Lifetime Risk of Revision Surgery: An Analysis of 54,456 Total Knee Replacements

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INTRODUCTION:

Total knee arthroplasty (TKA) for end stage osteoarthritis demonstrates significant clinical benefits but more information is required on implant survivorship to aid in patient decision-making. This study aims to produce estimates for lifetime-risk of revision surgery following TKA to better inform patients.

METHODS:

TKA patients were identified from a primary care database. Implant revision incidences were calculated using an actuarial life table method; age-specific all-cause mortality rates were applied to these annual survival incidences to generate estimations of lifetime revision risk, stratified by sex and age.

RESULTS:

A total of 54,456 TKR patients were followed up to a maximum of 24 years. Implant survivorship at 10 years was 96.1% (95% CI: 95.8-96.4) and 89.7% (87.5-91.5) at 20 years. Estimates of lifetime risk of revision TKR were: 15.4% (95% CI: 13.1-17.7) for women and 28.2% (24.6-31.9) for men at age 50. This decreased to 11.5% (10.4-12.6) and 14% (12.8-15.3) at age 60 respectively and again to 3.5 %(1.5-2.1) and 2.4% (2-2.9) by age 70. Revision risk was higher in male and younger patient groups (see graph).

DISCUSSION AND CONCLUSION:

This long-term follow up of a large population (with survival rates consistent with registry data at the same time-points) demonstrates the lifetime risk of requiring revision surgery following TKA is lower in female patients and decreases with age.