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Which patient and tumor factors make radical nephrectomy appropriate treatment for suspicious cT1 renal masses?

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INTRODUCTION AND OBJECTIVE: The objective is to determine opportunities for improvement in patient selection for radical nephrectomy (RN) in and identify appropriate criteria for RN in cT1 renal masses (cT1RM) suspicious for renal cell carcinoma.

METHODS: The Michigan Urological Surgery Improvement Collaborative (MUSIC) started collecting data for cT1RM in 2017. All cT1RM patients with complete charts in the registry who had RN and a RENL score ≤ 10 were selected, and de-identified cases were individually reviewed by 8 experienced kidney surgeons. Data included age, GFR, medical comorbidities, RENL score, size, initial plan and other case details. Categories for improvement score were assigned (none=0, minor=1, moderate=2, and major=3). The scores were averaged, and cases were grouped by score (none=0, minor=0.1-1, moderate=1.1-2, major=2.1-3).

RESULTS: Of 1970 patients with cT1RM, 89 (6.0%) had RN for cT1a and 202(41%) for cT1b masses. 176 patient charts met criteria for inclusion. Overall, 39.8% (70) of cases had no room for improvement with a score of 0, 41.5% (73) had a score of minor (0.1-1). 44.3% (n=78) were cT1a and 55.7% (n=98) were cT1b. Patients on dialysis accounted for 35.7% (n=25) of the no QI opportunity group. Urologists also agreed on a score of none (0) or minor (0.1-1) for patients who 1) are elderly and/or comorbid, or anticoagulated with normal GFR, 2) cT1b and RENL score 8-10, 3) tumor not amenable to partial nephrectomy, not being amenable to biopsy or cystic masses with high RENL score 4) attempted PN with intra-operative conversion. Approximately 18.7% of the cases had moderate (1.1-2)(14.8%, n=26) or major (2.1-3)(3.9%, n=7) QI opportunities. When comparing cT1a to cT1b, there were significantly more moderate/major QI opportunities (29.5% vs. 10.2% respectively). Cases with moderate/major QI opportunities included 1) smaller and/or lower complexity tumors 2) younger patients 3) patients with CKD and 4) patients in whom surveillance or biopsy would have benefited.

CONCLUSIONS: Review of patients with cT1 renal masses who underwent RN revealed many patients in whom kidney loss could have been avoided. Although ~40% of performed RN were felt to have no QI opportunity, 44% were felt to have a minor opportunity, and more than 1 in 6 RN were felt to have moderate or major QI opportunities. Consideration for additional imaging, active surveillance, renal mass biopsy, and/or PN in T1a tumors, low and intermediate complexity T1b tumors, young patients, and patients with CKD remain central areas for QI efforts.

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