NCCN AND AUA GUIDELINES FOR RCC: DO THEY EFFECTIVELY CAPTURE RECURRENCES FOLLOWING NEPHRECTOMY?

Suzanne B. Stewart, MD¹, R. Houston Thompson, MD¹, Sarah P. Psutka, MD¹, John C. Cheville, MD², Christine M. Lohse³, Stephen A. Boorjian, MD¹, Bradley C. Leibovich, MD¹

¹Department of Urology, ²Department of Pathology, ³Department of Health Sciences Research
Mayo Clinic, Rochester, MN
Background

• Multiple protocols exist for the oncologic surveillance of RCC
  - *NCCN and AUA guidelines* are *highly recognized*
    - Protocols are *disparate*
  - *No definitive evidence* to clarify which is the most efficacious¹,²
    - As a result…
      • **Significant heterogeneity** in surveillance care³
      • **Over and underutilization of testing** for certain patient groups

Objectives

1. Evaluate the performance of the NCCN and AUA guidelines
   - How many RCC recurrences are detected when abiding by prescribed protocols

2. Summarize the total duration of surveillance required to capture 90%, 95% and 100% of RCC recurrences
Guideline Protocol

- NCCN (2013)—all patients
  - 6 months for abdominal/chest sites
  - 5yrs for bone/other sites

- AUA—stratified by stage and surgical approach
  - LR-partial (pT1N0): 3yrs for all sites
  - LR-radical (pT1N0): 1yr for abdominal and 3yrs for chest/bone/other sites
  - M/HR (≥pT2 or N+): 5yrs for all sites
Methods

- Retrospective review of Mayo Clinic Renal Tumor Registry between 1970-2008
  - N = 3,803 M0 RCC radical/partial nephrectomy
    - Median postoperative follow-up 9yrs (IQR 5.7, 14.4)
  - Mayo surveillance strategy:
    - Exam, chest/abdominal imaging, labs:
      - 3-6 months x 3yrs → 6-12 months x 2yrs → annually
Methods

- **Disease recurrence** = local recurrence or metastasis on imaging or by biopsy > 30d from surgery
  - *Only first recurrence counted* as an event
    - 1088 (29.8%) developed recurrence
    - *Median time to recurrence 1.9yrs* (IQR 0.6, 5.5; range 0.1, 38)

- Patients were stratified according to:
  - **Recurrence location**: abdomen, chest, bone and other
Number of recurrences captured by the NCCN and AUA prescribed surveillance periods

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Total ( N = 1088 )</th>
<th>By AUA Risk Group</th>
<th>By Recurrence Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LR-partial ( N = 94 )</td>
<td>LR-radical ( N = 190 )</td>
</tr>
<tr>
<td>NCCN</td>
<td>390 (35.9)</td>
<td>12 (12.8)</td>
<td>46 (24.2)</td>
</tr>
<tr>
<td>AUA</td>
<td>728 (66.9)</td>
<td>35 (37.2)</td>
<td>56 (29.5)</td>
</tr>
</tbody>
</table>

- Approximately \( \frac{2}{3} \)rd and \( \frac{1}{3} \)rd of recurrences were missed by NCCN and AUA
- Most restrictive for low risk patients and capturing abdominal relapses
2013 vs 2014 NCCN Guidelines

• 2013 NCCN—all patients
  • 6 months for abdominal/chest sites
  • 5yrs for bone/other sites

• 2014 NCCN—stratified by stage and surgical approach
  • pT1Nx/0: 3yrs for chest and 5 yrs bone/other sites
    • partial Nx: 3yrs for abdomen
    • radical Nx: 1yr for abdomen
  • pT2-3Nx/0 or pT1-3N1: 5yrs for all sites
  • pT4Nx-1: Indefinite
### Table 1. Number of recurrences captured by the 2013 and 2014 NCCN and AUA prescribed surveillance periods

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Total N = 1088</th>
<th>By AUA Risk Group</th>
<th>By Recurrence Location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LR-partial N = 94</td>
<td>LR-radical N = 190</td>
</tr>
<tr>
<td>2013 NCCN</td>
<td>390 (35.9)</td>
<td>12 (12.8)</td>
<td>46 (24.2)</td>
</tr>
<tr>
<td>2014 NCCN</td>
<td>742 (68.2)</td>
<td>36 (38.3)</td>
<td>67 (35.3)</td>
</tr>
<tr>
<td>AUA</td>
<td>728 (66.9)</td>
<td>35 (37.2)</td>
<td>56 (29.5)</td>
</tr>
</tbody>
</table>
Figure 1. Total duration of surveillance to capture 90%, 95%, and 100% of recurrences

A longer duration of surveillance appears necessary

Caption: *Estimated duration of surveillance due to the few recurrences in these groups.
Limitations

- Retrospective design
  - Mayo Clinic follow-up was not standardized
    - < 3% were lost to follow-up
- No strong evidence that surveillance → survival benefit
  - Despite this unknown, surveillance continues to remain an integral part of RCC care
Conclusions

• **First large scale** study to evaluate NCCN and AUA guidelines for RCC
  
  • *Do not comprehensively capture recurrences*
    
    • Approximately 2/3\(^{rd}\) (2013 NCCN) and 1/3\(^{rd}\) (AUA and 2014 NCCN) of all recurrences are missed
  
  • A *longer duration* of follow-up appears necessary
Thank You