Preoperative Contralateral Joint Pain and/or Back Pain Are Associated with Worse Baseline PROMs and Failing to Achieve the 20-Point Substantial Clinical Benefit for KOOS-JR After TKA: Implications for the New CMS PROMs Policy

Shlok Patel[1], Ahmed Emara[1], Khaled A Elmenawi[1], Shujaa T Khan[1], Yuxuan Jin[1], Anabelle Visperas[1], Viktor Erik Krebs[1], Robert M Molloy[1], Matthew Edward Deren[1], Nicolas Santiago Piuzzi[1]
[1]Cleveland Clinic, Cleveland, Ohio
piuzzin@ccf.org

Disclosures: **S. Patel:** None. **A. Emara:** None. **K. Elmenawi:** None. **S. Khan:** None. **Y. Jin:** None. **A. Visperas:** None. **V. Krebs:** 1; Stryker. 8; Elsevier Publishing, Journal of Arthroplasty. **R. Molloy:** 1; Stryker. 3B; Stryker. 5; Zimmer. 9; American Association of Hip and Knee Surgeons. **M. Deren:** 3B; Peter Brassler Holdings, Stryker. 5; Stryker. 8; The Journal of Knee Surgery. **N. Piuzzi:** 3B; Zimmer Biomet, Ethicon Endo-Surgery, Pacira Pharaceuticals Inc.. 4; Osteal Therapeutics. 5; Stryker. 8; JBJS. 9; American Association of Hip and Knee Surgeons, Orthopaedic Research Society.

INTRODUCTION: The Centers for Medicare & Medicaid Services (CMS) has identified contralateral joint and back pain as risk variables influencing the likelihood of reaching the substantial clinical benefit (SCB) threshold of 20 points on the Knee Injury and Osteoarthritis Outcome Score for Joint Replacement (KOOS-JR). Given the limited understanding of these factors on patient-reported outcome measures (PROMs), we aimed to compare baseline PROMs and the likelihood of meeting the SCB following primary total knee arthroplasty (TKA) in Medicare patients with and without preoperative contralateral joint pain and/or back pain.

METHODS: A prospective cohort of Medicare patients who underwent primary TKA (n=5653) between 2016–2023 from a single healthcare system was analyzed. Women comprised 62% of participants, and 87% identified as White. Patients were grouped based on preoperative contralateral joint pain and/or back pain measured by Total Painful Joints and Oswestry index questionnaires into contralateral joint and back pain (n=2716, 48%), contralateral joint pain only (n=1117, 20%), back pain only (n=1014, 18%), and neither (n=806, 14%) groups. Median baseline PROMs were compared between the 4 groups. Multivariable logistic regression was used to compare the achievement of the SCB 20-point threshold, controlling for pre-specified demographics, baseline PROMS, and surgical confounding variables between patients.

RESULTS: Patients without contralateral joint or back pain had higher baseline scores across all PROMs compared to those with both types of pain: KOOS-Pain (median 50.0 vs. 38.9, $p<0.001$), KOOS-Physical function Shortform (PS) (median 58.0 vs. 48.8, $p<0.001$), and KOOS-JR (median 52.5 vs. 42.3, $p<0.001$). They were also more likely to have the most favorable PROM phenotype (Pain+, PS+, MCS+; 43.5% vs. 15.7%, $p<0.001$) and less likely to have the least favorable phenotype (Pain-, PS-, MCS-; 10.6% vs. 33.2%, $p<0.001$). At 1 year, patients with back pain had a significantly increased likelihood of not achieving the SCB for KOOS-JR (OR=1.33, $p=0.02$). The presence of contralateral joint pain was associated with even greater odds (OR=1.63, $p<0.001$), while patients experiencing both back and contralateral joint pain faced the highest risk of suboptimal improvement in SCB (OR=2.41, $p<0.001$).

DISCUSSION: Preoperative contralateral joint pain and/or back pain are significant predictors of worse baseline patient-reported outcome measures and reduced likelihood of achieving substantial clinical improvement one year after primary TKA. Patients presenting with both conditions exhibit the lowest baseline function and mental well-being, and face the greatest risk of failing to achieve the 20-point SCB threshold on the KOOS-JR. These findings underscore the importance of comprehensive preoperative evaluation and optimization strategies that account for coexisting musculoskeletal pain, particularly in light of the new CMS PROMs mandate.

CLINICAL RELEVANCE: Preoperative contralateral joint and/or back pain are actionable risk markers for not achieving the KOOS-JR 20-point substantial clinical benefit after TKA; incorporating them into routine presurgical screening with targeted prehabilitation and pain-source optimization can improve outcomes, counseling, and CMS PRO-PM performance.