p < 0.001), and younger patients were more likely to receive an uncemented TKA (59.7 vs 61.45 years, p < 0.001). There was no difference in the laterality between groups (p = 0.448). Patients were more likely to receive an uncemented TKA if they were from the northeast (9.2%) or the south (9.1%) than if they were from the north central region (6.6%) or the west (5.8%, p < 0.001). Patients implanted with an uncemented TKA had a shorter average of stay (1.89 vs 2.02 days, p < 0.001), and were more likely to be discharged home (49.7%) or home with services (44.3%, p < 0.001). Patients with private insurance were more likely to receive an uncemented TKA (83.9%) than patients who had Medicare supplemental insurance (16.1%, p < 0.001). Total net payment did not differ between cemented and uncemented TKA ($29779.65 vs $29397.64, p = 0.127), nor did the net hospital collection rate ($26352.25 vs $25920.79, p = 0.127). However, physicians were reimbursed more for uncemented TKA than for cemented TKA ($2084.39 vs $1986.16, p < 0.004). Multiple logistic regression demonstrated that patients having surgery more recently (p < 0.001), younger patients (p < 0.001), male patients (p < 0.001), privately insured patients (p < 0.001), and the region that the patient was located all strongly predicted a higher chance of being implanted with an uncemented TKA. Discussion: Although 92.0% of TKAs are still cemented, there is a trend towards increasing use of uncemented TKA from 2018 to 2020. Younger patients, males, patients with private insurance, patients who underwent TKA more recently, and patients in the northeast or south were more likely to be implanted with an uncemented TKA. Uncemented TKA was associated with a shorter length of stay and patients were more likely to be discharged home with or without services. While there was no difference between total or hospital reimbursement between cemented and uncemented TKA, physicians were reimbursed more for uncemented TKA. It is important for surgeons to understand the trends with evolving technology.

Category: Knee - Arthroplasty

Central Sensitization and Neuropathic Pain Synergistically Affect Inferior Patients Reported Outcomes Following Total Knee Arthroplasty

Abstract ID# 22980
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Summary: Central Sensitization and Neuropathic Pain symptom were factors related to higher postoperative pain levels and inferior PROMs in patients undergoing primary TKA.

Data: Introduction: There are still insufficient studies on the relationship between central sensitization (CS) and neuropathic pain (NP), and the effects of CS and NP on the patient-reported outcome measures (PROMs) of patients who underwent total knee arthroplasty (TKA). The purpose of this study was to investigate the relationship between CS and NP and whether CS and NP were associated with PROM in patients undergoing TKA. Methods: A total of 312 patients who underwent primary TKA for end stage knee OA were enrolled. CS was defined as a patient with a score of 40 or higher using central sensitization inventory (CSI). NP was defined as a patient with a score of 13 or more using pain detect questionnaire (PDQ). PROMs were also evaluated based on the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score preoperatively and at postoperative 2 years. The patients were divided into 4 groups, group 1 with CS and NP positive, group 2 with only CS positive, group 3 with only NP positive, and group 4 with CS and NP negative, and PROM was compared between the groups. Results: There were 90 patients (28.5%) with both CS and NP positive, 33 patients (10.4%) with only CS positive, and 83 patients (26.3%) with only NP positive and 110 patients (34.8%) with CS and NP negative. All WOMAC sub-scores showed significant differences between the 4 groups before and after surgery (all p < 0.05). As a result of post hoc analysis before surgery, group 1 showed significantly inferior WOMAC pain, function, and total score compared to groups 2, 3, and 4 (all p < 0.05). Groups 2 and 3 showed worse preoperative results in WOMAC subscores compared to group 4 (all p < 0.05). These results remained the same at 2 years after surgery. Conclusion: CS and NP symptom were factors related to higher postoperative pain levels and inferior PROMs in patients undergoing primary TKA. Among them, those with both CS and NP positive showed an inferior postoperative PROM compared to only CS or NP positive, and both CS and NP negative.

