

Robotic-arm assisted total knee arthroplasty versus conventional manual total knee arthroplasty:
The five-year functional outcomes from a prospective cohort study

Authors: Babar Kayani, Andreas Fontalis, Isabella Haddad, Vishal Rajput, Fares Haddad

Disclosures: Nil

Abstract

Purpose:

This study reports the five-year functional outcomes from a prospective cohort study comparing robotic-arm assisted total knee arthroplasty (RO TKA) versus conventional manual total knee arthroplasty (CO TKA).

Methods:

This prospective single-surgeon study included 120 patients with symptomatic end-stage knee arthritis undergoing primary TKA. This included 60 consecutive patients undergoing CO TKA followed by 60 consecutive patients undergoing RO TKA using a semi-automated robotic device. Study patients were reviewed at one-, two- and five-years after surgery and the following outcomes recorded: The University of California at Los Angeles activity-level (UCLA), Knee Society Score (KSS), Oxford Knee Score (OKS) Forgotten Joint Score (FJS), and any complications.

Results:

There were no statistical differences between RO TKA and CO TKA in the median UCLA score ($p=0.326$), median KSS ($p=0.438$), and median OKS ($p=0.132$) at five-years' follow-up. RO-TKA was associated with statistically significant improvements in the FJS at one- ($p=0.001$), two- ($p=0.003$), and five- ($p=0.025$) years' follow-up compared with CO TKA. There was no statistical difference in the incidence of knee stiffness requiring manipulation under anaesthesia between the two treatment groups ($p=0.619$).

Conclusion

Patients in both treatment groups had excellent functional outcomes with comparable patient-reported outcome at five years' follow-up. RO TKA was associated with statistically significant improvements in the FJS compared with CO TKA, but these differences did not reach the minimal clinically important difference at any follow-up interval. There was no overall difference in complications between the two treatment groups at five years' follow-up.