



Paper #50

Total Joint Arthroplasty in Patients with Chronic Renal Disease: Is It Worth the Risk?

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Introduction: Chronic Renal Disease (CRD) has been previously associated with high complications after Total Joint Arthroplasty (TJA). Thus, the purpose of this study is to quantify the impact of increasing renal impairment on short-term systemic morbidity following TJA.

Methods: A large, multi-center, prospectively collected clinical registry was queried for all adult patients undergoing Total Knee and Hip Arthroplasty from 2006 to 2012. Renal impairment was quantified using pre-operative serum creatinine to calculate the estimated glomerular filtration rate (eGFR) for each patient. Propensity scores were used to match patients based on comorbidities. The incidence of 30-day morbidity and mortality were then compared between patients with none or mild renal impairment, (Stage 1,2), against those with moderate or severe disease (Stage 3,4,5: eGFR < 60).

Results: In 74,300 patients undergoing TJA, the risk of morbidity increased dramatically with worsening CRD (eGFR: $R^2=0.77$) (Figure 1). Complications were higher in patients with moderate to severe renal impairment (6.1% v. 7.6%, $p < 0.001$) (Table 2). In those with CRD (Stage 3-5), mortality was twice as high (0.26% vs 0.48%, $p < 0.001$). Major morbidity was also higher in patients with CRD: including pneumonia ($p=0.001$); unplanned intubation ($p < 0.001$); UTIs ($p < 0.001$); cardiac arrest ($p=0.005$); MI ($p=0.02$); blood transfusions ($p < 0.001$), sepsis ($p=0.01$) and septic shock ($p=0.3$). Compared with patient without CRD, patients with Stage 4 and 5 CRD had a 213% increased risk of any complication (OR 2.13, 95% CI: 1.73-2.62).

Conclusion: Our data has shown higher complication rates in those with severe renal disease. Surgeons may use these findings to discuss the risk-benefit ratio of operating on patients with significant CRD, particularly in elective cases. Policymakers should use these findings to develop risk-adjustment models that incorporate the severity of disease.
