Trends in Prostate Cancer

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Canada Life Reinsurance

Metropolitan Underwriting Discussion Group Annual Meeting

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Prostate Cancer is Common

Rudy Giuliani
Dx’d age 55
FH+
Tx’d with hormones, radiation and seeds

Frank Zappa
Dx’d age 50 and
died 2 years later.

Bob Dole
Dx’d in 1991
Tx’d with surgery
Early spokesman for Viagra

Joe Torre
Dx’d at age 58
In 1999. Tx’d with surgery
The Prostate Gland

- Is an exocrine gland. Secretes fluid that makes up 20 to 30% of semen. Seminal vesicles make most of the fluid.
- Is situated just under the urinary bladder and surrounds the origin of the urethra.
- It is about the size of a walnut and weighs about 20 to 30 grams. An enlarged prostate can weigh up to 100 grams.
- Can be affected by prostatitis, benign prostate hyperplasia and cancer.
- The prostate needs male hormones (androgens) to function. Mainly testosterone in the form of DHT.
- It’s the Rodney Dangerfield of organs
Prostate Cancer (PCa) Stats

- **Incidence** – PCa is the most common cancer in men
  - 181,000 new cases in 2016 (10.7% of all new cancer cases)
  - Lifetime risk of developing prostate cancer = 16%

- **Mortality** – PCa is the second leading cause of cancer death for men, next to lung cancer
  - 26,100 deaths in 2015
  - Risk of dying of prostate cancer = 2.9%
  - More than 2.5 million men in the US are living with prostate cancer

CA CANCER J CLIN 2016;66:7
# Leading Cancer Types 2015

## Estimated New Cases

<table>
<thead>
<tr>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>Breast</td>
</tr>
<tr>
<td>220,800</td>
<td>231,840</td>
</tr>
<tr>
<td>Lung &amp; bronchus</td>
<td>Lung &amp; bronchus</td>
</tr>
<tr>
<td>115,610</td>
<td>105,590</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>Colon &amp; rectum</td>
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<tr>
<td>69,090</td>
<td>63,610</td>
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<tr>
<td>Urinary bladder</td>
<td>Uterine corpus</td>
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<td>56,320</td>
<td>54,870</td>
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<td>Melanoma of the skin</td>
<td>Thyroid</td>
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<td>42,670</td>
<td>47,230</td>
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<tr>
<td>Non-Hodgkin lymphoma</td>
<td>Non-Hodgkin lymphoma</td>
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<tr>
<td>39,850</td>
<td>32,000</td>
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<tr>
<td>Kidney &amp; renal pelvis</td>
<td>Melanoma of the skin</td>
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<tr>
<td>38,270</td>
<td>31,200</td>
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<tr>
<td>Oral cavity &amp; pharynx</td>
<td>Pancreas</td>
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<tr>
<td>32,670</td>
<td>24,120</td>
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<tr>
<td>Leukemia</td>
<td>Leukemia</td>
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<td>30,900</td>
<td>23,370</td>
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<tr>
<td>Liver &amp; intrahepatic bile duct</td>
<td>Kidney &amp; renal pelvis</td>
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<tr>
<td>25,510</td>
<td>23,290</td>
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<tr>
<td><strong>All Sites</strong></td>
<td><strong>All Sites</strong></td>
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<tr>
<td>$848,200</td>
<td>$810,170</td>
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## Estimated Deaths

