Impact of Patient Insurance Status on Clinical Outcomes and Patient-Reported Outcome Measures in Total Knee Arthroplasty

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INTRODUCTION:

Patients presenting with debilitating knee osteoarthritis (OA) refractory to conservative treatments are most often treated with primary Total Knee Arthroplasty (TKA). Patient-reported outcome measures (PROMs) play an important role in assessing general patient satisfaction and outcomes after TKA. Socioeconomic status (SES), a key social determinant of health, can influence access to care, clinical outcomes, the development of diseases, and access to medical specialties. While previous studies have suggested poorer functional outcomes and higher complication rates in patients with lower SES, the extent of these disparities, particularly in the setting of bundled care and PROM-based reimbursement, requires further exploration. This study investigates the impact of SES, using insurance status as a surrogate, on postoperative PROMs, satisfaction, and complication rates following primary TKA.

METHODS:

This retrospective cohort study analyzed 300 patients (100 Medicaid, 200 private insurance) under the age of 65 who underwent primary TKA between May 2020 and May 2023. 83 Medicaid and 177 private insurance patients met the inclusion criteria and were included in the study. All patients in the study received the same implant design at the same institution and had the same anesthesia and postoperative protocols. Medicaid patients were on average younger (52.5 ± 6.7 vs. 56.0 ± 6.0 years; p=0.001), had a higher percentage of females (85% vs. 55%; p=0.001), had a higher BMI (36.5 ± 6.6 vs. 33 ± 6.4 ; p=0.002), were more likely to smoke (23.1% vs. 9.0%; p=0.006), and were more often unmarried (68.1% vs. 19.0%; p=0.001). Post hoc power analysis (alpha=.05, Effect size =.5) returned a power of .96.

RESULTS:

There was no significant difference between groups in preoperative Forgotten Joint Score (FJS), KOOS JR, PROMIS-10 mental or physical health score, Charlson Comorbidity Index (CCI), ASA classification, Diabetes Mellitus type II (DMII), discharge location (e.g., home vs. rehabilitation) or living arrangement (alone vs. with others) (p>0.05). Medicaid patients had a longer length of stay (LOS) than private insurance patients (1.72 ± 1.82 vs. 0.1.12 ± .93 days; p=0.010). However, there was no difference in the discharge location (p=0.358). There were no differences in the preoperative FJS scores (p=0.701) or preoperative KOOS JR scores (p=0.311). At one-year postoperatively, there was a significant difference between Medicaid and private FJS (54.6 ± 30.0 vs. 68.4 ± 28.7) and KOOS JR scores (72.4 ± 20.2 vs. 82.7 ± 16.1). There were no differences in postoperative ROM, PROMIS-10 physical or mental health scores between the Medicare and private insurance groups. There was no statistical difference in patient satisfaction on a 5-point Likert scale, with 92% of Medicare patients and 90% of private insurance patients either satisfied or very-satisfied (p=0.82). There was no difference in the rate of revisions (p=0.268). Seven (7 /100, 7%) patients in the Medicare group were revised; 42% of revisions were due to infection. 10 (5%) of private insurance patients were revised; 40% were due to instability. 83% of Medicaid patients and 96% of private insurance patients were above the Centers for Medicare & Medicaid Services (CMS) substantial clinical benefit threshold (SCBT) (p=.027).

DISCUSSION AND CONCLUSION:

Despite similar preoperative characteristics and standardized surgical care, Medicaid patients demonstrated significantly lower postoperative functional outcomes (KOOS JR and FJS) following primary TKA compared to privately insured patients. Both Medicaid and private insurance patients demonstrated high patient satisfaction. These findings suggest that while SES may not influence perceived satisfaction, it may have a deleterious effect on postoperative PROMs. Addressing modifiable risk factors and enhancing perioperative support may help mitigate these disparities in vulnerable populations, particularly as PROMs become central to value-based reimbursement models.