Management of Small Renal Masses in the Older Adult

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KEYWORDS

• Small renal mass • Kidney cancer • Renal cell carcinoma • Active surveillance
• Partial nephrectomy

KEY POINTS

- Small renal masses (SRMs) in older adults are common and usually found incidentally. Although many SRMs are benign, the vast majority are malignant.
- In older patients, the SRM poses a challenge because the treatment paradigm has to strike the balance between competing comorbidities and a lethal cancer.
- Small renal cancers are heterogeneous. The current armament includes nomograms, imaging data, and biopsy data to make clinical decisions. Further genetic research may help differentiate lethal and indolent cancers.
- Active surveillance (AS), partial nephrectomy (PN), radical nephrectomy (RN), cryoablation (CA), and radiofrequency ablation (RFA) are all options in management of SRMs.
- PN confers oncologic outcomes similar to RN and potentially improves survival because of lower risk of chronic renal disease and cardiovascular disease

INTRODUCTION

SRMs in older adults are common and usually found incidentally. They are found on computed tomography (CT), MRI, and renal ultrasonography (RUS). Although many SRMs are benign, the vast majority are malignant. Early detection and treatment is a victory in any cancer scenario. However, in older patients, the SRM poses a challenge because the treatment paradigm has to strike a balance between competing comorbidities and a lethal cancer.

There is relevant debate about the clinical use of percutaneous renal mass biopsy to differentiate benign and malignant tumors, as well as low-grade and high-grade cancers. PN, mainly via robot-assisted technique, has gained favor over RN as the intervention of choice. PN provides similar oncologic outcomes while potentially

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Clin Geriatr Med 31 (2015) 603–613
http://dx.doi.org/10.1016/j.cger.2015.06.005 **geriatric.theclinics.com**
0749-0690/15/$ – see front matter

improving survival because of lower risk of renal insufficiency and cardiovascular disease. CA and RFA are also viable treatment options and have a role to play in patients who desire treatment but either are not suitable surgical candidates or prefer not to have a surgical intervention.

AS is gaining favor and will play a stronger role in management of SRMs. This approach is suitable for the older patient as it provides a way to manage risk of a potentially lethal cancer with other competing causes of death. Recognition of tumor heterogeneity has become a marquee stamp of the latest advancements in cancer research. Small renal cancers need such advancement so one is best able to differentiate the patients who benefit most from intervention from those in whom intervention does not affect quality or quantity of life.

This review focuses on the population of adults older than 65 years. For the purposes of this article, a broad definition of SRM is used, which is an incidentally detected, asymptomatic, solid renal mass 4 cm or less. As mentioned, many SRMs can be benign, but most are renal cell cancers with clinical stage T1a (cancer localized to kidney and $\leq$4 cm). Therefore, when first examined radiographically, the SRM is considered a cancer until proven otherwise. This article considers the epidemiology of renal cancers in general and focuses on the older population, diagnosis and evaluation of a small renal cell cancer, tumor biology and growth kinetics, and treatment.

EPIDEMIOLOGY

Renal cell carcinoma (RCC) represents the eighth most common malignancy and third most common urologic malignancy. The estimated new cases in 2014 were 63,920, accounting for 3.8% of all new cancer cases. The estimated deaths were 13,860, accounting for 2.4% of all cancer deaths. The 5-year survival is 72.4%. But when broken down by stage, it is 92% for localized disease, 65% for regional disease, and 12.1% for distant disease. Median age at diagnosis is 64 years; however, almost 48% of cases are diagnosed in patients 65 years or older. Median age at death is 71 years, with almost 40% of deaths occurring in patients 75 years or older.[1] See **Table 1** for summary.

DIAGNOSIS

The diagnosis of SRMs is generally made on CT, MRI, or RUS. The reason for these examinations may range from abdominal pain to trauma. SRMs are incidental findings, and these tumors are generally asymptomatic and do not cause pain, hematuria, or other constitutional symptoms. Masses showing enhancement on cross-sectional imaging such as CT and MRI or solid echogenicity on ultrasound imaging are considered malignant until proved otherwise. See **Table 2** for percentage of benign pathology based on size.

Table 1
Renal cell cancer diagnosis and death by age groups

Age Group (y)	New Cases (%)	Cancer Deaths (%)
65–74	25.2	25.3
75–84	17.4	26.2
>84	5.7	15.0

Data from Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Incidence - SEER 9 Regs Research Data, Nov 2013 Sub (1973–2011) Total U.S., 1969–2012 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, Surveillance Systems Branch, released April 2014, based on the November 2013 submission.