Comparing Treatment Results Of PROSTATE CANCER

Prostate Cancer Results Study Group 2014

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Prostate Cancer Results Study Group

- Problem: Patients, physicians and carriers need a simple, unbiased means to compare the cancer control rates of modern prostate cancer treatment methods.
To solve this problem, we have assembled experts from key treating disciplines: Surgery, External Radiation, Internal (or Brachytherapy), High Frequency Ultrasound, and Proton Therapy.

The purpose of this work is to do a complete review study of the current literature on prostate cancer treatment.
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28,000+ prostate studies were published between 2000 and June 2013
1,127 of those studies featured treatment results
233 of those met the criteria to be included in this review study. (*1st & 2nd group)
Some treatment methods are under-represented due to failure to meet criteria
“Will I be cured?” or “Will my treatment make me cancer free?” are valid patient questions. However, PSA values (our best measurement tool today) cannot answer this absolutely. The current state-of-the-art can only indicate that the treatment was “successful” if PSA numbers do not indicate cancer progression.
After prostate removal, PSA numbers usually fall rapidly to very low numbers and stay low.

After radiation, PSA numbers usually come down slower, might increase then fall in the 1 to 3 year range (called a “PSA Bump”), and then usually level out at a higher number than the surgery patient.

These different PSA expectations result in dissimilar ways to review a man’s PSA history to judge treatment success.

This study makes no attempt to standardize those evaluation systems.
Brachy = Seed implantation, either permanent or temporary seeds
EBRT = External Beam Radiation Therapy includes IMRT = Intensity Modulated Radiation
RP = Standard open radical prostatectomy
Robot RP = Robotic Radical Prostatectomy
HIFU = High frequency Ultrasound
Cryo = Cryotherapy
Protons = form of External Radiation using Protons
ADT = Hormone Therapy
Criteria for Inclusion of Article*

1. Patients should be separated into Low, Intermediate, and High Risk

2. Success must be determined by PSA analysis

3. All Treatment types considered: Seeds (Brachy), Surgery (Standard or Robotic), IMRT (Intensity Modulated Radiation), HIFU (High Frequency Ultrasound), CRYO (Cryo Therapy), Protons, HDR (High dose Rate Brachytherapy)

4. Article must be in a Peer Reviewed Journal

* Expert panel consensus
5. Low Risk articles must have a minimum of 100 patients

6. Intermediate Risk articles must have a minimum of 100 patients

7. High Risk articles, because of fewer patients, need only 50 patients to meet criteria

8. Patients must have been followed for a median of 5 years

For additional criteria information contact: lisa@prostatecancertc.com
<table>
<thead>
<tr>
<th></th>
<th>RP</th>
<th>EBRT/IMRT</th>
<th>Cryo</th>
<th>Brachy/HDR</th>
<th>Robot RP</th>
<th>Proton</th>
<th>HIFU</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>9%</td>
<td>13%</td>
<td>5.4%</td>
<td>21%</td>
<td>5.3%</td>
<td>24%</td>
<td>8%</td>
</tr>
<tr>
<td>#</td>
<td>28/320</td>
<td>40/302</td>
<td>2/37</td>
<td>64/306</td>
<td>4/76</td>
<td>4/17</td>
<td>3/38</td>
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</table>

Total of 1,127 Treatment Articles. Some articles addressed several treatments and were counted as separate articles for each treatment. *A few articles evaluated other/minor treatments and are not listed here. These calculations only include primary accepted articles, and do not include secondary acceptance totals.
How to Interpret the Results

- Each treatment is given a symbol. For example, Seed implant alone (Brachy) is given a blue dot with a number in it. The number in the symbol refers to the article. The article can be found in the notes section below the slide (go into "view" in up left corner of PowerPoint and click on note section, then click on this portion and scroll down to see all the references).

- Treatment Success % = Percent of men, whose PSA numbers indicate no cancer progression. (progression free) at a specific point in time.

- The bottom line indicates the number years the study is out. An example, the blue dot with 27 inside indicates that, as per article 27, 97% of the patients treated with seeds alone in low risk patients at 12 years were free of disease progression according to PSA numbers.
First Establish your clinical risk group* by looking at the definitions or ask your physician. Refer only to those slides for your risk group.

Make your own judgment and then ask a doctor in each discipline (Seeds, External Radiation Surgery, etc.) to tell you where his/her own peer reviewed published Treatment Success % would fit on this plot.

*Next Slide
Low Risk

Stage: T1 or T2a,b
Gleason Sum ≤ 6
PSA < 10 ng/ml
LOW RISK RESULTS

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- Treatment Success
- % PSA Progression Free

Years from Treatment

EBRT & Seeds
Robot RP
Surgery
Protons
HIFU
HDR

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Update of
BJU Int, 2012, Vol. 109(Supp. 1)
LOW RISK RESULTS

Treatment Success

% PSA Progression Free

EBRT

Brachy

Surgery

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Numbers within symbols refer to references

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Question about the Criteria

“The PCRSG criteria is pretty strict and not a lot of studies fit. What happens if you include articles with only 40 months of follow up or have a long follow up but less than 100 patients?”
LOW RISK RESULTS

>40 months follow-up or less than 100 patients

% PSA Progression Free

Treatment Success

• Prostate Cancer Results Study Group
• Numbers within symbols refer to references

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LOW RISK RESULTS

>40 months follow-up or less than 100 patients

% PSA Progression Free

Treatment Success

EBRT

Brachy

Surgery

Seeds & ADT
EBRT & ADT
EBRT & Seeds
Robot RP
Seeds
Surgery
EBRT
CRYO
HIFU
Protons
Hypo EBRT
HDR

