Robotic Assisted Partial Nephrectomy in Patients with Baseline Renal Insufficiency: A Multi-Institutional Study

Introduction and Objective: Robot assisted partial nephrectomy (RPN) in the setting of renal insufficiency presents additional challenges for preservation of renal function. We evaluate outcomes of RPN in patients with renal insufficiency.
Materials and Methods: A multi-institutional analysis of prospectively-maintained databases was performed. A total of 886 consecutive patients underwent RPN by high-volume surgeons at five academic institutions between 2007 and 2011. A total of 133 patients were identified with an estimated glomerular filtration rate (eGFR) of <=60 (Modification of Diet in Renal Disease Equation). Patient demographics, perioperative outcomes, functional and early oncological outcomes of RPN in patients with renal insufficiency were evaluated.
Results: Mean patient age was 66.7 years (range 35-89), mean BMI was 31.1kg/m2 (range 16-52), mean Charlson Comorbidity Index was 4.7 (SD 2.36), mean ASA was 2.8 (SD 0.56). There were 126 patients with stage III CKD (94%), 6 patients with stage IV CKD (4.5%) and 1 patient with stage 5 CKD (0.75%). Mean tumor size was 3.2 cm (range 1.0-8.0) and mean nephrometry score was 6.8 (4-11). Eleven patients (8.3%) had solitary kidney. RPN was performed without hilar clamping in 13 patients (9.8%). Median warm ischemia time was 19.0 minutes (SD 9.66) and median OR time was 200.0 minutes (SD 55.8). Mean EBL was 212.7ml (range 10ml-1500ml). Mean hospital stay was 3.2 days (SD 2.2). Mean decrease in postoperative eGFR was 1.6% at 1 month and 3.3% at 6 months. At 1 month follow-up, CKD stage decreased in 2 patients, with one additional stage IV and one additional stage V CKD patient. There were 3 positive margins (2.25%). There were 30 postoperative complications (22.5%), with 8 patients (6%) with Clavien =>3 complications: renal insufficiency requiring dialysis (2 patients), urine leak requiring stenting (2 patients), DVT, PE, atrial flutter. Fifteen patients required blood transfusion. There were no recurrences noted at up to 13.95 months follow-up.
Conclusions: RPN is safe and feasible in the setting of renal insufficiency in appropriately selected patients and with surgeon experience. These data may be useful in counseling patients with renal insufficiency. Source of Funding: none