Abstracts

What Imaging is Required to Plan TKA? A Comparison Between EOS and CT Scan to Assess Coronal Alignment

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Summary:
CT demonstrates excellent reliability for assessing coronal lower limb alignment compared to EOS in osteoarthritic knees. This supports the routine use of CT to plan TKA without further weight bearing imaging in routine cases.

Data:
Background As surgical technologies and alignment strategies develop, accuracy of lower limb alignment assessment gains increasing importance. The current gold standard remains long leg (4R) radiographs. Other measures include CT and EOS scans. This study aims to compare CT scanogram and EOS long leg views to determine the reliability of assessment of HKA in native knees. Materials and Methods A retrospective study of 96 knees in patients undergoing TKA was performed comparing HKA alignment data from EOS and CT scanogram. Coronal HKA and sagittal flexion angle were assessed by two independent observers at two time points. Inter-observer correlation was calculated. Results The mean difference of HKA between the 2 imaging modalities was 0.09 ± 2.4°. 12 knees (13%) exceeded a CT vs EOS difference of 3°. Inter-rater reliability was excellent with intra-class coefficients >0.9. The mean difference between CT and EOS was significantly greater for patients with fixed flexion >10° (0.68° vs <10° (0.2°) p=0.004. Mean difference in HKA did not differ between those 0-10° varus and >10° varus (p=0.273). Valgus HKA had a higher mean difference (1.9°) compared to varus knees (-0.4°) (p=0.001). Conclusion CT scanogram and EOS showed excellent inter-rater reliability and correlated well. Increased sagittal plane deformity does effect coronal HKA assessment. Extreme varus did not affect the mean difference significantly while valgus did. For the majority of patients CT scanogram will give a reliable assessment of HKA but beware those with significant valgus or sagittal deformity where additional imaging may be necessary to plan TKA.

Category: Knee - Arthroplasty

"Is It Gender Or Surgical Technique?" Prospective Evaluation of Femoral Component Sizing Differences

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Summary:
The next generation knee system has both less overhang and underhang with its standard size, more likely due to surgical technique improvements, rather than component sizing modifications.

Data:
Introduction: In spite of gender marketing, little evidence supports that gender-based changes to the femoral component lead to better sizing or clinical outcomes. The purpose of this study is to prospectively evaluate whether a single company's gender-based femoral component or their updated version with a modified surgical technique leads to better femoral component fit. Methods: Between 2009 and 2018, 2508 consecutive primary total knee replacements in females were performed by a single surgeon. One knee system had gender-based femoral components available. The second knee system, the manufacturer's updated version, had standard and narrow sizes, both more likely due to surgical technique improvements, rather than component sizing modifications.

Summary:
The next generation knee system has both less overhang and underhang with its standard size, more likely due to surgical technique improvements, rather than component sizing modifications.