Category: Knee - Arthroplasty

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

Abstract ID# 21827
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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 (4ft) 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 flexion >10° (0.68° vs <10 deg (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

Abstract ID# 22360
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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, more likely due to surgical technique improvements, rather than component sizing modifications.

Discussion: While a gender-specific component may provide more sizing
options to provide better femoral fit options compared to its own standard size counterpart, it may only be addressing its own system's sizing limitations. 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. Furthermore, the need for a narrower component option appears to be less since the newer design was used only one-fifth of the frequency that the gender component was used relative to its standard option.

Category: Knee - Arthroplasty

Time Since Primary Total Knee Arthroplasty Predicts the Success of Debridement, Antibiotics and Implant Retention for Prosthetic Joint Infection: Results from a Prospective, Multicenter Study of 189 Cases

Abstract ID# 22476
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Summary: The time since primary TKA can predict DAIR success in treating prosthetic joint infection.

Data:
Introduction: There remains a lack of consensus on the optimal indications for performing debridement, antibiotics and implant retention (DAIR) for prosthetic joint infection (PJI) following total knee arthroplasty (TKA). Numerous PJ classification systems have been proposed, but it is unclear if they can be used to predict DAIR success. This study aimed to identify the success rate of DAIR in a large multicenter cohort and compare the success rates of DAIR between different classification systems of PJI. Methods: Data was analyzed from the Prosthetic Joint Infection in Australia and New Zealand Observational (Piano) study, a multicenter, prospective study of PJI occurs occurring between July 2014 and December 2017 in 27 hospitals across Australia and New Zealand. First time PJs occurring after primary TKA that were managed with DAIR were included for analysis. Baseline patient and surgical data were collected on patient enrolment, and follow-up completed at 1- and 2-years. Treatment success was defined as the patient being alive with documented absence of clinical or microbiological evidence of infection and no ongoing use of antibiotics for the index joint at 2-year follow-up. The rate of DAIR success was compared against different types of PJI as defined by four different classification systems including the Coventry system (early PJI <1 month since primary TKA versus 1-24 months and ≥24 months), the ICM system (early PJI <90 days since primary TKA, late PJI ≥90 days), the Tsukayama system (early PJI = <1 year since primary TKA, late PJI = ≥1 year) and the Tsukayama system (early PJI = <1 month since primary TKA, hematogenous PJI = >1 month with less than 7 days of symptoms, chronic PJI = >1 month with more than 7 days of symptoms). Univariate analysis was performed via Chi-square test. Multivariate binary logistic regression was performed to compute odds ratios (OR) with 95% confidence intervals (CI). Individual multivariate models were produced for each classification system with adjustment for patient age, gender, body mass index, patient comorbidities, number of infecting organisms and the presence of Staphylococcus aureus or gram-negative bacteria. Results: A total of 189 PJI cases were managed with DAIR, with an overall success rate of 45% (85 out of 189). Early PJs had a higher rate of DAIR success when analyzed according to the Coventry system (adjusted OR = 3.85, 95% CI 1.41 - 10.50, p = 0.008), the ICM system (adjusted OR = 3.08, 95% CI 1.41 - 6.72, p = 0.005) and the Tsukayama system (adjusted OR = 2.60, 95% CI 1.26 - 5.35, p = 0.01). A lower rate of DAIR success was observed in both hematogenous (adjusted OR = 0.36, 95% CI 0.14 - 0.93, p = 0.034) and chronic infections (adjusted OR = 0.14, 95% CI 0.04 - 0.51, p = 0.003). Discussion and Conclusion: The success rate of DAIR is highest when performed in infections occurring within one year of the primary TKA. Late infections had a high failure rate following DAIR irrespective of their classification as hematogenous or chronic. Time since primary is a useful predictor of DAIR success.

