PROSTATE CANCER

Dr Joseph Ischia
MBBS, PhD, FRACS (Urol)
University of Melbourne,
Austin Health
Outline

- What is prostate cancer?
- Epidemiology
- Diagnosis
- Staging
- Treatment options
- Outcomes
Commonest diagnosed cancer:
- 19,233 new diagnoses in Australia in 2013

3rd commonest (2nd among men) cause of death in Australia:
- 3102 deaths in 2014
- 13% of all cancer deaths

Increasingly common with age:
- ~80% @ age 80y, very rare <40y
The Prostate Gland

- Deep in the pelvis
- Below the bladder
- In front of the rectum
- Behind the pubic bone
- Surrounds the urethra
Diagnosis

 ✦ Symptoms (rare):
   ★ Urinary blockage or bleeding
   ★ Bone or other pain, fractures
   ★ Weight loss, tiredness

 ✦ Asymptomatic screening (common):
   ★ PSA (prostate-specific antigen) test
     ★ Individual, not population-wide
   ★ Prostate examination (DRE)
The PSA Test

- PSA testing has led to much earlier detection of cancer than in past decades.

- PSA *is* an effective test for following the disease in men diagnosed with prostate cancer.

- Measuring PSA will be an important part of the patients follow-up.
Diagnosis

❖ Pathological confirmation:
   ★ Biopsy (transrectal or transperineal)

❖ Staging
   ★ Prostate examination
   ★ MRI / CAT scans
   ★ Bone scans

❖ Grading: pathologist’s examination
MRI

- Best way to image the prostate
  - Sensitivity around 70%
  - Specificity of 85%
TRUS biopsy prostate
Transperineal biopsy

- Biopsy needle to take samples from the prostate
- Catheter in urethra
- Ultrasound probe in rectum for needle guidance
- Template to aid accurate placement of biopsy needle
Transperineal biopsy

Advantages
- Better coverage of prostate (especially anterior zone)
- Lower risk of sepsis (0.3% cf 2-4%)
- Better control with fusion technology

Disadvantages
- Takes longer (includes general anesthetic)
- Higher rate of acute retention (1%)
Gleason Score

Nearly normal arrangement of cells

Highly abnormal arrangement

These two numbers are added to give an overall **Gleason Score** (e.g., 3+4=7)
Treatments: options

✦ Observation

✦ Local treatment for cure:
  ★ Surgery
    ★ radical prostatectomy
  ★ Radiation
    ★ external beam
    ★ brachytherapy

✦ Non-curative treatment:
  ★ Hormone (androgen) deprivation
  ★ Chemotherapy
  ★ Symptom control
Suitable for:
- Older / frail or unwilling men
- Low-risk prostate cancer

Two different strategies
- **Watchful waiting:** observation until metastatic hormonal deprivation
- **Active surveillance:** close monitoring, delayed curative treatment if needed
Active surveillance

- “Deferred treatment” - possibly forever -
  - 40% progress to curative treatment
    - UPGRADED at biopsy
    - Also rising PSA/anxiety/change in DRE
- 97-100% 15 year CSS
Active Surveillance

- SO, HOW IS IT ACTIVELY SURVEYED?
  - Check-ups & DRE with your urologist
  - Repeat PSA (every 3 months)
  - Repeat biopsy (every few years)
WHAT DETERMINES WHEN TREATMENT IS NECESSARY?

Changes in DRE, PSA, or biopsy results

Patient choice
Treatments: surgery

Suitable for:
- Younger, fitter men (10y life-expectancy)
- Non-metastatic prostate cancer

Various techniques
- **Open**: long experience, allows touch
- **Laparoscopic**: technically demanding, minimally invasive at moderate cost
- **Robotic**: technically easier than lap, 3D vision, greater degrees of freedom of instruments, but higher costs
Radical prostatectomy

- Retropubic radical prostatectomy ("OPEN")
PROSTATECTOMY
(Surgical removal of the prostate)

- **Common Side Effects and Risks**
  - Erectile Dysfunction: 50-90/100 men—usually treatable, but may take >1 year to recover
  - Incontinence (stress): 5/100 men—usually treatable
  - Blood transfusion: 1-10/100 men

- **Less Common**
  - Severe incontinence: <1/100 men
  - Bladder neck scarring: 1-3/100 men
  - Rectal Injury: rare
Robotic Prostatectomy

- *da Vinci*® Surgical System
  - State-of-the-art robotic technology
  - 3-D Visualization
  - Intuitive movements for the surgeon
The surgeon directs the instruments

- Surgeon directs the instrument movements using Console controls.
Radiation treatment

- Brachytherapy
- External beam
Hormone-deprivation

✿ Uses:
  ✪ Added to radiation or surgery for high-risk cancer
  ✪ By itself for metastatic cancer

✿ Methods:
  ✪ Surgery (bilateral orchidectomy)
  ✪ Medication
    □ LHRH agonist (suppress hormones)
    □ Anti-androgen (block hormones)
Hormone-deprivation

- Side-effects
  - Hot flashes
  - Tiredness, mental changes
  - Loss of libido, impotence
  - Weight gain, cardiac risk
  - Loss of muscle
  - Osteoporosis

- Ultimately cancer always becomes resistant (hormone-refractory)
Treatments: beyond ADT

- Cytotoxic chemotherapy
  - Docetaxel, Cabazitaxel
- New hormonal therapy
  - Abiretarone, Enzalutamide
- Bone-active agents
  - Zoledronic acid, Denosumab,
  - Radium-223
- Immunotherapy
  - Sipuleucil-T
What Can I Do To Help Myself?

- Diet?
- Smoking?
- Exercise?
- Weight Loss?
Bone Health

- 30-40% of men with prostate cancer have thinning of the bones (i.e., osteoporosis/osteopenia)
  - Calcium 1200 mg/day
  - Vitamin D 600 IU/day
  - Weight bearing exercise
- Talk to your treating physician about whether you should get a baseline bone density test.
What Can I do to Help Myself?

- **Cardiovascular Health**
  - ADT increases risk of heart disease and diabetes. This risk needs to be monitored and, if necessary, medically managed.
  - Monitor weight and blood pressure, plus cholesterol and lipids via blood tests.

- Again...exercise!
Thank you
When can exercise help?
Observation

Local treatment for cure:
- Surgery
  - radical prostatectomy
- Radiation
  - external beam
  - brachytherapy

Non-curative treatment:
- Hormone (androgen) deprivation
- Chemotherapy
- Symptom control