Radiation Therapy in Senior Adults with Localized PCa

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Conflicts of interest
• Invited speaker/Advisory boards
  ◦ Sanofi
  ◦ Pfizer
  ◦ Janssen
  ◦ Astra Zeneca

• Conferences/Meetings
  ◦ Sanofi

Risk-Benefit analysis

Life expectancy in senior adults

Conservative management: 10-year mortality data
High risk older patients die of their prostate cancer

Older men have more aggressive tumours
But a minority of older men receive curative therapy even if high risk disease

Low-intermediate risk PCa

**Adjuvant ADT**

**Actions**
- Reduces prostate volume
- Treats micrometastases
- Augments local control:
  - Additive?
  - Synergistic?

**Neoadjuvant ADT**

<table>
<thead>
<tr>
<th>Volume (mL)</th>
<th>0/12</th>
<th>3/12</th>
<th>6/12</th>
</tr>
</thead>
<tbody>
<tr>
<td>924</td>
<td>810</td>
<td>765</td>
<td></td>
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**EBRT + short-course of ADT in high-risk PCa**

**Evans** et al. JAMA 2008;299:93-95

**EBRT + long-course ADT in high-risk PCa**

**D’Amico** AV et al. JAMA 2008;299:93-95

ADT confers no survival benefit in patients with moderate to severe comorbidities

**High-risk PCa**

**SPCG-7/ SFUO-3**

**Intergroup PR3 / PR07**

**ADT**

**Actions**
- Reduces prostate volume
- Treats micrometastases
- Augments local control:
  - Additive?
  - Synergistic?
EBRT dose escalation and ADT

### Meta-analysis

<table>
<thead>
<tr>
<th>Dose</th>
<th>RT</th>
<th>RT + ADT</th>
<th>P Value</th>
</tr>
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<tbody>
<tr>
<td>70-Gy</td>
<td>41%</td>
<td>12%</td>
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<td>81-Gy</td>
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<td>8%</td>
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### MD Anderson

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**Concerns regarding long-term ADT**

#### Toxicity
- Decreased bone mineral density
- Insulin resistance
- Loss of muscle mass
- Fatigue
- Hot flushes
- Erectile dysfunction
- Loss of libido

#### Management
- Evidence-based ADT use
  - Address:
    - Diabetes
    - Cholesterol
    - Hypertension
    - Physical exercise +++

**Evolution of radiotherapy**

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**Evolution of radiotherapy**

**No increased GU/GI toxicity with age**

<table>
<thead>
<tr>
<th>GU/GI toxicity²</th>
</tr>
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<tbody>
<tr>
<td>(grade ≥ 2)</td>
</tr>
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<td>Acute GU</td>
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**Erection quality²**

(Firm enough for sexual intercourse)

<table>
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<th>Before treatment</th>
<th>After 24 months</th>
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<td>Acute GU</td>
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26/10/2012
Evolution of radiotherapy

3D-CRT       IMRT

Images courtesy of Radiotherapy, Medical Physics Library and St Thomas’ NHS Foundation Trust.
3D-CRT: three-dimensional conformal radiation therapy.
IMRT: intensity-modulated radiation therapy.

Image-guided radiotherapy

Fiducial markers     Cone-beam CT

Images courtesy of Radiotherapy, Medical Physics Library and St Thomas’ NHS Foundation Trust.
Cone-beam CT: computed tomography.

Conclusions (1/2)

- Radical RT plus ADT should be considered for
  - Senior adults with intermediate- and high-risk localised PCa
  - After careful assessment of disease (risk) and comorbid factors
- Duration of ADT?

Low Risk: Short course ADT?       Medium Risk: Short course ADT       High Risk: 3 years ADT

Conclusions (2/2)

- Long-term adverse events of RT preferable to effects of:
  - Disease progression (if left untreated)
  - Risks associated with surgery (general anesthesia, incontinence)
  - Long-term ADT alone (increased incidence of metabolic disorders)
- New developments of treatment delivery
  - IMRT/IGRT
  - Potential to reduce toxicity
- Hypofractionated courses of RT
  - More convenient for older patients

Images courtesy of St Thomas’ NHS Foundation Trust.
IGRT: image-guided radiation therapy.
RT: radiation therapy.
ADT: androgen deprivation therapy.
IMRT: intensity-modulated radiation therapy.