Category: Knee - Arthroplasty

Lateral Patella Facet Osteoarthritis is Not Contraindicated for Medial UKA: Mean 10-Year Outcomes and Survivorship

Abstract ID# 23460
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Summary: LFPOA is not a contraindication for fixed bearing medial UKA. Patient selection utilizing a specific clinical and radiographic algorithm resulted in excellent outcomes in patients with LFPOA with a patelloplasty at a mean of 10 years. There were no differences in survivorship or outcomes when comparing patients within our control group to those with LFPOA.

Data:
Background: Recent consensus statements have suggested that lateral facet patellar osteoarthritis (LFPOA) should be a contraindication for medial UKA due to poor postoperative functional outcomes and continued pain postoperatively. The purpose of this paper was to determine if LFPOA was related to lower survivorship or patient reported outcomes following medial UKA. Methods: One hundred forty-four medial UKAs were performed by a single surgeon and included in the study. All patients were selected with a specific clinical and radiologic patient selection algorithm developed by the senior author. Prior to UKA, all patients underwent knee arthroscopy for research purposes. The patella was examined and the chondral damage of the patellofemoral joint including the medial and lateral patellar facets was recorded in a prospective database. LFPOA was defined as Outerbridge grade 3 or 4 of the lateral patella facet. A patelloplasty was performed in all patients. All patients completed follow-up with clinical exam at a minimum of 5 years following UKA. In addition, patients completed subjective patient-reported outcomes questionnaires to determine Patient Acceptable Symptom State (PASS) for the KOOS subscales. KOOS ADL, KOOS Sport and KOOS QOL were used based on recent psychometric analysis. Results: One hundred nine patients did not have LFPOA and 35 patients had LFPOA. Seven of the patients with LFPOA had isolated lateral patellar facet OA, and 28 patients had both medial and lateral patellar facet OA. Patients without LFPOA were younger than those with LFPOA (63.1 vs. 69.1±10 years; p = 0.006) and there were more females in the LFPOA group (66%) compared to the patients without LFPOA (46%; p = 0.032). No patient in the LFPOA group required conversion to TKA at mean 10 year follow-up. Four patients in the control group required conversion to TKA due to technical errors (N=2) early in the surgeon’s series and traumatic falls (N=2) during sports. There was no difference in mean survival time between the 2 groups (p = 0.25). Mean survival in the control group was 9.6±[9.8±10.3] years and in the LFPOA group 10.4±[9.3±11.4] years. At mean follow-up of 10 years, there was no difference in knee flexion range of motion (without LFPOA = 129°, LFPOA = 130°; p = 0.439) or extension (without LFPOA = 146°, LFPOA = 152°; p = 0.886). There was also no difference in VR-12 PCS. PASS was achieved in 78% in the control group, and 81% in LFPOA group for KOOS ADL (p = 0.807). PASS was achieved in 82% in the control group, and 74% in LFPOA group for KOOS Sport (p = 0.441). PASS was achieved in 85% in the control group, and 88% in LFPOA group for KOOS QOL (p = 0.723). Conclusion: At a mean of 10 years, there were no differences in survivorship or outcomes when comparing patients without LFPOA versus those with LFPOA. We encourage surgeons to consider counseling patients with isolated medial compartment OA in the presence of lateral facet patella OA to proceed with a medial UKA. We believe surgeons will succeed if an accurate history is obtained and findings.

Category: Knee - Arthroplasty

Knee Range of Motion after Medial Unicompartmental Knee Arthroplasty is Associated with the Preoperative Radiographic Anteroposterior Alignment of the Entire Lower Extremity and the Sagittal Spinepelic Alignment

Abstract ID# 21267
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Summary: Patients with a greater posterior tilt of the pelvic alignment had restrictions in knee extension postoperatively, and those with a greater varus alignment of the lower extremity preoperatively had a lower knee flexion after UKA.

Data:
Introduction: Although the knee range of motion (ROM) is an important factor