Category: Knee - Arthroplasty

Weight Changes after Knee Arthroplasty, and the Effect of Obesity on Outcomes

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All Authors:
Matt Lyons FRACS AUSTRALIA
David Carmody MBBS FRACS AUSTRALIA
Justin P. Roe FRACS, A/Prof. AUSTRALIA
Michael O’Sullivan MBBS FRACS AUSTRALIA
Leo A. Pinczewski MBBS, FRACS, FAOA AUSTRALIA
Phil Huang FRACS, FAOrtha, BEng, MPhip CANTAB AUSTRALIA
Lucy J. Salmon PhD AUSTRALIA
Kaka Martina RN AUSTRALIA
Benjamin Gooden MBBS, FRACS, PhD AUSTRALIA

Summary:
Obese patients experienced equivalent improvements in patient reported outcomes after arthroplasty and rates of satisfaction with surgery to the non-obese, but should not consider weight loss an expected outcome of TKA.

Data:
Introduction: Obesity is a common in individuals undergoing arthroplasty, and the potential for weight loss with improved mobility may be expected by some.

The aim of this study was 1. determine the proportion that achieved weight loss after knee arthroplasty, and 2. examine the effect of obesity on patient reported outcomes (PROMS) and satisfaction with surgery.

Methods: Participants underwent primary TKA between July 2015 and December 2020 and consented to participation in a research database with baseline PROMS, including weight, BMI, Oxford Knee or Hip Score, and EQ5D.

Participants repeated PROMS at 12 months after surgery with additional questions regarding satisfaction with surgery.

Results: Of the 1790 patients who formed the study group, 1600 patients completed PROMS 1 year after arthroplasty with weight and BMI. The mean age was 69 years (range 33-92) and there were 815 males (51%).

Obese patients the mean weight loss after TKA over 12 months was 0.9kg (SD 4), and weight loss of 5kg or more was seen in 12%

Conclusions: Preoperative obesity was observed in 45% of TKA patients. In the obese subjects the mean weight loss after TKA over 12 months was 0.9kg (SD 4), and weight loss of 5kg or more was seen in 12%

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Category: Knee - Arthroplasty

How Does The Use of a Gap Balancing vs Measured Resection Technique Affect Component Positioning and Limb Alignment In Robotic Total Knee Arthroplasty? A Comparison of the Mako and Omnibot Systems

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All Authors:
Geoffrey T Murphy BMed, MD, BSc (Med) Hons AUSTRALIA
Joe Shatrov MD AUSTRALIA
Julian Duong BMed, MD, BSc (Med) Hons AUSTRALIA
David A. Parker MBBS, BMedSc, FRACS AUSTRALIA
Brett A. Fritsch MBBS BSc(Med), FRACS, FAOrtha AUSTRALIA

Summary:
A retrospective cohort study comparing robotic TKA using either a quantified gap balancing technique (MAKO) or a measured resection technique (OMNIbot) which shows that while the two techniques result in different implant positions and rates of recuts, both systems achieve equal sagittal deformity correction with good patient outcomes at short term follow-up.

Data:
Introduction: Robotic-assisted total knee arthroplasty (TKA) is a surgical development that has improved implant planning and positioning. Multiple proprietary robotic platforms have been developed for TKA, however not all systems provide the same information to the surgeon resulting in different workflow and ability to alter planning and resection in a quantified fashion. Systems such as the Stryker MAKO robotic system provide anticipated gap balancing information which can be used to alter implant position to achieve surgeon desired gaps prior to resection while others such as OMNIbot robotic system do not provide this virtual gap information until after bony cuts have been made. The aim of this study was to examine the effect of these differences in information input to the surgeon might have on implant positioning, limb alignment, surgical workflow and patient reported outcomes (PROMS) in patients undergoing primary total knee arthroplasty (TKA) using the same surgeon goals of balance and deformity correction.

Methods: A retrospective cohort study was performed on patients who underwent primary TKA with a restricted kinematic alignment philosophy performed by a single surgeon using either the MAKO or OMNIbot robotic systems.

Intra-operative data regarding limb and component alignment and positioning had been collected verified and recorded. Patients were evaluated at 12-month follow-up using Knee Injury & Osteoarthritis Outcome Score (KOOS) and Oxford Knee Score (OKS) and Veterans Rand-12 (VR-12) scores.

Summary:
There are increasing rates of uncemented total knee arthroplasty, and younger patients that had OMNIbot TKAs were slightly younger (67 vs 69, \(p=0.002\)) than OMNIbot TKAs. There were no other demographic or pre-operative alignment differences. Regarding implant positioning, MAKO TKAs had more varus femoral cuts (1.6 vs 2.7 valgus, \(p<0.001\)) and tibial cuts (2.4 vs 1.9 varus, \(p<0.001\)), were more externally rotated in relation to the posterior condylar axis (2.3 vs 0.1, \(p<0.001\)) and had more bone resected compared to OMNIbot TKAs. OMNIbot tibial cuts were more likely to be recut than MAKO tibial cuts (15% vs 2%, \(p<0.001\)). There were no differences in femur recut rates, soft tissue releases nor rate of achieving target coronal and sagittal leg alignment between robots. A subgroup analysis of 100 MAKO and 100 OMNIbot propensity matched TKAs with 12-month follow-up showed no significant difference in OKS (42 vs 43, \(p=0.7\)) or OKS PASS scores (83% vs 91%, \(p=0.1\)). MAKO TKAs reported significantly better symptoms according to their KOOS symptoms score than patients that had OMNIbot TKAs (87 vs 82, \(p=0.02\)). There were no other differences in PROMS. There were no revisions in either group. The use of a gap balanced technique with an image based robotic system (MAKO) results in different implant positioning, bone resection and reduces tibial recuts compared to a measured resection technique with an imageless robotic system (OMNIbot).

Both systems achieve equal coronal and sagittal deformity correction (full extension) and good patient outcomes at short term follow-up irrespective of these differences.

Category: Knee - Arthroplasty

National Trends of Cemented and Uncemented Total Knee Arthroplasty: 2018-2020

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All Authors:
Gloria Shoshana Coden MD UNITED STATES
Ruijia Niu MPH UNITED STATES
Gloria Shoshana Coden MD UNITED STATES
Ruijia Niu MPH UNITED STATES
Eric L. Smith MD UNITED STATES
David A Mattingly MD UNITED STATES

Summary:
There are increasing rates of uncemented total knee arthroplasty, and younger patients, male patients, patients operated on more recently, patients with private insurance, and patients from certain regions in the United States are more likely to be implanted with an uncemented total knee arthroplasty.

Data:
Introduction: Uncemented total knee arthroplasty (TKA) has become a viable option in recent years. While institutions may monitor their implant usage, the evolution of the use of uncemented technology has not been well describe on a national level in the United States. Therefore, we sought to characterize the use of cemented and uncemented TKA across the United States.

Methods: We searched IBM MarketScan database for patients who underwent primary TKA using a cemented or uncemented implant based on the International Classification of Diseases, Tenth Revision Procedure Coding System between 2018 and 2020. Records were reviewed for age, sex, date of TKA, laterality, region, length of stay, type of insurance, discharge, and net payments to hospitals and physicians. Chi-square and independent-samples t-test were used to compare groups. Multiple logistic regression was performed to establish risk factors for cemented or uncemented TKA. Significance was set at \(p<0.05\). Results: We identified a total of 62981 cemented and 5460 uncemented TKAs. The rate of uncemented TKAs increased from 6.46 percent (\%) in 2018 to 10.78% in 2020 (\(p<0.001\)). Females were more likely to be implanted with a cemented TKA (59.6% vs 40.4%,