Controversites: Screening for Prostate Cancer in Older Adults

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No Disclosures
General Overview

- Controversy: Media or Real?
- Patients – Tale of Two Older Men
- Reminders
- Guidelines & Trials
- Decision Making
- Practical Approach
The PCa Screening Pendulum

Screen Everyone

“Screen” Thoughtfully

Don’t Screen Anyone
Media Reports

The New York Times

Screening men for PSA has become “a hugely expensive public health disaster.”

The Journal of Immunology
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TISSUE- AND SPECIES-SPECIFIC ANTIGENS OF NORMAL HUMAN PROSTATIC TISSUE

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Received for publication December 22, 1969
Two Patients

- 75 y.o. AA man on an MVI presents for routine visit. He recently completed a 5K run to celebrate his birthday and says, “I’m in excellent health.” His brother died from cancer. He heard about the “newest guidelines” for screening saying he was “too old” for it. He wants a PSA.

- 65 y.o. man with HTN, OA, CHF (EF = 35%), and has moderate dementia. No family history of cancer. He describes himself in “fair” health. Because of his urinary incontinence and a discussion with friends, his wife requests a PSA be checked.
## Reminder - Epidemiology of Prostate Cancer

Prostate cancer is the most commonly diagnosed non-cutaneous carcinoma in men and is the second leading cause of cancer-related mortality in men.

<table>
<thead>
<tr>
<th>Prostate cancer accounts for 25% of new cancer cases in men</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 in 6 men will be diagnosed with prostate cancer in his lifetime</td>
</tr>
<tr>
<td>The median age at diagnosis is 70 years, the highest age specific incidence for any cancer</td>
</tr>
<tr>
<td>Older men often present at advanced stages of disease, and 30% will die from prostate cancer</td>
</tr>
</tbody>
</table>
### Causes of Death in Older Men After the Diagnosis of Prostate Cancer


<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>All Patients</th>
<th>Low or Moderate Grade</th>
<th>Poorly Differentiated or Undifferentiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients</td>
<td>100</td>
<td>59.1</td>
<td>13.3</td>
</tr>
<tr>
<td>Overall 5-year mortality</td>
<td>25.94</td>
<td>18.66</td>
<td>28.33</td>
</tr>
<tr>
<td><strong>Prostate cancer</strong></td>
<td>7.73</td>
<td>2.12</td>
<td>9.78</td>
</tr>
<tr>
<td><strong>Other cancers</strong></td>
<td>3.83</td>
<td>3.70</td>
<td>3.77</td>
</tr>
<tr>
<td><strong>Cardiovascular disease</strong></td>
<td>7.16</td>
<td>6.40</td>
<td>7.26</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>1.27</td>
<td>1.15</td>
<td>1.36</td>
</tr>
<tr>
<td>Hypertension</td>
<td>0.13</td>
<td>0.11</td>
<td>0.12</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>1.17</td>
<td>1.03</td>
<td>1.30</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>0.45</td>
<td>0.40</td>
<td>0.56</td>
</tr>
<tr>
<td>Renal disease</td>
<td>0.19</td>
<td>0.16</td>
<td>0.21</td>
</tr>
<tr>
<td>Liver disease</td>
<td>0.12</td>
<td>0.11</td>
<td>0.15</td>
</tr>
<tr>
<td>Influenza or pneumonia</td>
<td>0.74</td>
<td>0.60</td>
<td>0.72</td>
</tr>
<tr>
<td>Other infection</td>
<td>0.24</td>
<td>0.21</td>
<td>0.24</td>
</tr>
<tr>
<td>Alzheimer's disease</td>
<td>0.17</td>
<td>0.14</td>
<td>0.17</td>
</tr>
<tr>
<td>Accident</td>
<td>0.36</td>
<td>0.37</td>
<td>0.30</td>
</tr>
<tr>
<td>Suicide</td>
<td>0.16</td>
<td>0.13</td>
<td>0.20</td>
</tr>
</tbody>
</table>
Reminder – Mortality from Treating Early Stage Prostate Cancer

Reminder: Other Consequences

Figure 3. Prevalence of Metastases and Use of Palliative Treatment in Men Alive at Various Time Points since Randomization.
The use of gonadotropin-releasing hormone (GnRH) analogues is considered to be medical castration, and orchietomy is considered to be surgical castration.