<table>
<thead>
<tr>
<th>Males</th>
<th>Females</th>
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<tbody>
<tr>
<td>Lung &amp; bronchus</td>
<td>Lung &amp; bronchus</td>
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<tr>
<td>86,380</td>
<td>71,660</td>
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<tr>
<td>Prostate</td>
<td>Breast</td>
</tr>
<tr>
<td>27,540</td>
<td>40,290</td>
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<tr>
<td>Colon &amp; rectum</td>
<td>Colon &amp; rectum</td>
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<tr>
<td>26,100</td>
<td>23,600</td>
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<tr>
<td>Pancreas</td>
<td>Pancreas</td>
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<tr>
<td>20,710</td>
<td>19,850</td>
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<tr>
<td>Liver &amp; intrahepatic bile duct</td>
<td>Ovary</td>
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<tr>
<td>17,030</td>
<td>14,180</td>
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<td>Leukemia</td>
<td>Leukemia</td>
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<td>14,210</td>
<td>10,240</td>
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<tr>
<td>Esophagus</td>
<td>Uterine corpus</td>
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<tr>
<td>12,600</td>
<td>10,170</td>
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<tr>
<td>Urinary bladder</td>
<td>Non-Hodgkin lymphoma</td>
</tr>
<tr>
<td>11,510</td>
<td>8,310</td>
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<tr>
<td>Non-Hodgkin lymphoma</td>
<td>Liver &amp; intrahepatic bile duct</td>
</tr>
<tr>
<td>11,480</td>
<td>7,520</td>
</tr>
<tr>
<td>Kidney &amp; renal pelvis</td>
<td>Brain &amp; other nervous system</td>
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<tr>
<td>9,070</td>
<td>6,380</td>
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<tr>
<td><strong>All Sites</strong></td>
<td><strong>All Sites</strong></td>
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<td>$312,150</td>
<td>$277,280</td>
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*CA: A Cancer Journal for Clinicians*  
Volume 65 Number 1, pages 5-29, 5 JAN 2015 DOI: 10.3322/caac.21254
Trends in PCa Incidence and Mortality Rates

Data from SEER Program, NCI
PCa Risk Factors

- Age – rare under age 45. Most cases over age 65
- Family History – Having a father or brother with prostate cancer more than doubles your risk. However most PCa occurs in men without a family history of it.
- Genetics – some gene changes increase PCa risk
  - BRCA1 and BRCA2 increase PCa risk in men
  - Lynch Syndrome (aka HNPCC) increases risk for a number of cancers including Pca
- Hx of PIN – malignant cells are contained within individual ducts and glands (prostatic intraepithelial neoplasia)
- Questionable RF’s – diet, obesity, smoking, chemical exposures, hx of prostatitis, hx of std’s, hx of vasectomy
Median Age at Diagnosis = 66
Percent of Deaths by Age Group

Median Age at Death = 80
Autopsy studies show that prostate cancer is detected in:
- 30% of men age 55
- 60% of men age 80

Suggests that in many men prostate cancer grows so slowly that they die of other causes

Int J Cancer 2015: 137:1749
Prostate Cancer Prevalence

- Estimated 2,850,139 Americans have had a prostate cancer diagnosis and are still alive
- Compares with:
  - 3,069,231 with breast cancer
  - 1,177,586 with colorectal cancer
  - 1,034,460 with melanoma
  - 415,707 with lung cancer
- These are the people we are underwriting

From SEER database
5 year relative survival

- Localized: 100.0%
- Regional: 100.0%
- Distant: 29.3%
- Unstaged: 79.4%
Percent of Cases by Stage

- Localized - primary site: 80%
- Regional - to regional lymph nodes: 12%
- Distant - Metastasized: 4%
- Unknown: 4%
PSA Testing

- PSA is a glycoprotein produced by prostate epithelial cells.
- PSA may be elevated in men with prostate cancer (and also men with BPH or prostatitis, as well as other benign conditions).
- PSA was widely adopted for cancer screening in the early 1990’s and led to a dramatic increase in the incidence of prostate cancer.
- Survival rates also increased from 70-75% prior to PSA availability to 98.2% by 1998.
- Detecting more early stage cancer PSA raised incidence rates and also lowered mortality rates.
PSA Testing

- Traditional normal PSA cutoff is 4.0 ng/mL
- At this level: estimated sensitivity only 21%, specificity 91%
- For men with BPH, PSA has poor discriminating ability
- Positive Predictive Value (% of men with cancer)
  - PSA’s between 4 and 10 = 25%
  - PSA’s between 10 and 20 = 42 to 64%
- Negative Predictive Value (% of men without cancer)
  - PSA <4.0 ng/mL = 85%
- No clear cut point between “normal” and “abnormal”. Setting the upper limit of “normal” involves a trade-off between sensitivity and specificity
Improving the PSA screening test

- Age adjusted PSA norms
- % free PSA
  - Free = not protein bound
  - Free psa/total psa = % free psa
    - >25 % usually benign
    - <15% not good
- PSA density
  - Psa/estimated volume of the prostate (measured by TRUS)
    - Over 0.15 = high risk
- PSA velocity (change over time)
  - Rise of more than 0.75 ng/ml per year
  - Need three readings obtained over a 12 to 24 month
PSA, BPH and Rx

