

**Introduction:**

Osteoarthritis of the knee is a leading cause of disability, with total knee replacement (TKR) being an effective intervention for pain relief and functional restoration. However, the growing elderly population undergoing TKR often presents with comorbidities that may influence surgical outcomes. Understanding the impact of these comorbidities is vital for optimizing patient care and functional recovery.

This study aimed to evaluate the effect of prevalent comorbidities—diabetes mellitus, hypertension, obesity, rheumatoid arthritis, and osteoporosis—on postoperative functional outcomes following TKR using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC).

**Methods:**

A prospective cohort study was conducted at the Department of Orthopaedics, King George's Medical University, Lucknow, over 18 months. One hundred patients undergoing unilateral primary TKR were enrolled, including 80 with at least one comorbidity and 20 without. Patients were assessed preoperatively and at six months postoperatively using the WOMAC score. Comorbidities were recorded, and patients were grouped based on the number and type of comorbidities. Functional outcomes were statistically analyzed using paired t-tests and comparative analyses.

**Results:**

Among the 100 patients, 62% were female, and the mean age was 58.04 years. The most common comorbidities were hypertension (44%), obesity (34%), and diabetes (28%). Patients with no comorbidities showed the greatest mean improvement in WOMAC scores postoperatively, while those with multiple comorbidities demonstrated significantly lesser improvement ( $p < 0.05$ ). Individual comorbidities like diabetes and obesity were associated with reduced postoperative gains in physical function and higher residual stiffness. However, even among patients with comorbidities, statistically significant improvements in pain, stiffness, and function were observed.

**Conclusion:**

Comorbidities have a measurable impact on the functional outcomes post-TKR. While patients with comorbid conditions benefit from TKR, their improvement is relatively attenuated compared to those without comorbidities. These findings emphasize the need for individualized perioperative planning, patient counseling, and tailored rehabilitation strategies to enhance recovery and satisfaction in TKR patients with comorbidities.