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.