Skeletal and cardiac late effects in prostate cancer patients

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Overview

• What hormones are used in prostate cancer,
• When they are used,
• Effect on fracture events,
• Effect of cardiac events,
   – whether a diagnosis of prostate cancer affects surgery rates,
• and conclusions.
Hormone therapy and prostate cancer - what

• Testosterone drives prostate cancer growth, so hormones work to stop the effect of testosterone by either:
  – Blocking a different hormone that stimulates testosterone production (the GnRH analogue/LHRH antagonist treatments)
  – Blocking testosterone binding with the tumour (anti-androgen treatments)

• Well publicised side effects are:
  – Hot flushes/sweating
  – Impotence
  – Weight gain

Hormone therapy and prostate cancer - when

• ‘Adjuvant hormonal therapy is recommended for a minimum of 2 years in men receiving radical radiotherapy for localised prostate cancer who have a Gleason score of ≥ 8.’
• Generally not recommended for relapse, except in aggressive/advanced cases.
• In advanced cases, 3-6 months neoadjuvant HT is recommended when radical radiotherapy is chosen. (Gleason 8 advice applies).
• Generally for men presenting with metastatic disease.

NICE CG58 Guidance
Evidence of adverse effects


- Cancer 2007; 110; p1493 – "Newly diagnosed prostate cancer patients who received ADT for at least 1 year were found to have a 20% higher risk of serious cardiovascular morbidity compared with similar men who did not receive ADT. Subjects began incurring this higher risk within 12 months of treatment."

- Are the same effects seen in England? How does this compare to background population?

Diagnosis patterns

Diagnoses of prostate cancer in England 2004-07, by age band and hormone therapy status
Diagnosis patterns

• For each age, proportion of HT increases at older ages: 37% for 70-74 year olds

Skeletal events

• Men diagnosed with PCa from NCDR, linked to HES for 2004-07.
• Men are flagged if they have received any hormone therapy at any point, BUT will probably be some overlap between the HT/non-HT groups.
• Looking for admissions with a S*2 ICD10 code – specific fractures, or certain T codes for multiple fractures.
• Fracture admissions for all men in England for same time period used as age-specific background.
• Rates for prevalent population (1990 onwards) / total population.
Skeletal events - results

• At ages 55 upwards, men having hormone therapy have higher rates of admission for fractures compared to general population. 2.4 times at age 75-79.
• For the same age group, men having hormone therapy have higher rates of admission for fractures compared to the total of prostate cancer patients.
• At age 70 and older, total prostate cancer patients have higher rates of admission for fractures compared to background population.
  – but at some younger ages this is lower.
Skeletal events - results

- The average time between diagnosis and first admission is shorter in hormone therapy patients than for all prostate cancer patients.
- However, this is predominantly affected by 80+ age groups – at ages 55 to 74 the time is shorter in the overall group of prostate cancer patients.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Hormone patients</th>
<th>All patients</th>
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<tbody>
<tr>
<td>50</td>
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<td>All</td>
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Cardiac events

- Men diagnosed with PCa from NCDR, linked to HES for 2004-07.
- Looking for admissions with a I20-I28, I30-I52 ICD10 code – various heart diseases.
- Men are flagged if they have received any hormone therapy at any point, BUT will probably be some overlap between the HT/non-HT groups.
- Cardiac admissions for all men in England for same time period used as age-specific background.
- Rates for prevalent population (1990 onwards) / total population.
Cardiac events - results

- At all ages, men having hormone therapy have higher rates of admission for cardiac events compared to general population. Over 4 times at age 50-54.
- Also, men receiving hormone therapy have higher admission rates than the total of men diagnosed with prostate cancer.
- At all ages, total prostate cancer patients have rates of admission for cardiac events which are close to the background population (within a few percent).
Cardiac events - results

- The average time between diagnosis and first admission is shorter in hormone therapy patients than for all prostate cancer patients.
- This is consistent at ages 70+, with no difference at younger ages.

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Conclusions and discussion

- Prostate cancer patients have a generally higher rate of admissions for fractures, and this is even higher in those who have received hormone therapy
  - Evidence on bisphosphonates mixed; not currently recommended

- Those treated with hormone therapy are at increased risk of admission for cardiac events
  - Awareness, diet and exercise
Thanks for your attention!

- Prostate cancer patients have a generally higher rate of admissions for fractures, and this is higher again in those who have received hormone therapy
  - Evidence on bisphosphonates mixed; not currently recommended
- Those treated with hormone therapy are at increased risk of admission for cardiac events
  - Awareness, diet and exercise