- BPH is common and often treated by medication including 5-alpha reductase inhibitors (5ARI’s)
  - Finasteride (Proscar)
  - Dutasteride (Avodart)
  - These reduce the volume of the prostate
- It has been reported that they decease PSA level by 50% after one year of treatment
- This must be taken into account in evaluating the psa of anyone on these drugs
- Tamsulosin (Flomax) and Terazosin (Hytrin) are another class of drugs and don’t have this effect

J Urol 2006;175:1657-62
PSA Testing the down side

- PSA cannot distinguish between aggressive and benign prostate cancers.
- It has been estimated that between 17-50% of men diagnosed with prostate cancer through PSA testing have tumors that would not have resulted in symptoms throughout their lifetime.
- Clearly there is over-treatment
- Therefore many men had biopsies, surgery, radiation, and other therapies that they didn’t actually need.
- These all have side effects including erectile dysfunction, urinary incontinence, bowel problems
These two studies have dominated the discussion

The European Randomised Study of Screening Prostate Cancer (ERSPC) – studied 162,000 men aged 50-74, after 13 years of follow-up routine PSA testing reduced the number of PC deaths by 21% and lowered the risk of advanced PC. It was calculated that 37 additional men need to be dx’d with PCa through screening to save 1 PCa death.

On the other hand – the Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Trial – found that between 1993 and 2001 PSA screening appeared to have no mortality benefits compared with a DRE.

ERSPC study – Lancet. 2014;384:2027-2035
In 2012 the US Preventive Services Task Force (USPSTF) issued a recommendation against PSA screening for men of all ages who do not have symptoms.

This was met by criticism – “this could take us back to an era when prostate cancer was often discovered at advanced and incurable stages.”

The CDC supported the USPSTF’s recommendations.

The American Cancer Society did not provide a recommendation, instead emphasizing that men must make an informed decision with their doctor (starting age 50).

The PLCO trial was reinvestigated in 2016 and found to be flawed. The recommendation is being revisited.
Baseline PSA suggested at age 46. Rising PSA, MRI, Bx showed Gleason 7 (3+4), treated robotic laparoscopic prostatectomy. Became vocal advocate for PSA testing.
What are the downstream effects of the 2012 recommendation?

- The use of PSA screening has decreased as has the incidence of early stage prostate cancer.
- Rates of prostate bx’s and radical prostatectomies has also decreased by 28.7% and 16.2% respectively.
- Bx’s due to abnormal PSA’s decreased but Bx’s due to surveillance actually increased. Also PC incidence overall has been decreasing.
- The indolent nature of most PC means that it will likely take many years to observe negative impacts.

JAMA Surg. Published online November 2, 2016
Newer tests

- **Prostate Health Index (PHI)**
  - p2PSA assay, an isoform of free psa
  - Combined with psa and free psa by an algorithm
  - Said to improve specificity and thereby reduce negative bx’s
  - For men age 50+, psa 2 – 10, and negative DRE

- **4K score**
  - Human kallikein-related peptidase 2, combined with total, free and intact psa in an algorithm

- **PCA3**
  - prostate cancer antigen 3 gene
  - Expressed in PC but not normal or hypertrophied tissue
  - Insufficient data for screening yet
Insurance companies believe in psa testing

2015 Life Underwriting Requirement Survey showed:
- Most companies are testing PSA at some level
- Age 55, $300,000 75% are testing
- Age 55, at some amount, 90% are testing
- 57% reflex to free-psa when psa is elevated
- Informal questioning shows no companies reducing psa testing
- This has been confirmed by one of the major labs
## Insurance PSA testing results

<table>
<thead>
<tr>
<th>PSA Value</th>
<th>U.S.</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 4.0</td>
<td>95.9%</td>
<td>96.6%</td>
</tr>
<tr>
<td>4.1 – 10.0</td>
<td>3.7%</td>
<td>3.1%</td>
</tr>
<tr>
<td>10.1 – 20.0</td>
<td>0.4%</td>
<td>0.3%</td>
</tr>
<tr>
<td>20.1+</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

