

Prostate Size and the Effect of Hormonal Manipulation

Brian J Moran MD, Michelle H Braccioforte BS, Michael A Stutz MD, Dean J Conterato MD, Jeffrey P Shafer MD and Andrew Tanner MD
Chicago Prostate Cancer Center, Westmont, IL 2005

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PURPOSE: To evaluate prostate gland length and volume in a large population of men diagnosed with localized prostate cancer. Furthermore, to assess the effect of hormonal manipulation (HM), specifically the difference between luteinizing hormone releasing hormone (LHRH) agonist therapy alone (LHRH) compared to total androgen blockade (TAB).

MATERIALS AND METHODS: 3370 men with presumed organ confined prostate cancer underwent I¹²⁵/Pd¹⁰³ prostate brachytherapy (PB) at a single institution from October 1997 through January 2003. Prior to PB, transrectal ultrasound prostate sagittal and transverse image based volume studies (VS) were performed at least once on all patients. A B-K medical systems ultrasound machine and biplanar probe was used for each VS. 363/3370 (10.8%) patients required a repeat VS specifically because they were considered suboptimal candidates for PB secondary to excessive prostate volume. Subsequently, this group was subjected to HM for the purpose of decreasing prostate size (cytoreduction) in preparation to PB. 313/363 (86.2%) of these patients were given cytoreduction with LHRH while 50/363 (13.8%) patients received TAB. TAB consisted of bicalutamide 50 mg p.o. q day times 3 months in addition to LHRH 7.5 mg depot IM q 1 month times 3. After three months of cytoreductive therapy, a repeat VS was performed.

RESULTS: Table 1 demonstrates sagittal lengths and prostate volumes for the entire group of 3370 patients (ALL), 313 patients who received LHRH only and 50 patients who received TAB. There was a significant difference in the mean percent decrease in prostate volume for those receiving LHRH versus TAB (28.9% ± 14.6% vs. 34.1% ± 14.2% (p= 0.022)).

CONCLUSIONS: Whether for therapeutic benefits or strictly for prostate cytoreduction, the use of HM remains prevalent prior to PB. Controversy has existed regarding the use of LHRH versus TAB. This study strongly suggests that patients undergoing TAB experience a significantly higher reduction in overall prostate volume than those who receive LHRH agonist alone.

Table 1: Prostate Size Results

Patient Group (# Patients)	Original Sagittal Length (mm) (Mean ± SD)	Original Prostate Volume (cm ³) (Mean ± SD)	Repeat Sagittal Length (mm) (Mean ± SD)	Repeat Prostate Volume (cm ³) (Mean ± SD)
ALL (3370)	38.6 ± 6.5	41.9 ± 18.4	N/A	N/A
LHRH (313)	47.2 ± 6.8	70.1 ± 19.8	41.1 ± 6.6	49.4 ± 16.0
TAB (50)	47.8 ± 6.9	76.9 ± 24.5	40.9 ± 5.8	49.7 ± 16.6