

Testosterone Replacement Therapy is Associated with Extensor Mechanism Disruption After Total Knee Arthroplasty

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INTRODUCTION: Use of testosterone replacement therapy (TRT) has increased significantly in the last few years, and has been linked to tendon ruptures after a number of orthopedic procedures. Knee extensor mechanism disruption (EMD) after total knee arthroplasty (TKA) leads to significant morbidity and a decline in patients' quality of life. However, its association with TRT use remains unclear. We aimed to determine the association between TRT and the risk of EMD in patients undergoing primary TKA.

METHODS:

This retrospective cohort study utilized the Merative MarketScan database to identify adults aged ≥ 18 years who underwent primary TKA between 2015 and 2022, with a minimum follow-up of 3 years. Knee EMD, defined as ruptures of the quadriceps tendon, patellar tendon, or fractures of the patella, was identified using ICD-10 codes. TRT use was defined as patients filling prescriptions for at least three months before the index surgery. Comparative analyses and multivariate logistic regression models were employed to determine the independent risk of TRT on risk of EMD.

RESULTS:

Among 34,911 patients, 1,711 (4.9%) were on TRT, and 166 (0.48%) were identified with knee EMD. More than half of the cohort were aged 40–59 years (57.3%, $n=20,018$) and female (59.6%, $n=20,820$). Preoperative TRT was associated with more than twice the likelihood of developing knee EMD (OR: 2.38, 95% CI: 1.39–4.09; $P = 0.002$). Other significant risk factors included smoking (OR: 1.46, 95% CI: 1.02–2.08; $p = 0.038$), postoperative fluoroquinolone use (OR: 1.58, 95% CI: 1.06–2.36; $p = 0.024$), and female sex (OR: 1.44, 95% CI: 1.03–2.01; $p = 0.034$).

DISCUSSION AND CONCLUSION: Preoperative TRT was identified as the most important risk factor for developing knee EMD after TKA. These findings underscore the importance of recognizing and addressing this risk factor and counseling patients on its potential risks on postoperative outcomes.