Source: Private correspondence from Exam One
PSA in the insurance setting

Mortality Implications of PSA in Males Age 50-79

This shows “total” mortality associated with PSA levels

Source: Private correspondence from Exam One
Towards a Better Prostate Biopsy

- Unique in that we stick needles blindly into tissue...often
- False negative rate is 10% to 20%
- 12+ cores have increased the detection rate
- New multi-parametric mri’s will improve diagnostic accuracy allow 27% of patients to avoid a primary bx as well as finding a higher percentage of clinically significant cancers
Gleason Grading

- Scale of patterns ranked 1 to 5
  - 1 closest to normal; 5 most poorly differentiated
  - Poorly differentiated suggests that the cancer is growing
- Score = primary pattern plus secondary pattern
  - Total score = primary plus secondary score
  - Eg. \((3 + 4) = \text{Gleason 7}\)
- Gleason score has prognostic significance
- *Pathologists have decided to only use Gleason patterns 3, 4 and 5. Therefore the lowest score you should see is Gleason 6 (3+3)*
- Bear in mind that analysing biopsy slides is somewhat subjective.
Gleason Grading

- Percent cancers diagnosed on biopsy
  - Gleason 6 = 60% to 70%
  - Gleason 7 = 20% to 30%
  - Gleason 8 to 10 = about 5%
- Which Gleason 7 is better? (3+4) or (4+3)?
- Gleason Grade Groups (newly adopted)

<table>
<thead>
<tr>
<th>Gleason Grade 1</th>
<th>3+3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gleason Grade 2</td>
<td>3+4</td>
</tr>
<tr>
<td>Gleason Grade 3</td>
<td>4+3</td>
</tr>
<tr>
<td>Gleason Grade 4</td>
<td>4+4, 3+5, 5+3</td>
</tr>
<tr>
<td>Gleason Grade 5</td>
<td>4+5, 5+4, 5+5</td>
</tr>
</tbody>
</table>
Clinical Staging vs Pathological Staging

- Radiation and active surveillance treatment = clinical staging
- Radical prostatectomy = pathological staging
- Gleason upgrading at RP is common
  - 34% of patients were reassigned to a higher Gleason grade group (44% 3+3 and 19% of 3+4)
  - 6% were upgraded by 2 or more Gleason grade
- Factors influencing upgrading
  - Higher age (>60)
  - Clinical stage (T2 vs. T1c)
  - Increasing PSA
  - % positive cores

Urology 2016; 96:148
Prostate Cancer - TNM Stage

- T1’s - clinically inapparent tumor neither palpable nor visible by imaging
- T2’s - tumor confined within prostate
  - T2a – one-half of one lobe or less
  - T2b – more than one-half of one lobe but not both lobes
  - T2c – invades both lobes
- T3’s – Tumor extends through the prostate capsule
  - T3a – extracapsular extension
  - T3b – extends to seminal vesicles
- T4 – Tumor is fixed or invades adjacent structures other than seminal vesicles
- pT = pathologic staging
Risk Stratification Methods
The D’Amico classification

- **Low Risk:**
  - PSA less than or equal to 10
  - Gleason score less than or equal to 6
  - And clinical stage T1-2a
- **Intermediate Risk:**
  - PSA between 10 and 20
  - Gleason score 7
  - Clinical stage T2b
- **High Risk:**
  - PSA more than 20
  - Gleason score 8 or more
  - Clinical stage T2c – 3a
- Commonly used but does not account for multiple risk factors
Risk Stratification
Nomograms (online calculators)

- Use multiple variables to produce models that predict likelihood of disease progression or recurrence
- Memorial Sloan Kettering Cancer Center provides several at their website
- 4 prostate cancer calculators:
  - Pre-radical prostatectomy
  - Post-radical prostatectomy
  - Salvage radiation therapy
  - Risk of dying of prostate cancer in men with a rising PSA after radical prostatectomy
- Based on MSK data which may be more favorable experience than average

https://www.mskcc.org/nomograms/prostate
Risk Stratification - UCSF-CAPRA score

- Based on 5 variables (age, PSA, Gleason score, T stage, % of bx cores)
- Gives you a score from 0 to 10 (0-2 = low risk, 3-5 intermediate risk, 6-10 high risk)
- Data from CAPSURE, from 40 mostly community based sites, therefore may be more “real life” experience
- CAPRA (S) is for predicting recurrence after surgery, gives a score from 0 to 12
# CAPRA (S) Calculation

