Comparing Treatment Results Of PROSTATE CANCER

Prostate Cancer Results Study Group Updated June 2015

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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.

Prostate Cancer Results Study Group

- 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.

Prostate Cancer Results Study Group

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ABOUT THIS REVIEW STUDY



- 38,200+ prostate studies were published between 2000 and 2014.
- 1,292 of those studies featured treatment results.
- 179 of those met the criteria to be included in this review study.
- Some treatment methods are underrepresented due to failure to meet criteria.

About This Study



 "Will I be cured?" or "Will my treatment make me cancer free?" are valid patient questions. The indicator of cancer free or cancer control is a low PSA level. Five years after treatment, a low PSA level indicates cancer is controlled and there is a high likelihood the cancer will not return.

- 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.

Abbreviations



Brachy = Seed Implantation (Brachytherapy, either permanent or temporary seeds EBRT= External Beam Radiation Therapy, includes **IMRT = Intensity Modulated Radiation Therapy RP = Standard Open Radical Prostatectomy Robot RP = Robotic Radical Prostatectomy** HIFU = High Intensity Focused 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 Groups
- 2. Success must be determined by PSA analysis
- 3. All Treatment types considered: Seeds (Brachy), Surgery (Standard or Robotic), EBRT (including IMRT), HIFU (High Intensity Frequency Ultrasound), CRYO (Cryo Therapy), Protons, HDR (High dose Rate Brachytherapy)
- 4. Article must be in a Peer Reviewed Journal

* Expert panel consensus

Criteria for Inclusion of Article (cont.)

- 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: l.grimm@pctrf.org

% Articles Meeting Criteria



RP	EBRT/ IMRT	Cryo	Brachy/ HDR	Robot RP	Proton	HIFU
8.7%	14.6%	6.5%	23%	3.5%	22%	13.6%
32/366	50/343	3/46	80/351	3/86	4/18	6/44

Total of 1,292* Treatment Articles. Some articles addressed several treatments and were counted as separate articles for each treatment. *Some articles evaluated other/minor treatments that are not listed here and are therefore not included in these calculations.

11/3/2015

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How to Interpret the Results



- Each treatment is given a symbol. For example Seed implant alone (Brachytherapy) is given a blue dot.
- 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, a blue dot positioned at 12 years by 97% indicates that, 97% of the patients treated with seeds alone in low risk patients at 12 years were free of disease progression according to PSA numbers.

Treatment Symbols Ledgerfor all risk groups graphs

Brachytherapy

- Brachytherapy alone
- The state of the second seco
- 🔷 Brachytherapy, EBRT, & ADT
- HDR (Brachytherapy)
- 📥 HDR & ADT (Brachytherapy)

EBRT/IMRT

- EBRT alone
- **★** EBRT & ADT
- 🔵 Hypo EBRT

<u>Protons</u>

• Protons

<u>Surgery</u>

- A RP Surgery
- Robotic Surgery

<u>Cryotherapy</u>

•
Cryotherapy

<u>HIFU</u>

• HIFU



How to Interpret the Results

- References and Symbol Identification Ledgers for all included articles can be found on the Prostate Cancer Treatment Research Foundation's website: <u>www.pctrf.org</u> in the "Comparing Treatments" section under the "For Patients" tab, as well as interactive versions of all risk group graphs.
- In general: Brachytherapy symbols are blue EBRT/IMRT symbols are green Protons symbols are yellow Surgery symbols are red Cryotherapy symbols are purple HIFU symbols are gray



- 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

Comment about ellipses



- Treatment results for a treatment are grouped and mathematically analyzed to see if the data clusters.
- These "ellipses" outline the treatment results allowing you to see the average result and trend of the treatment over time.
- Ellipses can only be done if there are 4 or more reported studies, so some treatments may not appear on the slides as ellipses.

*Next Slide

LOW Risk Group Definition



<u>Low Risk</u> Stage: T1 or T2a,b Gleason Sum <u><</u> 6 PSA <u><</u> 10 ng/ml



Shorter <-- Years from treatment --> Longer

Low Risk Results

PCTRF.org 105 --> Better 10095 Free 90 Treatment Success PSA Progression Fre LDR Brachy **Protons** 85 80 EBRT/IMRT Surger 75 **RP Surgery** Robot Surgery 70 Surgery σ Seeds and EBRT Seeds and EBRT σ 65 Seeds Alone %Seeds Alone σ i V EBRT Alone 60 EBRT Alone σ Worse Protons Protons σ 55 HDR HIFU 50 10162 6 8 12 14 4

Shorter <-- Years from treatment --> Longer

Intermediate Risk Patient Definition

- Zelefsky definition
 - Only 1 factor
 - Clinical Stage T2c
 - Gleason score > 7
 - PSA > 10 ng/ml
- D'Amico definition
 - PSA 10-20 Gleason Score 7 or Stage T2b



Intermediate Risk Results

PCTRF.org 100 Better 90 \wedge HDR Free Seeds and EBRT **Seeds Alone** 80 Treatment Success PSA Progression Fre **RP** Surgery 70 Robot Surgery EBRT/IMRT Surgery o Seeds Alone **Surgery** Seeds Alone σ 60 Seeds and EBRT Seeds and EBRT σ EBRT Alone EBRT Alone σ 50 Seeds, EBRT and ADT HDR %HDR σ Worse <-EBRT and ADT 40 Seeds and ADT Protons HIFU Cryo 30 2 6 8 Ó 10 12 14 16 4





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







OBSERVATIONS



- 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.

Risk Group Definitions



<u>Low Risk</u> Stage: T1 or T2a,b Gleason Sum <u><</u> 6 PSA <u><</u> 10 ng/ml

Intermediate RiskStage T1 or T1-2Stage T1-2Gleason Score 7orPSA < 10</td>PSA 10-20

<u>High Risk</u>

Stage T2c or T3 Gleason score ≥ 8 PSA > 20 ng/mL

For More Information



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