

Cementless Total Knee Arthroplasty in Patients Under the Age of 50 years: Average 6-year Follow-up

Charles Wyatt Long, Wyatt Andrew Nelson¹, Nolan Sledge Smith, Michael J Ziegele, Langan S Smith², Arthur L Malkani³
¹School of Medicine, ²UofL Health, ³Orthopaedic Surgery, University of Louisville

INTRODUCTION:

Patients under the age of 50 years undergoing cemented primary TKA have historically demonstrated increased failure rates due to the mechanical loosening. There has been a resurgence in cementless total knee arthroplasty (TKA) over the last decade for multiple reasons including increased life expectancy, younger and more active patients undergoing TKA and improvements in implant design. The purpose of this study is to evaluate clinical results along with patient-reported outcome measures (PROMs) in patients under the age of 50 following primary cementless TKA.

METHODS:

This is an IRB approved retrospective study of 127 consecutive patients less than 50 years of age undergoing primary cementless TKA using the same implant design at a single institution. 102 (80.3%) patients were available for review with a minimum 2 year follow up. There were 29 males and 73 females with a mean age of 46 years (32-50), mean BMI of 37.7 (20.4 – 63.9), and mean follow-up of 75.3 months (24.3 – 133.4 months). Clinical results, complications, and Patient-reported outcome measures (PROMs) including Likert patient satisfaction, Knee Society (KS) Knee scores, KS Function scores, KOOS. JR., and Forgotten Joint Score (FJS) were reviewed.

RESULTS:

KS Function score improved from 37.8 points to 79.1 post-operatively, ($p < 0.001$). KS Knee score improved from 47.1 points to 89.0 post-op, ($p < 0.001$). Postoperative FJS score and KOOS.JR. scores were 66.6 and 91.0, respectively. 94.2% of patients were either satisfied or very satisfied. Pre-operative flexion ROM improved from 102 degrees to 117 degrees post-operatively, ($p < 0.001$). There were 6 revisions (5.9%) including 2 for instability (1.9%), 1 for polyethylene wear (1%), 1 aseptic loosening of the tibial component (1%), 1 dislocated patella (1%) and 1 patella component failure (1%). There were 11 non-revision complications (10.8%): 6 manipulations (5.9%), 3 synovectomies (2.9%), 1 patella resurfacing (1%), 1 posterolateral corner instability (1%). There were no cases of prosthetic joint infection. Survivorship for aseptic loosening as the endpoint was 99.2% and for all cause failure 95.3% at an average 6 year follow-up.

DISCUSSION AND CONCLUSION:

There has been a greater use of cementless implants in patients undergoing primary TKA over the past decade, especially in younger and more active patients, due to improvements in implant design and polyethylene wear properties. The results of this study demonstrate excellent function and PROMs with an all cause survivorship of 95.3% at an average 6 year follow-up in patients under the age of 50 years. These results are encouraging given the historically increased incidence of failure due to aseptic loosening with cemented implants in this high risk group of patients undergoing primary TKA.