

Renal radiosurgery: cautious optimism

Lee E. Ponsky, MD

Department of Urology, University Hospitals Case Medical Center, Cleveland, Ohio, USA

Referring to the article published on pp. 6944-6949 in this issue

PONSKYLE. Renal radiosurgery: cautious optimism. *Can J Urol* 2013;20(5):6950.

Nair and colleagues are to be commended for reporting the initial Canadian experience evaluating the use of the CyberKnife for inoperable renal tumors.¹ Three patients were treated with radiosurgery, two of the patients had solitary kidneys and the third had prior radiofrequency ablation. The patients were treated with 39 Gy in 3 fractions. Mean tumor size was 21.3 cm³. Mean follow up was 13.3 months. The authors present no acute or chronic toxicities, unaffected renal function and local tumor control in all patients. In the follow up period two patients had stable disease and one had a partial response. While this is encouraging and this technique shows significant promise, we still need to be extremely critical of this approach to renal tumors. Uzzo's group have previously described that the average growth rate of an untreated renal mass is approximately 0.28 cm/year with progression to metastatic disease occurring approximately 1% during follow up. Twenty-six percent to 33% of renal tumors have also been shown to have no growth over a 29 month median follow up.^{2,3} The challenge with treating renal tumors is that the bar is set high regarding safety and efficacy. Minimally invasive approaches including radiofrequency ablation, cryoablation, laparoscopic and robotic partial nephrectomy, and now in appropriately selected patients, active surveillance have been shown to be good options for patients with small renal masses. There is no question that there is a role for a new non-invasive ablative technology that does not require anesthesia, such as radiosurgery, to treat renal tumors. However, such a technology needs to achieve at the least the same efficacy of the current treatment options with the additional advantage of being less invasive and less morbidity. Pathologic

evaluation after treatment also needs to be assessed. We need to ensure radiographic response matches that of pathologic response. Our group agrees with the authors that radiosurgery with technologies such as the CyberKnife and others, may potentially offer such advantages. Although the current technique requires the percutaneous placement of a fiducial marker in or near the tumor to track the movement of the target, perhaps future technologies will not require this. It is critical that we continue to evaluate such new techniques and technologies and ensure as surgeons we are involved in the evaluation and defining the appropriate use of such technologies. It is important to point out, a partial nephrectomy or cryoablation that achieves 'partial response' is still considered a 'failure'. We need to hold all techniques to the same standards of evaluation and definition of success or failure. Our group, as well as others, are completing dose escalation trials to appropriately define the ideal dose schedules that should be used to ensure an efficacy equivalent to a partial nephrectomy with less toxicity. We are cautiously optimistic with the authors work and look forward to continued critical evaluation of this exciting new direction. □

References

1. Nair VJ, Szanto J, Vandervoort E et al. CyberKnife for inoperable renal tumors: Canadian pioneering experience. *Can J Urol* 2013; 20(5):6944-6949.
2. Chawla SN, Crispen PL, Hanlon AL, Greenberg RE, Chen DY, Uzzo RG. The natural history of observed enhancing renal masses: meta-analysis and review of the world literature. *J Urol* 2006;175(2): 425-431.
3. Kunkle DA, Crispen PL, Chen DY, Greenberg RE, Uzzo RG. Enhancing renal masses with zero growth during active surveillance. *J Urol* 2007;177(3):849-853.

Address correspondence to Dr. Lee E. Ponsky, Department of Urology, University Hospitals Case Medical Center, 11100 Euclid Avenue, Cleveland, OH 44106 USA