Important Musculoskeletal Predictors Of Patient-Reported Outcomes After TKR And THR Are Not Included In Risk Models Based On Administrative Data

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Disclosures:

Introduction: Total knee replacement (TKR) and total hip replacement (THR) procedures are performed to relieve pain and improve physical function in patients with advanced arthritis. There is growing demand to adopt patient-reported outcomes (PROs) to assess surgical effectiveness. The UK and other countries now require PRO assessment after TKR and THR. Thus, a clear understanding of pre-existing clinical factors that influence PROs after surgery is needed before comparing PROs across providers or patients. We evaluated the roles of medical and musculoskeletal comorbidities in explaining variation in 6 month post-TKR and post-THR pain relief and functional gain.

Methods: A national US cohort of 1578 TKR and 1166 THR patients reported sociodemographic (age, sex, race), BMI, modified Charlson comorbidity scores, arthritic disease severity (Hip and Knee Disability and Osteoarthritis Outcome Scores (HOOS/KOOS)) in both knees and hips, lumbar disease using the Oswestry Disability Index (ODI), emotional health based on the Short Form 36 (SF-36) Mental Component Score (MCS), and physical function (SF-36 PCS). Predictors of change in pre-to-6 month post-TKR and post-THR pain and function were examined using linear mixed models adjusting for clustering within site.

Results: TKR patients had a mean age of 66 years, mean BMI of 31.5, and were 62% female and 6.8% black. Nine percent (9%) reported moderate medical comorbidities (Charlson scores of 2-5), 15% significant medical comorbidities (Charlson score of 6), 7% moderate/severe pain in 2 or 3 knee/hip joints, and 26% moderate/severe lumbar pain. After adjusting for sociodemographic factors, significant predictors of poorer 6 month post-TKR pain included poorer emotional health, higher Charlson comorbidity scores and any lumbar pain at time of surgery. These factors also predicted poorer 6 month function.

THR patients had a mean age of 64 years, mean BMI of 29.2, and were 61% female and 4% black. Six percent (6%) reported Charlson scores of 2-5, 15% Charlson of 6, 9% moderate/severe pain in 2-3 knee or hip joints, and 34% moderate/severe lumbar pain. After adjusting for sociodemographic factors, significant predictors of poorer 6 month post-THR pain included poorer emotional health, Charlson of 1, and severe lumbar pain at time of THR. These factors, as well as greater BMI and moderate/severe pain in the non-operative knees and hips, predicted poorer 6 month function.

Discussion: Before adopting PROs as a standard measure of TKR and THR effectiveness, a complete understanding of pre-existing clinical factors associated with poorer pain relief and functional gain is needed. These analyses suggest that greater musculoskeletal, as well as medical, comorbid conditions are associated with post-operative patient-reported outcomes. While active medical comorbidities are included in administrative data, BMI and pain in non-operative knees, hips, and low back are not routinely coded. Based on these models, both BMI and total musculoskeletal pain burden should be included in risk-adjustment models before comparing patient-reported outcomes across providers.

Significance: Before adopting PROs as a standard measure of TKR and THR effectiveness, a complete understanding of pre-existing clinical factors associated with poorer pain relief and functional gain is needed. These analyses suggest that greater musculoskeletal, as well as medical, comorbid data are associated with in post-operative patient-reported outcomes and should be incorporated in risk-adjustment models before comparing PROs across providers.

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References:

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