Bill-Axelson et al, NEJM, 2014
Current Guidelines

• **Most Aggressive**
  – ESMO (2013): “screening reduces cancer-specific mortality at the expense of high overtreatment rate”
  – American Cancer Society (2014): 50+, Discuss with MD

• **Moderate**
  – SIOG (2014): “Potential screening for men with at least 10 year LE based on GA”
  – AUA (May 2013): 55 – 69, Discuss with MD; 70+ No screening

• **Least Aggressive**
  – USPSTF (May 2012): Recommend Against (May 2012)
Two Recent Randomized Screening Trials

• U.S. - Prostate, Lung, Colorectal, and Ovarian (PLCO) Trial
  – Annual screening
  – Ages 55-74

• European Randomized Study of Screening for Prostate Cancer (ERSPC)
  – Screening every 2-4 years (country-specific)
  – Ages 50-74
PLCO (U.S. Trial)

- N = 77,000
- Annual screening
- PSA & DRE vs no screening
  - Clinicians choice for treatment
  - “Cross-over” possible (85% vs 52%)
- ~10 years of follow-up
PLCO: detection & deaths

**A** Prostate Cancers

- **Screening**
- **Control**

Cumulative No. of Cases

Year

0  1  2  3  4  5  6  7  8  9  10

**B** Prostate-Cancer Deaths

- **Screening**
- **Control**

Cumulative No. of Deaths

Year

0  1  2  3  4  5  6  7  8  9  10
PLCO: Conclusions & Caveats

- No differences in disease-specific mortality
- 52% of “controls” had screening vs. 85% of “screening” group
- No entry for men over 75 years

**Recommendation**: Don’t screen anybody

**Caveats**:
- Much screening in “control” group: underpowered
- Annual screening vs less frequent intervals
ERSPC: European

- 182,000 men
- Screened every 2-4 years
- Variable follow-up
- Mean follow-up of 9 years
- Nobody over 74 enrolled
# ERSPC: Prostate Cancer Deaths

## Table 2. Death from Prostate Cancer, According to the Age at Randomization.*

<table>
<thead>
<tr>
<th>Age at Randomization</th>
<th>Screening Group</th>
<th>Control Group</th>
<th>Rate Ratio (95% CI)†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Deaths</td>
<td>Person-Yr (Death Rate per 1000 Person-Yr)</td>
<td>No. of Deaths</td>
</tr>
<tr>
<td>All subjects</td>
<td>261</td>
<td>737,397 (0.35)</td>
<td>363</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50–54 yr</td>
<td>6</td>
<td>55,241 (0.11)</td>
<td>4</td>
</tr>
<tr>
<td>55–59 yr</td>
<td>60</td>
<td>316,389 (0.19)</td>
<td>102</td>
</tr>
<tr>
<td>60–64 yr</td>
<td>76</td>
<td>191,542 (0.40)</td>
<td>95</td>
</tr>
<tr>
<td>65–69 yr</td>
<td>78</td>
<td>135,470 (0.58)</td>
<td>129</td>
</tr>
<tr>
<td>70–74 yr</td>
<td>41</td>
<td>38,755 (1.06)</td>
<td>33</td>
</tr>
</tbody>
</table>
ERSPC Conclusions

- “20% decrease in disease-specific mortality”
- Screening every 2-4 years
- Number Needed to Screen: 1 fewer death per 1,410 screened men
- No entry for men over 75

- “Recommendation”: Screening reduced disease-specific mortality, but high rate of “overdiagnosis” must be considered.
Life-Expectancy and GA
Remaining Life Expectancy by Quartile, Older Men

776,742 Men in U.S.