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<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>CAPRA-S points</th>
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<td>Pre-surgical PSA level (ng/ml)</td>
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<td></td>
<td>6.01 to 10.00</td>
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<tr>
<td></td>
<td>10.01 to 20.00</td>
<td>2</td>
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<tr>
<td></td>
<td>&gt; 20.00</td>
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<tr>
<td>Pathologic Gleason score</td>
<td>(\leq 3 + 3 = 6)</td>
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<tr>
<td></td>
<td>(3 + 4 = 7)</td>
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<tr>
<td></td>
<td>(4 + 3 = 7)</td>
<td>2</td>
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<tr>
<td></td>
<td>(\geq 4 + 4 = 8)</td>
<td>3</td>
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<td>Surgical margin status</td>
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<td>Positive</td>
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<td>Extracapsular extension</td>
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<td>CAPRA-S score</td>
<td>No. patients</td>
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<tr>
<td></td>
<td>At 3 years</td>
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<td>T3a-b</td>
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<td>III</td>
<td>T4</td>
<td>N0</td>
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<td>IV</td>
<td>Any T</td>
<td>N1</td>
</tr>
<tr>
<td></td>
<td>Any T</td>
<td>Any N</td>
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</table>
Treatment of Localized PCa

- Most dx’d PCa’s are clinically localized (organ confined)
- Choice of Tx depends on risk stratification (stage, Gleason grade, baseline PSA, extent in # of bx cores involved) combined with age and health, personal preference
  - Radical Prostatectomy
    - Open or robotic
  - Radiation Therapy
    - External beam
    - Brachytherapy
  - Active Surveillance
- Other Treatments:
  - Androgen Deprivation therapy (ADT) – not recommended as primary therapy, but is used as adjuvant therapy
  - Ablation Therapy – cryotherapy and HIFU outcomes not well established
Radical Prostatectomy

- Suitable for tumors confined to the prostate
- Patient must be in good health
- Can be done by perineal or retropubic approach; or by laparoscopy/robotic
- “nerve sparing” surgery available, however potency rates considerably under 100%
- There will be a path report
- Margin positive disease and seminal vesicle invasion are poor prognostic signs which may lead to recurrence
- PSA should be undetectable within 6 weeks
- Biochemical recurrence = PSA $\geq 0.2$ ng/mL confirmed by a second test result.
- Complications = incontinence and ED
Goal of RT – therapeutic dose while minimizing radiation to normal tissues

Both external beam and brachytherapy are widely used as a single modality

Now using intensity modulated (IMRT) radio therapy; will see more of the “Cyberknife”

Staging not based on surgical path report, clinical only

Some prostatic tissue will remain so PSA levels will not fall to undetectable levels

Criteria for biochemical recurrence: An increase of 2.0 ng/ml greater than the nadir after radiotherapy

Complications = radiation proctitis, urinary problems, ED
Active Surveillance #1

- Not the same as watchful waiting
- Watchful waiting:
  - Alternative for elderly men with limited life expectancy and/or substantial co-morbidity. No intent to have definitive Tx.
- Active Surveillance:
  - For men with localized, well-differentiated prostate cancer, thought to be at low risk for progression
  - Postpone immediate definitive therapy
  - The patient is monitored regularly by psa, dre and biopsy
  - Definitive treatment to be used if there is evidence of progression
  - Twin Goals of reducing overtreatment and identifying lethal tumors while still treatable
Active Surveillance #2

- Assumption – for many men Tx may never be needed or can be postponed for many years without significantly reducing the chances for a cure
- Growth rate of prostate cancer is slow and relatively constant over time (unlike most other cancers)
- Selection of appropriate patients is the critical issue.
  - PSA < 10 ng/ml
  - Normal DRE
  - Gleason score of 6 or less
- May also look at:
  - Number of positive cores, percentage of positive cores, extent of tumor involvement within a biopsy core
  - PSA density and PSA kinetics

