Partial versus radical nephrectomy for renal tumours ≤7 cm: The debate continues

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Over the last decade, the management of T1 renal tumours has shifted in favour of partial nephrectomy (PN). Current guidelines recommend PN for most stage T1a and some T1b renal tumours. Evidence supporting a survival benefit with PN compared with radical nephrectomy (RN) has been based primarily on retrospective analysis of institutional or population-based data. The only randomized phase III trial was reported by the European Organization of Research and Treatment of Cancer (EORTC) in 2011 which demonstrated that PN has no survival benefit over RN in patients who had adequate renal function with solitary renal tumours ≤5 cm after a median follow-up of 9.3 years.[1] Although this study has been criticized for its non-inferiority design, disparities in comorbidities, and crossover between the two arms, it does remain the highest level of evidence published on this subject. While it is clear that PN is associated with less incidence of renal compromise compared to RN, it remains unclear whether this translates to improved quality of life or survival benefit. Surgically induced chronic kidney disease (CKD) does not behave like CKD induced by systemic medical illness. In a secondary analysis of the EORTC randomized trial, events that are associated with quality of life, such as kidney failure or cardiovascular compromise, were not in favour for the PN arm.[2] Although patients with PN had decreased incidence of moderate renal dysfunction, PN was not associated with reduced incidence of kidney failure or need for dialysis. Furthermore, the frequency of fatal cardiovascular events was less in the RN arm.

The collaborative network from CKCis has compiled retrospective and prospective data on patients treated with RN and PN across Canadian academic centres. In the current report, Lavallee and colleagues showed that almost all pT1a and most pT1b tumours in 13 institutions were treated with PN, a practice comparable to high-volume tertiary care centres in the United States.[3] They also noted that the use of PN in academic centres have increased over the years. Whether there are any differences in the practice patterns or a shift in the utility of PN across Canadian non-academic centres during the more recent years requires further investigation.

Unexpectedly, the authors also demonstrated that the use of PN versus RN appears to occur independent of patient age, body mass index, hypertension, and renal function which may indicate that urologists are performing PN based solely on tumour factors. The authors acknowledged the lack of availability of other relevant tumour characteristics, such as tumour location, proximity to the collecting system, and endophytic or exophytic property. Had this information been available, the integration of a scoring system, like the PADUA, RENAL, Centrality index, the RTII score, or the CSA scores in their analysis, may have quantified the degree to which surgeons are performing complex PN.

Should PN be offered to all patients 'whenever technically feasible'? In contrast to the findings by Lavallee and colleagues, we still believe that factors, such as comorbidities, age, and baseline renal function, should remain critical in the evaluation for PN versus RN since complications of a complex PN are significantly higher than those of laparoscopic RN.

Although common sense favours preservation of kidney function especially with smaller tumours where a significant number are either benign or have less aggressive behaviour, the obsession in achieving ever-higher rates of PN with highly complex tumours in patients with normal renal function may have waned following the publication of the EORTC trial. In fact, one wonders at times whether the dogmatic approach for "PN at all measures" that has been advocated by some surgeons is aimed solely in the patient's best interest or also as a demonstration of the surgeons' technical prowess or a centre being on the "cutting edge of technology."

Would the dissemination of daVinci robot influence such practices in Canada? A minority of patients treated by PN within CKCis were robotic-assisted. One can argue that the surgical skill set, learning curve, and complications may be less with a robotic-assisted PN versus laparoscopic PN.[4] Some studies have also demonstrated that the mere presence of robotic surgery in the hospital is associated with a higher use of PN.[5] As robotic surgery becomes more widely integrated in academic centres across Canada, it would be interesting to evaluate whether it would further influence surgical approach for T1 tumours in the upcoming years.

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References

1. Van Poppel H, Da Pozzo L, Albrecht W et al. A prospective, randomized EORTC intergroup phase 3 study comparing the oncologic outcome of elective nephron-sparing surgery and radical nephrectomy for low-stage renal cell carcinoma. *Eur Urol* 2011;59:543-52. http://dx.doi.org/10.1016/j.eururo.2010.12.013
2. Scosyrev E, Messing EM, Sylvester R et al. Renal function after nephron-sparing surgery versus radical nephrectomy: results from EORTC randomized trial 30904. *Eur Urol* 2014;65:372-7. http://dx.doi.org/10.1016/ j.eururo.2013.06.044
3. Lavallee L, Tanguay S, Jewett M, et al. Surgical management of stage T1 renal tumours at Canadian academic centers. *Can Urol Assoc J* 2015;9:99-106. http://dx.doi.org/10.5489/cuaj.2598
4. Choi JE, You JH, Kim DK et al. Comparison of Perioperative Outcomes Between Robotic and Laparoscopic Partial Nephrectomy: A Systematic Review and Meta-analysis. *Eur Urol* 2015;67:891-901 http://dx.doi.org/10.1016/j.eururo.2014.12.028
5. Kardos S, Shuch B, Schulam P et al. Association of partial nephrectomy and presence of robotic surgery for kidney cancer in the United States. *J Clin Oncol* 2014;32:(suppl 4; abstr 484).

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