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Predicting Early Failure in Total Knee Arthroplasty: A Critical Review of Oxinium Femoral Components

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Introduction:
Retrospectively, it has been shown that significant patient-reported pain 6 months following total knee arthroplasty (TKA) is associated with a 7 times greater revision rate at 5 years. Our goal is to use the FORCE-TJR registry to prospectively evaluate if postoperative pain and function scores can predict increased revision rate 5 years following TKA. Our preliminary analyses have focused on one implant reported by Australia to have a significantly high 5-year revision rate: Oxinium femoral components.

Materials and Methods:
FORCE-TJR matched implant catalog numbers to the international implant library to define TKA patients who received oxinium femoral components and all other implants. We defined 12-month KOOS pain and function (SF PCS) for patients with the study implant and all others (n=9187). Age, BMI, sex, pre-TKA pain, function, low back pain severity, and Charlson comorbidity index were compared for patients with moderate pain (KOOS pain<75) vs. minimal pain (KOOS pain>75) at 12 months postoperatively.

Results:
We observed that 27% of oxinium patients reported moderate pain vs. 21% of patients receiving all implants at 12 months postoperatively. Compared to patients with minimal pain, moderate pain patients had greater pre-op pain (KOOS=37 vs. 50; p<0.0002), poorer pre-op function (PCS=30 vs. 33; p<0.04), and more moderate to severe low back pain (52% vs. 24%; p<0.027). In addition, high 12-month pain patients had poorer 12-month function (PCS=37 vs. 45; p<0.0000).

Conclusion:
These preliminary results indicate that moderate pain at 12-months postoperatively is associated with poorer functional gain following TKA. Surgeons should recognize and potentially intervene on this group if improvement in their ultimate functional gain is desired. By continuing to follow this group of oxinium patients we will be able to determine if early pain and decreased function following TKA is associated with an increased revision rate.

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