthroplasty.

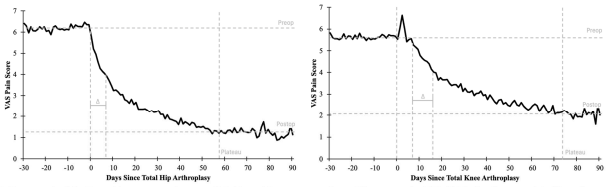

Figure 1. 30-Day Preoperative to 90-Day Postoperative Changes in VAS Pain Scores Following Total Hip Arthroplasty (Left Panel) and Total Knee Arthroplasty (Right Panel).

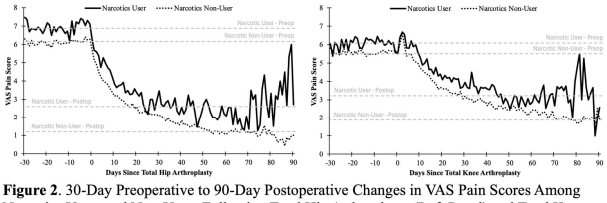

Figure 2. 30-Day Preoperative to 90-Day Postoperative Changes in VAS Pain Scores Among Narcotics Users and Non-Users Following Total Hip Arthroplasty (Left Panel) and Total Knee Arthroplasty (Right Panel).