

To evaluate the cytoreductive consequences of neoadjuvant androgen deprivation therapy (ADT) on International Prostate Symptom Score (IPSS) normalization, catheter dependency, and the need for surgical intervention for obstruction following permanent interstitial brachytherapy.

116 patients (median follow-up 30 months) with pre- and post-ADT ultrasound studies were evaluated. ADT-induced changes in prostate volume, transition zone (TZ) volume and urethral location were measured by ultrasound images. Additional clinical, treatment and dosimetric parameters evaluated included patient age, pretreatment PSA, Gleason score, clinical T-stage, preimplant IPSS, pre- and post-androgen deprivation ultrasound studies, treatment planning volume, supplemental external beam radiation therapy (XRT), isotope, total implant activity, day 0 D<sub>90</sub> and V<sub>100/150/200</sub>, and urethral dose.

For ADT patients, prostate volume at the time of implantation did not statistically impact the percent of patients returning to IPSS baseline, the time for IPSS normalization, the incidence of catheter dependency, days of catheter dependency or the need for post-implant surgical intervention. However, when compared to the hormone-naïve cohort, ADT patients were more likely to undergo post-implant surgical intervention (5.2% versus 0.3%). Greater ADT-induced reductions in prostate and TZ volumes along with movement of the urethra closer to the posterior border of the prostate gland resulted in a decreased incidence of post-implant urinary morbidity. Cox regression analysis indicated that time to IPSS resolution was predicted by percent TZ volume reduction. Stepwise-linear regression demonstrated that days of catheter dependency was predicted by pre-hormone prostate volume, post-hormone TZ volume and change in urethral position.