

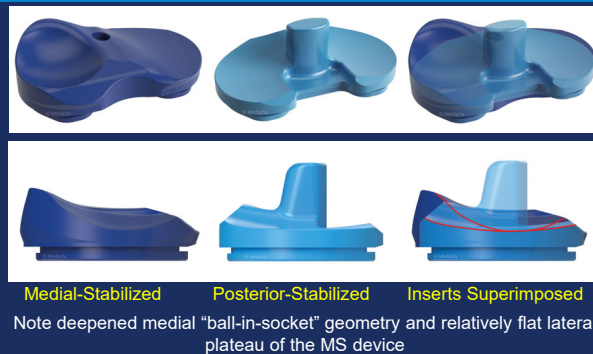
Introduction

- The PS knee has been extremely successful, providing excellent long-term outcomes in primary total knee arthroplasty
- There is limited consensus whether non-post/cam cruciate-substituting devices are an acceptable alternative
- Non-PS, PCL-substituting devices (Medial-stabilized) have been in use with excellent shorter-term results
- Possible advantages of Medial-stabilized implants:
 - Simplified surgical technique with fewer steps
 - Preservation of bone w/o box cut
 - Elimination of poly wear of post
 - Increased mid-flexion stability?

Methods-Study Design/Hypothesis

- Prospective, randomized, blinded, single-site trial
- Comparing the clinical and radiographic outcomes of the Medacta GMK® Knee w/PS vs Medially-Stabilized (MS) components
- Tibial baseplates and patellae are identical, femur and insert differ
- 100 patients received the PS knee; 101 patients received the MS knee
- The primary hypothesis was that the clinical outcomes, especially the Forgotten Joint Score, would be better in the MS group

Figure 1: Materials / Methods-Implant Geometry



Methods: Surgical Technique-Modified Kinematic Alignment Technique

- All surgeries performed by single surgeon with identical technique:
- Tourniquet utilized
 - Medial parapatellar arthrotomy with patellar eversion
 - Measured resection technique, posterior referencing
 - Femur placed in neutral rotation (w/ respect to posterior condyles)
 - Tibial slope and anatomic varus matched, following kinematic alignment principles
 - Balancing performed primarily through bone cuts vs ligament releases
 - Not utilized: navigation/"MIS" techniques/PSI
 - Cement fixation utilized, all patella resurfaced
 - PCL always sacrificed

Results

192 patients at 6 months, 160 at one year, 73 at two years

There were **no statistically significant differences in:**

- Preop demographic characteristics
- Age, gender, BMI
- Preop ROM, PROM's, or X-ray alignment

Results-Outcomes and Radiographic Results

There were **significant differences in Flexion, KSS Pain/Motion and FJS outcomes measurements**, starting as early as six months postop

No differences:

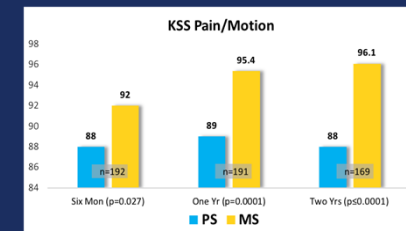
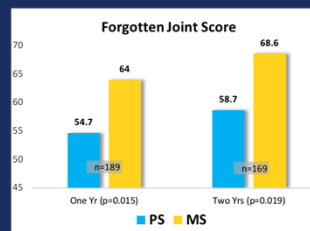
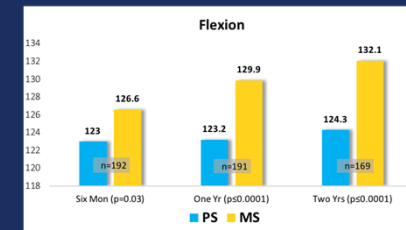
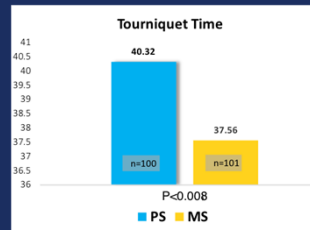
- Lower Extremity Activity Scale
- KSS Function score
- Coronal Xray alignment (1-year postoperative)

Results-Complications

There were no infections or progressive radiolucencies

Excluding 5 manipulations, 2 reoperations:

- ORIF periprosthetic femur fracture at 5 months (MS)
- Revision for aseptic loosening of tibial baseplate at 23 mon. (PS)



Results-Summary

As hypothesized, some of the **outcomes**, especially the **Forgotten Joint Score**, were **substantially better** in the MS group

There was a **shorter tourniquet time** in the MS group: 37.56 minutes vs 40.32 minutes

The ROM data reveals that rollback provided by a post/cam device is not required for excellent flexion, in fact **flexion was substantially better** in the MS group

Discussion/Conclusion

- The authors hypothesize that the improved **mid-flexion stability** of the MS device is contributing to the improved outcomes
- Question whether the kinematic alignment approach optimizes the results obtained with a more anatomic implant?
- The superior early clinical results obtained with the MS knee warrants continued follow-up and further evaluation by other investigators
 - Will there be differences in long-term outcomes, for example, is there any downside to the higher medial congruency of MS device, such as increased aseptic loosening?
- Data supports the use of a PCL-substituting medially-stabilized design as an alternative to the traditional PS device

Created with: Ortho Research Master™

The data from this study was captured, stored, processed and analyzed statistically with Ortho Research Master™, a clinical research EDC/CTMS/Statistics platform.



Disclosures

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- Royalties: Innomed