Safety and delayed intervention rates of active surveillance for small renal masses in an elderly population

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The incidence of incidentally detected renal masses thought to represent renal cell carcinoma (RCC) has increased with widespread utilization of cross-sectional imaging, with many of these lesions being considered small renal masses (SRMs), ≤4 cm in maximal diameter (1,2). These lesions were historically treated surgically, with either radical nephrectomy or nephron-sparing surgery (NSS), or with percutaneous ablation. Over the last two decades, however, there has been a paradigm shift towards active surveillance (AS) as an initial treatment option for patients who present with SRMs, particularly in the elderly or those with significant competing risks of mortality (3). The goals of AS are to minimize overtreatment of indolent renal lesions, avoid the potential morbidity of surgical or percutaneous intervention, and to weigh the risks of disease progression/metastasis versus the risks of intervention, taking into the account the patients’ co-morbidities. Patients on AS can be offered delayed intervention based on SRM growth kinetics, competing risks, or patient preference (4). Current AUA guidelines state that AS should be considered as an option for the initial management of small solid renal masses, particularly those <2 cm in maximal diameter (5). While multiple AS cohort studies have been published in recent years documenting low rates of metastases, these have generally had short median follow-up and/or small sample sizes (6-9).

Adding to the literature, Whelan et al. recently reported results from a prospective cohort study enrolling 103 patients (median age 75) at a single center from January 2001 to December 2011 with renal masses <6 cm in maximal diameter who elected to undergo primary AS of their lesion (10). At median follow-up of 55.5 months, they found that only 17 (16.5%) patients required delayed surgical or percutaneous intervention of their lesion. Intervention was predominately due to patient preference, however 9 patients (8.7%) required treatment because of development of symptoms, or due to radiographic progression thought to represent clinically significant disease.

The group found that patients with a centrally located tumor were statistically more likely to undergo delayed intervention of their lesion (P=0.006). Mean tumor growth rate for the cohort was 0.21 cm/year, while those undergoing delayed intervention had a mean growth rate of 0.37 cm/year. Notably, 48 (46.6%) of the patients included for study died of unrelated causes at median follow-up. Fifty-three (51.5%) of patients remained on AS, and 2 (1.9%) of patients developed metastatic disease while on AS. Of the two patients who developed metastatic disease, one died of RCC, while the other died of unrelated causes.

The authors concluded that with almost 5 years median follow-up, the majority of SRMs in patients on AS in their cohort displayed indolent behavior and the risk of progression to metastatic disease was very low at 1.9%. Furthermore, almost 50% of enrolled patients died of other causes while on AS for their SRM, highlighting the importance of contextualization of competing
risks when counseling patients who present with an incidentally discovered SRM. Strengths of this study include the prospective nature and long-term follow-up. A limitation of the study is the older median age of the study population (75), which makes the findings difficult to generalize to a younger or healthier patient population.

This study adds to the previous literature showing that AS appears to be an appropriate management strategy for patients presenting with SRMs, particularly those who are elderly or have significant competing risks of mortality. In this series, the rate of progression to metastatic disease was 1.9%, which is similar to prior published reports (11).

McIntosh and colleagues recently published a retrospective, single-institution analysis of 457 patients undergoing AS for SRMs with a median follow-up of 67 months (12). They evaluated the rates of delayed intervention in the AS cohort, as well as overall survival (OS). They found that the cumulative incidence of delayed intervention after 5 years on AS was 42% (95% CI, 37–48%). OS at 5 years was noted to be 89% (95% CI, 85–92%), and delayed intervention did not appear to have an effect on OS. Eight (1.8%) patients in this cohort progressed to metastatic disease and five patients subsequently died from RCC. The discrepancy of intervention rates between Whelan and McIntosh's studies may be related to the difference in the median age of the cohorts (75 versus 70 years), as age can affect competing risks of mortality and risks of surgical intervention.

In conclusion, these data support the use of AS as an initial management strategy, particularly in the elderly or those with significant competing risks. It has now been well demonstrated that AS is safe with very low rates of disease progression (with short and intermediate term follow-up) and that delayed intervention is effective with acceptable oncologic outcomes. Current gaps in the literature include uniform selection criteria for AS, consistent imaging surveillance schedules, and criteria for definitive intervention (4). Moving forward, prospective multi-institutional registries such as the Delayed Intervention and Surveillance for Small Renal Masses (DISSRM) may be the most effective data source to identify and validate such measures across institutions which will further enable utilization of AS in community practice and reduce over treatment.

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Footnote

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