Can surgery for benign renal neoplasms be avoided completely? A retrospective quality improvement analysis within the MUSIC KIDNEY collaborative

Henry Peabody, Grand Rapids, MI, Amit Patel, Detroit, MI, Anna Johnson, Mahin Mirza, Ann Arbor, MI, Sabrina Noyes, Grand Rapids, MI, Edward Schervish, Troy, MI, Sanjeev Kaul, Royal Oak, MI, Craig Rogers, Detroit, MI, Brian Lane, Grand Rapids, MI, Alice Semonjian*, Ypsilanti, MI, for the Michigan Urological Surgery Improvement Collaborative, Ann Arbor, MI

INTRODUCTION AND OBJECTIVE: Widespread cross-sectional imaging leads to increased incidence of cT1 renal mass (cT1RM) detection. This contributes to growing numbers of surgical patients (pts) found to have non-malignant pathology (NMP) with reported rates up to 15-20%. We seek to identify opportunities for improvement in avoiding surgery in these cases and to determine the percentage of cases in which surgery for NMP cannot be avoided.

METHODS: The Michigan Urological Surgery Improvement Collaborative (MUSIC) started collecting data for cT1RM pts in 2017. All cT1RM pts within the MUSIC KIDNEY registry who had partial (PN) or radical (RN) nephrectomy for NMP were identified. Category for improvement (none=0, minor=1, moderate=2, or major=3) was independently assigned to each case by four reviewers. Opportunities for improvement were defined by the average score of four reviewers, with a score of 0 (none), 0.1-1 (minor), 1.1-2 (moderate), and 2.1-3 (major), respectively.

RESULTS: Of 1392 pts with cT1RM, 653 underwent surgery and 74 had NMP (11%). Of these, 23 (31%) were cT1b. RN was performed in 18 (24%) pts for 6 cT1a and 12 cT1b lesions. Only 6 pts had a biopsy prior to surgery, with 5 favoring oncocytoma and 1 positive for RCC. Review identified 25 cases with minor (34%), 24 with moderate (32%), and 11 with major (15%) QI opportunities. Of the 14 cases (19%) without QI opportunities, surgery was done for Bosniak III-IV cyst, AML >4 cm, poor location for biopsy, indeterminate or suspicious biopsy results, and/or resection at time of other abdominal surgery. These 12 PN and 2 RN led to a lowest possible rate of NMP of 2.1%. Specific strategies for decrease in surgical excision of NMP were identified, including use of non-interventional approaches (active surveillance or reassurance) in appropriate pts, additional imaging for indeterminate lesions, and renal mass biopsy, particularly for pts in whom radical nephrectomy is likely.

CONCLUSIONS: The MUSIC-KIDNEY statewide collaborative offers a unique platform to identify QI opportunities across practices and settings. Retrospective review of cT1 pts who underwent surgery for NMP revealed a significant number of cases in which this outcome may have been avoided, although it does not appear that NMP can be avoided entirely. Our data indicate that NMP will still be found after >2% of nephrectomies, even with optimal management. Moving forward, awareness and implementation of repeat imaging, renal mass biopsy, and surveillance may decrease the rates of unnecessary interventions for NMP.

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