Nature Reviews Urology **10**, 251 (2013); published online 26 March 2013; doi:10.1038/nrurol.2013.57

SMALL RENAL MASSES

Troubling nephrectomy trend data

New research demonstrates that, although the utilization of nephron-sparing modalities increased in the USA over the period 1998–2008, radical nephrectomy still made up the majority of procedures and, worryingly, patients with chronic kidney disease (CKD) were more likely to undergo radical nephrectomy than a nephron-sparing approach. Ithaar Derweesh and colleagues at University of California San Diego School of Medicine report this concerning discovery in *BJU International*.

Nephrectomy trends have been the subject of much discussion in recent years as the small renal mass has emerged as something of a clinical puzzle. The increased detection of localized renal tumours in combination with accumulating evidence of the association between radical nephrectomy and the risk of developing stage IV CKD has resulted in a shift toward renal preservation. In fact, CKD is generally considered a definitive indication for nephron-sparing surgery owing to the deterioration in glomerular filtration rate (GFR) that patients experience after renal surgery.

Derweesh and team analysed the utilization trends of radical nephrectomy and nephron-sparing procedures (encompassing partial nephrectomy and thermal ablation techniques) using procedure codes in the Nationwide Inpatient Sample (NIS) between 1998 and 2008. In 1998, thermal ablation (cryoablation or radiofrequency ablation) represented 3.7 per 100,000 admissions, partial nephrectomy accounted for 9.0 per 100,000 and radical nephrectomy, 87.1 per 100,000. All procedures significantly increased in number over the following decade, and although nephron-sparing treatment increased at a faster rate than radical surgery (1,424 versus 1,142 cases per year), the latter was still the most popular option (67% of all cases in 2008).

The investigators were looking for factors that could predict treatment choice when they made the surprising discovery that patients with a diagnosis of CKD were more likely to undergo radical nephrectomy than nephron-sparing surgery (odds radio 1.88; $P<0.001$). Even after adjusting for demographic, clinical and hospital-related variables, patients with pre-existing CKD had a higher probability of losing a kidney. Although there are a number of reasons why some lesions might be unsuitable for nephron-sparing treatment (including tumour location and patient comorbidities), it is hard to understand why these patients who would benefit most from renal preservation did not receive it. The investigators are careful to point out that there are inherent limitations associated with using the NIS database, which prevent the identification of potential confounding factors or biases, and make further investigations necessary. "We have finished a follow-up project that examines the potential impact of the AUA guidelines for management of the clinical stage I renal mass," says Derweesh, "and we are continuing to examine the factors associated with treatment modality, as well as the incidence of cardiovascular and metabolic sequelae following renal surgery."

A similar trend (increased use of nephron-sparing surgery but radical nephrectomy remaining the most common approach) was reported by Keith Kowalcyzyk and colleagues in their population-based study over the period 2005–2007. Kowalczyk *et al.* sought to clarify whether partial nephrectomy has a survival advantage over radical surgery, reporting overall mortality rates of 13.7% for partial nephrectomy and 27.5% for radical nephrectomy ($P=0.002$). "I did expect to find this overall mortality benefit for partial nephrectomy given the medical and renal function benefits of nephron sparing," Kowalcyzk told *Nature Reviews Urology*. "I would hope that these results encourage the development of large randomized controlled trials that can fully explore the survival benefit of nephron-sparing surgery."

Sarah Payton

Original article Woldrich, J. M. *et al.* Trends in the surgical management of localized renal masses: thermal ablation, partial and radical nephrectomy in the USA, 1998–2008. *BJU Int.* doi:10.1111/j.1464-410X.2012.11497.x

Further reading Kowalczyk, K. J. *et al.* Comparative effectiveness, costs and trends in treatment of small renal masses from 2005 to 2007. *BJU Int.* doi: 10.1111/j.1464-410X.2012.11776.x