Active Surveillance #3

- Johns Hopkins AS experience
  - 1,300 men, ave. age 66
  - 2/3 very low risk, 1/3 low risk
  - 0.4% developed metastatic disease or died of prostate cancer at 15 years
  - Risk of death from a cause other than prostate cancer 24 to 1
  - Over 15 years, 5% of men developed an aggressive cancer (Gleason 4 +3 or greater)

J Clin Oncol 33:3379-3385
Comparison of Treatments

- RP, RT and brachytherapy all provide biochemical relapse-free survival of 80% or more in studies of 5 to 10 years.
- More than 95% of patients remain free of local recurrence and distant mets.
- For low risk disease there is not much difference between these therapies. For higher risk disease there is no consensus as to which treatment is best.
- “The most reliable studies suggest that the difference in 10 year cancer specific survival between RP and RT are small, possibly <1%.”

Int J Radiation Oncology, Biology, Physics. Aug 2015
Comparison of Treatments – ProtecT Trial

- 10 year study, 1999 to 2009, designed to directly compare surgery, radiotherapy and active monitoring, for low and intermediate risk PCa looking at freedom from mets, prostate cancer specific survival and overall survival.
- 1,643 men enrolled, ages 50 – 69, comparable numbers in each group.
- No difference in overall survival.
- Prostate cancer survival was not significantly different among the three groups (PC mortality was about 1% in each group – 17 actual prostate cancer deaths),
- The active monitoring group had a higher rate of disease progression and metastases.
- Men over 65 were a little more likely to die of PC if in the active monitoring group.

Recurrence

- Each year nearly 60,000 men undergo radical prostatectomy.
- Approx 15 to 40% will experience cancer recurrence within 5 years, usually manifested only by PSA level (biochemical recurrence).
- Must rule out distant metastases as the cause.
- If disease is confined to prostatic bed then salvage RT may prolong disease-free survival.
- If left untreated most of those with biochemical or local recurrence will develop metastases and die of PC (8 years to clinical metastases and 5 more years to die).
- Better outcome with T2 vs T3, neg vs pos surgical margins, Gleason 6 vs 7 or 8, lower pre RT PSA.
Recurrence

- A study of 635 US men undergoing radical prostatectomy from 1982-2004, followed through 12/07 and experienced biochemical and/or recurrence
  - 397 received no salvage radiation
  - 160 received salvage radiotherapy alone
  - 78 received salvage radiotherapy and hormone treatment
  - There were 119 deaths
  - Salvage radiotherapy group had a 3-fold increase in PC specific survival and also increased overall survival.
  - Best result if initiated shortly after biochemical recurrence

JAMA, June 18, 2008, Vol. 299, No 23
Case #1
Male age 61 applying for $1,000,000

- No Sx, no FH of PC, DRE neg. Moderate enlargement
- 2004 seen for rising PSA of 3.6 (12% free)
- Bx – focal HG PIN
- 2009 PSA 5.4 (14% free)
- Bx – focal HG PIN and ASAP
- 2/10 – PSA 7.0
- 3/11 – start Rx Avodart
- 4/11 – PSA 3.8
- 4/11 – Bx – Benign BPH
- 3/13 – stopped Avodart due to side effects
- 5/15 – PSA 9.2 (10% free)
- 6/15 – PSA 6.1 (15% free)
Case #2
Male age 77 applying for $5,000,000

- 2007 PC on bx, one core Gleason 6, followed by Active Surveillance
- 2008 Bx similar
- 2009 Bx two cores of Gleason 7
- 2010 Bx neg for malignancy
- 7/12 – Bx 3 cores of Gleason 7, PSA 4.3
- 3/13 – MRI – multi-focal tumor in the prostate, no capsular invasion; susp left iliac bone lesion, to have bone scan
- 4/13 – robot assisted radical prostatectomy, Gleason 8 (3+5), confined to prostate, peri-neural invasion, T2N0Mx
- 5/13 – PSA less than 0.1
- 10/15 – PSA still undetectable
Case #3
Male age 71 applying for $350,000

- 2006 - radical prostatectomy, Gleason 7, capsular invasion
- 2007 – salvage radiation
- 2014 – PSA <0.015
- 2015 – PSA <0.015
- 2015 – post-op urinary retention, bladder neck contracture, dilated
- 10/16 – insurance PSA <0.04