Early Physical Activity Recovery in Unicompartmental Knee Arthroplasty is more comparable to Total Hip Arthroplasty than Total Knee Arthroplasty: A Prospective Longitudinal Study

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INTRODUCTION:
The differences in physical activity recovery between patients with total hip arthroplasty (THA), unicompartmental (UKA) and total knee arthroplasty (TKA) is lacking. We described the trajectory of recovery based on objective metrics of physical activity over the first 12 months post-joint arthroplasty (JA).
METHODS:
Data from 4,700 patients who underwent a primary unilateral JA surgery between November 2018 and September 2021 from a multi-site prospective study were analyzed. Generalized estimating equations, with an unstructured correlation matrix, were used to evaluate objective physical activity metrics over time and the appropriate post-estimation commands were used to compare scores between time intervals. Physical activity (step count, stair count, gait speed, gait asymmetry) metrics were recorded pre-JA, and 1, 3, 6 and 12-months post-JA. Recovery curves were created using longitudinal estimating equations.
RESULTS:
All groups showed significant improvement in physical activity metrics over the first 12 months post-JA (all, $P<0.001$). UKA and THA patients were similar at almost all timepoints in terms of step count, stair count, gait speed and gait asymmetry, while TKA patients had significantly lower physical activity scores in nearly all metrics ($p>0.05$). The largest margin of meaningful improvement in physical activity was obtained by 3 months across all groups with marginal additional improvement being made up to 12 months post-JA.
DISCUSSION AND CONCLUSION:
This study shows early physical activity improvement post-JA with greatest recovery being observed in patients post-UKA and THA compared to those post-TKA. Patients can expect the greatest proportion of physical activity recovery by 3 months for most physical activity metrics with less meaningful improvements from 6 to 12 months post-JA. Clinicians can use this data to educate patients perioperatively, set realistic expectations and monitor recovery following UKA, TKA and THA.