

How Many TKA Patients Could Be Treated With Early Intervention Procedures?

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Introduction

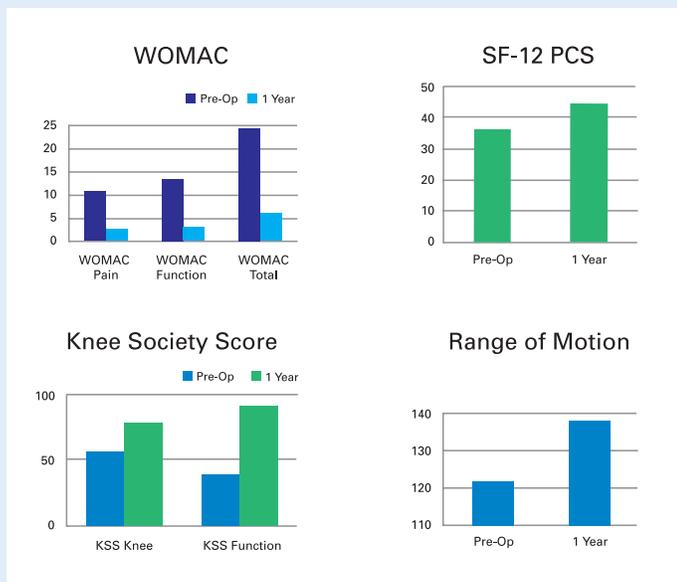
The rationale behind bicompartamental knee arthroplasty (BKA) is that many patients who undergo total knee arthroplasty (TKA) have isolated bicompartamental arthritis involving only two compartments of the knee and have no significant deformity, excellent motion, and intact cruciate ligaments. Replication of normal knee kinematics and function has yet to be achieved with conventional TKA due to the sacrificing of ligaments and soft tissue. This study evaluates the radiographic and early clinical results of BKA with modular components implanted with robotic arm guidance. We also include a retrospective review of total knee arthroplasty (TKA) cases to examine the applicability of this early intervention procedure.

Methods

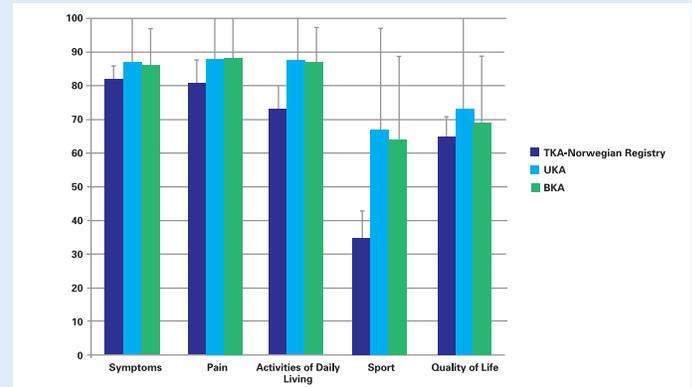
Thirty consecutive modular bicompartamental knee arthroplasties were performed using robotic arm guidance. Clinical and functional data were collected pre-operatively and at 2, 6, 12 weeks, and 1 year. The average BMI was 29; nineteen patients were women. We retrospectively reviewed intra-operative notes from 406 consecutive TKA patients from a single surgeon which included the integrity of the three compartments and ACL.

Results

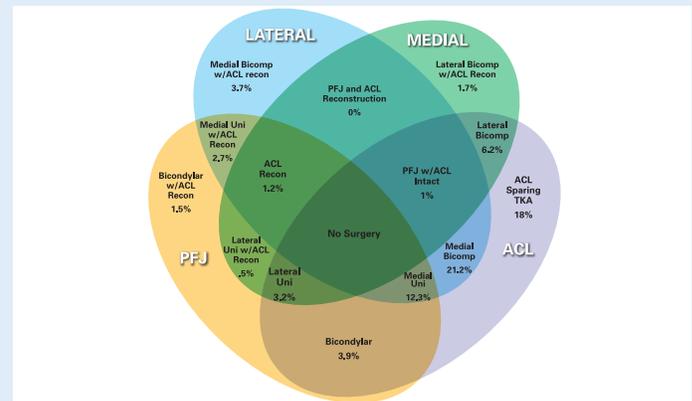
Clinical Results at 1 Year Follow Up



Bicompartamental KOOS Scores Compared to Best Performing TKA in Norwegian Joint Registry



Retrospective Review of 406 TKA Cases



A 4 set Venn diagram with each set representing a healthy ACL, medial, lateral, or PF compartment. Each of the 16 regions represents the intersection over a subset of these four, the percentages of patients thus indicated and the appropriate surgical treatment. The 16th region is represented outside the four main regions as the classic indications for a total knee patient including ACL deficiency and three diseased compartments.

- Only 23% of cases had no ACL coupled with medial, lateral, and PF OA
 - ACL intact in 66% of cases
 - Indicated for UKA: 16%
Medial: 12%
Lateral: 3%
PF: 1%
 - Indicated for BKA: 31%
Medial/PF: 21%
Lateral/PF: 6%
Medial/Lateral: 4%
- * Does not account for fixed flexion deformities, excessive osteophytes, or other contraindications.

Discussion

- Partial knee arthroplasty is a clinically and kinematically effective method for treating partial knee osteoarthritis
- Our data indicates that many TKA patients have healthy cruciates and disease in only one or two of the three compartments
- Longer term studies and continued use of BKA will further evaluate the clinical significance of preserving healthy cartilage and ligaments routinely resected with traditional tricompartmental TKA