Age

RLE
Life Expectancy Estimation

• Physician Estimate – Accuracy & Caveats
  – Over-estimate patient RLE in isolation
  – Over-report estimate to patient on overestimate
  – Dislike offering prognosis

• Patients on physician prognostics:
  – 75% want MD to discuss life-expectancy
  – 64% (strongly) disagreed with the statement "I feel that my main doctor can correctly estimate how long I might live".

Life-expectancy Based Screening?


65-74 Year Old PSA Screening Rates, 2005 & 2010

Percent Screened

Predicted 9 Year Mortality

< 27% 27% - 52% 53% - 75% > 75%

p = 0.5 p = 0.9 p = 0.6 p = 0.8
GA Measures & Screening

Kotwal, Mohile, Dale, JGO, 2012
Why?
Doctor Visits and Patient Anxiety

Kotwal, Mohile, Schumm, Dale, Med Care, 2013
Physician Says…

<table>
<thead>
<tr>
<th>Probability of 9-Year Mortality Before 2010 Survey</th>
<th>Physician Recommended PSA Screening</th>
<th>Physician Discussed Advantages</th>
<th>Physician Discussed Disadvantages</th>
<th>Physician Discussed Controversy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened men aged ≥75 y</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;53%</td>
<td>96.3 (91.1-101.6)</td>
<td>54.1 (38.9-69.3)</td>
<td>21.8 (9.4-34.2)</td>
<td>18.3 (5.9-30.7)</td>
</tr>
<tr>
<td>Total no. of men</td>
<td>52</td>
<td>29</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>≥53%</td>
<td>94.2 (90.6-97.9)</td>
<td>55 (45.3-64.8)</td>
<td>24.7 (16.5-33)</td>
<td>23.1 (15.2-31.1)</td>
</tr>
<tr>
<td>Total no. of men</td>
<td>159</td>
<td>85</td>
<td>41</td>
<td>33</td>
</tr>
<tr>
<td>Unscreened men aged ≥75 y</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;53%</td>
<td>61.6 (49.3-73.9)</td>
<td>25.7 (13.4-38.1)</td>
<td>16.6 (7-26.2)</td>
<td>13.7 (4.2-23.2)</td>
</tr>
<tr>
<td>Total no. of men</td>
<td>33</td>
<td>16</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>≥53%</td>
<td>53.8 (47.4-60.1)</td>
<td>33.9 (27.2-40.6)</td>
<td>18.4 (13.2-23.6)</td>
<td>12.1 (7.5-16.7)</td>
</tr>
<tr>
<td>Total no. of men</td>
<td>145</td>
<td>87</td>
<td>48</td>
<td>31</td>
</tr>
</tbody>
</table>

Abbreviation: CI, confidence interval.

Strategy
Framework for Screening for Prostate Cancer in Older Adults

• **Possible Benefits**
  – 10 year life expectancy
  – Disease-specific mortality

• **Possible Harms**
  – Toxicity from detection screening/biopsy
  – Overtreatment
  – Psychological morbidity (e.g. Anxiety)

• **Preference/Values/Policies**
  – Many men (or partners) still **want** screening
  – **Less** want screening when given more information
  – Institutional policies and incentives
Practical Guide

• **Default:** Don’t consider screen if less than 10 year LE

• Determine: prostate cancer baseline risk

• Determine: aging baseline risk (i.e. LE)

• Describe: follow-up with patients up-front

• Discuss: values and preferences
Case Recommendations

Case 1: 75 yo runner with a family history of prostate cancer
- RLE: health status “excellent”: > 10 years
- Risk group: higher risk (AA, fam hx)
- Benefits: likely mortality/morbidity benefit from treatment
- Harms: biopsy, treatment side effects
- Preferences: Wants screening
- Recommendation: **Screen**

Case 2: 70 yo with CHF and mild-moderate dementia
- RLE: < 7 years
- Risk Group: normal
- Benefits: mortality benefit unlikely
- Harms: biopsy, treatment side effects
- Preferences: Wants screening
- Recommendation: **No Screen**
Thanks!

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http://www.uchospitals.edu/specialties/cancer/geriatric-oncology/