• Prostate Cancer Results Study Group
• Numbers within symbols refer to references

4/15/2014  Update of
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Intermediate Risk Patient Definition

- Zelefsky definition
  - Only 1 factor
    - Clinical Stage T2c
    - Gleason score $\geq 7$
    - PSA $> 10$ ng/ml

- D’Amico definition
  - PSA 10-20, Gleason Score 7 or Stage T2b
INTERMEDIATE RISK RESULTS

% PSA Progression Free

Treatment Success

Years from Treatment

- Prostate Cancer Results Study Group
- Numbers within symbols refer to references

EBRT + ADT
Seed + ADT
EBRT & Seeds
Hypo EBRT
EBRT
Seeds Alone
Robot RP
Surgery
HIFU
Protons

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INTERMEDIATE RISK RESULTS

Weighted

% PSA Progression Free

Treatment Success

- Years from Treatment

EBRT

Surgery

Brachy

EBRT & Seeds

- Prostate Cancer Results Study Group
- Numbers within symbols refer to references

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Favorable vs Unfavorable* Intermediate Risk

- **Favorable**
  - Single feature
  - Gleason 3+4=7
  - < 50% of biopsy cores +

- **Unfavorable**
  - All other Intermediate

*Zumsteg et al (MSKCC) New Risk Classification system for therapeutic decision making PCA pts undergoing dose escalated EBRT European Urology 64 p 895-902 2013 Favorable vs Unfavorable
INTERMEDIATE RISK
Favorable vs Unfavorable* Weighted

% PSA Progression Free

Treatment Success

Brachy
EBRT & Seeds

EBRT
Surgery

← Years from Treatment

Robot RP
Seeds + ADT
EBRT & Seeds
Hypo EBRT
Seeds Alone
Surgery
EBRT
CRYO
HIFU
HDR
EBRT, Seeds + ADT
Protons

* Numbers within symbols refer to references

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Update of
BJU Int, 2012, Vol. 109(Supp 1)
INTERMEDIATE RISK RESULTS
>40 months follow-up or less than 100 patients

- Years from Treatment
- % PSA Progression Free

• Prostate Cancer Results Study Group
• Numbers within symbols refer to references

EBRT + ADT
Robot RP
EBRT & Seeds
Seeds + ADT
Hypo EBRT
Seeds Alone
Surgery
EBRT
CRYO
HIFU
Protons
HDR
ADT

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INTERMEDIATE RISK RESULTS weighted
>40 months follow-up or less than 100 patients

- PSA Progression Free
- Brachy
- EBRT
- Surgery
- Years from Treatment
- Treatment Success

Prostate Cancer Results Study Group
Numbers within symbols refer to references

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High Risk Patient Definition

- Zelefsky definition
  - 2 or more factors
    - Gleason > 7
    - PSA 10-20 Clinical Stage T1c-T2b
- D'Amico
  - Gleason Score 8-10
  - PSA >20
HIGH RISK RESULTS

- Prostate Cancer Results Study Group
- Numbers within symbols refer to references

HIGH RISK RESULTS

Weighted

EBRT, Seeds & ADT

Brachy

% PSA Progression Free

Treatment Success

Years from Treatment

- Prostate Cancer Results Study Group
- Numbers within symbols refer to references
HIGH RISK RESULTS
>40 months follow-up or less than 100 patients

- Prostate Cancer Results Study Group
- Numbers within symbols refer to references

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HIGH RISK RESULTS
>40 months follow-up or less than 100 patients

% PSA Progression Free

Treatment Success

Years from Treatment

EBRT

Brachy

Surg & EBRT
Surg & ADT
EBRT & ADT
EBRT & Seeds
Hypo EBRT
Seeds
Cryo
Protons
EBRT Seeds + ADT
Robot RP
Surg & EBRT
EBRT Seeds + ADT

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For most low risk patients, most therapies will be successful.

There appears to be a higher cancer control success rate for Brachy over EBRT and Surgery for all groups. Patients are encouraged to look at graphs and determine for themselves.

Serious side effect rates must be considered for any treatment.

Relaxing the report selection criteria doesn’t seem to impact the results substantially.
Slide Symbols & Abbreviations

- ○ = Seeds alone
- ★ = EBRT & Seeds
- △ = Surgery = Standard Radical Prostatectomy
- ▲ = “Robot” = Robotic Prostatectomy
- □ = “HIFU” = High Frequency Ultrasound
- ■ = “HDR” = High Dose Rate Brachytherapy +/− EBRT
- □ = EBRT alone
- ◇ = Hypo EBRT
- ○ = Protons
Slide Symbols & Abbreviations
(cont.)

- ○ = “CRYO” Cryotherapy
- ▲ = EBRT, Seeds, & ADT
- + = Seeds & ADT
- ⚫ = EBRT & ADT
- ⚫ = Surgery & ADT
- ○ = “Brachy” = all seed implant treatments
- ● = all Surgery treatments
- ● = all EBRT treatments
- ● = all EBRT & Seeds
- ● = all EBRT, Seeds & ADT
### Risk Group Definitions

**Low Risk**
- Stage: T1 or T2a,b
- Gleason Sum ≤ 6
- PSA ≤ 10 ng/ml

**Intermediate Risk**
- Stage T1 or T1-2
- Gleason Score 7 or Gleason 6
- PSA ≤ 10 ng/ml
- PSA 10-20

**High Risk**
- Stage T2c or T3
- Gleason score ≥ 8
- PSA > 20 ng/mL
For More Information

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- Or contact PCRSG member
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