



Paper #10

## Factors Associated with 20-year Cumulative Risk of Infection after Aseptic Index Revision TKA

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**Introduction:** The purpose of this study was to calculate the cumulative risk of PJI after aseptic index knee revisions and to identify the surgical, perioperative and medical comorbidity risk factors associated with deep infection.

**Methods:** We retrospectively reviewed all aseptic revision TKAs performed with condylar knee designs at our institution from 1970-2000 (n=2985). Using study criteria, 1183 knees were excluded due to previous infection, previous revision, or because a custom-type prosthesis was used to revise the failed TKA. This resulted in 1802 aseptic, index revision TKA (1615 patients) as the final cohort. The medical records of all patients were reviewed for index revision surgical information, medical comorbidities, medical and surgical complications and reasons for reoperation after index revision TKA.

**Results:** From these 1802 index knee revisions, there were 60 reoperations performed for deep infection. These infections occurred from 13 days to 18.6 years after index revision. Eighteen of the 60 infections (30%) had occurred within the first year after surgery, with 40 (67%) within 5 years, and 50 (83%) within 10 years. The cumulative risk of infection at 1, 5, 10 and 20 years after index revision was 1% (95% CI: 0.6-1.5), 2.4% (95% CI: 1.7-3.2), 3.3% (95% CI: 2.4-4.2), and 5.6% (95% CI: 3.7-7.4) respectively. Male gender (HR 2.28,  $p < .01$ ), increased constraint of the prosthesis being revised (HR 2.02,  $p < .01$ ), operative time greater than 3 hours (HR 1.73,  $p = 0.04$ ), and anesthesia time greater than 4 hours (HR 1.92,  $p = 0.02$ ) were associated with deep infection. The only medical co-morbidity at the time of index revision that showed statistically significant increased risk of infection was presence of liver disease (HR 3.12,  $p = 0.01$ ).

**Conclusion:** Following aseptic revision TKA, the cumulative risk of infection was 5.6% at 20 years. Male gender, history of liver disease and longer operative times were significantly associated with PJI.