Transperitoneal laparoscopic radical nephrectomy for patients with dialysis-dependent end-stage renal disease: an analysis and comparison of perioperative outcome

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Objectives: To evaluate LRN as treatment for high risk patients. Laparoscopic radical nephrectomy (LRN) is performed for renal tumors not amenable to nephron-sparing treatments. Indications are increasing to include higher risk patients including those with end-stage renal disease (ESRD) necessitating dialysis.

Methods: We performed a retrospective analysis of a patient cohort with clinical stage T1 renal tumors undergoing transperitoneal LRN. Parameters examined included patient demographics, medical comorbidities, tumor characteristics, operative outcomes, and complications.

Results: One hundred eighty-nine patients underwent 195 LRN. Sixteen patients (8.5%) had preexistent ESRD requiring dialysis. A higher American Society of Anesthiologists score (P<.05), higher age-adjusted Charlson comorbidity index (P=.003), higher incidence of previous abdominal surgery (P=.012), and higher incidence of hypertension (P=.025) were found for the ESRD group. Mean blood loss was 153.0 and 132.0 mL (P=.71) in the ESRD patients and non-ESRD patients, respectively. A longer stay (P=.02) was noted for ESRD patients. Mean tumor size in the ESRD patients and non-ESRD patients was 2.6 and 4.2 cm (P<.05), respectively. Renal cell carcinoma was the most common pathology in 14 of 20 (70.0%) ESRD patient renal units and 167 of 175 (95.4%) non-ESRD patient renal units (P=.001). Intraoperative and postoperative complication rates were 6.3% and 31.3% respectively for ESRD patients (P=.05), and 8.7% and 21.4% respectively for non-ESRD patients (P=.35). Most postoperative complications were minor.

Conclusions: LRN, for the treatment of renal tumors in ESRD patients requiring dialysis, is feasible and safe with acceptable intraoperative and postoperative complication rates.

Editorial Comment

Laparoscopic radical nephrectomy (LRN) has become standard of care for renal tumors not amenable to nephron-sparing surgery. LRN is a safe procedure associated with low morbidity for treatment of renal cell carcinoma.

The authors report their experience with LRN as treatment modality for renal masses in high-risk patients. Particularly, patients with end-stage renal disease (ESRD) requiring hemodialysis demonstrated little to no wound complications. Moreover, the authors demonstrated that papillary subtype RCC was more frequent in the ESRD than the non-ESRD population (30% ESRD versus 13.1% of non-ESRD patients).

The transperitoneal laparoscopic approach has shown to be safe and effective to manage high-risk patients with different techniques of CO2 insufflation.

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