

Age-Related Differences in Pain, Function, and Quality of Life Following Primary Total Knee Arthroplasty

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INTRODUCTION:

Multiple authors have sought to determine what patient characteristics influence outcome after total knee arthroplasty (TKA). Age has shown no effect on outcome in some evaluations, while others have reported higher functional improvement in younger patients. The aim of this study was to determine if outcome after TKA varies based on patient age.

METHODS: A prospective, multi-center cohort of 11,602 unilateral primary TKA patients was evaluated. Demographic data, comorbid conditions, and patient-reported outcome measures (PROMs) including the knee injury and osteoarthritis outcome (KOOS), KOOS-12, KOOS JR, and (36-item) Short-Form health survey MCS and PCS scores were collected pre-op and at one-year postop. Descriptive statistics were generated, stratified by age [< 55 years (younger adult), 55-64 years (older adult), 65-74 years (early elder), and ≥ 75 years (late elder)], and differences in pain, function, and quality of life among the four age groups were evaluated. Multivariate regression model with 95% confidence interval (CI) was used to assess the role of patient age as a predictive factor for KOOS pain and function scores reported one-year after primary TKA, while adjusting other variables.

RESULTS:

Prior to surgery, younger patients < 55 years reported worse pain, function, and quality of life than did older patients' groups (**Figure 1**). At one-year after TKA, younger patients < 55 years reported slightly worse pain, function, and quality of life but better function scores than older patients (≥ 75 years) did. The differences in the mean one-year postop scores among the 4 age groups (ranged from 4.02 to 12.23) reached the minimal clinically important difference (MCID) for pain (**Figure 2**) and QoL (**Figure 3**), but not for function (**Figure 4**). Younger patients (< 55 years) achieved pain (36.8 points), function (30.3 points), and quality of life (40.7 points) score improvements from baseline that were comparable to other groups. The regression analysis showed that age was predictive of KOOS pain ($\beta = 6.17$; 95% CI (4.12 to 8.22) ($P < 0.001$) in older patients (≥ 75 years), when compared to younger patients (< 55 years). While age was not predictive of KOOS ADL ($\beta = 0.31$; 95% CI (-1.55 to 2.16) ($P = 0.74$) in older patients (≥ 75 years).

DISCUSSION AND CONCLUSION:

In spite of the large improvements of PROMs reported 1-year after TKA across all four age groups, there are age-related differences in pain and quality of life where older patients (≥ 75 years) achieved better pain relief and quality of life when compared to younger patients (< 55 years).

