

# Primary Total Knee Arthroplasty Using a Cementless Highly Porous Titanium Tibial Baseplate in Patients Under the Age of 50

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## INTRODUCTION:

There has been a resurgence in the use of cementless TKA due to improvements in implant design and polyethylene wear characteristics. Given the high failure incidence of 1<sup>st</sup> generation cementless implants, purpose of this study was to evaluate results of patients undergoing primary TKA using a cementless highly porous tibial baseplate under age 50 years.

## METHODS:

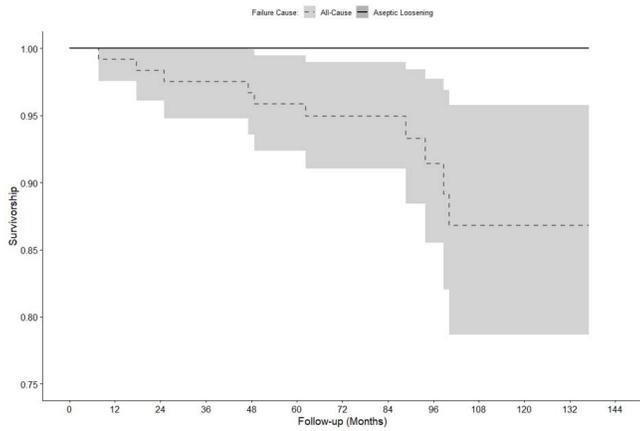
This is a retrospective study of 150 consecutive cementless TKAs in patients less than 50 years using the same implant design at a single institution. Total of 29 patients were lost-to-follow-up (19.3%) and 10 were revised leaving 111 TKAs in 92 patients with a minimum 5-year follow-up. There were 39 male and 72 female knees, with a mean age of 45.6 years (range 26-50), mean BMI of 37 kg/m<sup>2</sup> (range 19.3 – 64), and mean follow-up of 7.5 years (range 5 – 11.4 yrs). Clinical outcomes, complications, and PROMs were reviewed.

## RESULTS:

Knee Society Function and Knee Scores improved preoperatively from 45.1 and 38.7 to postoperatively 82.5 and 85.7, respectively ( $p < 0.001$ ). KOOS JR score improved from 38.2 to 82.1 ( $p < 0.001$ ). 87.6% of patients reported being either satisfied or very satisfied. There were no cases of aseptic loosening of either the highly porous tibial baseplate or cementless femoral component. There were 10 (8.3%) revisions: 5 instability, 3 dissociation of the metal backed patella polyethylene, and 2 for unexplained pain revised at an outside institution. Survivorship at 7.5 years due to aseptic loosening as the endpoint was 100% and 86.8% due to all-cause failure.

## DISCUSSION AND CONCLUSION:

Cementless TKA utilizing a highly porous baseplate in patients under age 50 years demonstrated excellent results at mean 7.5 years with no failures due to aseptic loosening. With historical higher failure incidence of cemented TKAs in younger patients, the results of this study using a cementless highly porous tibial baseplate are encouraging.



**Figure 1.** Kaplan-Meier survivorship curve with a 95% confidence interval demonstrating 100% survivorship with aseptic loosening and 86.8 % survivorship with all-cause failure as the endpoint at 11 years.