

AbstractID: 2686 Title: Dosimetric comparison of two techniques for prostate brachytherapy implants.

**Purpose:** CT based dosimetry was performed one day after prostate cancer treatment by permanent seed implantation. Two techniques were used for implants. To investigate the impact of the two techniques in dose distribution we analyzed several dosimetric ct scans.

**Method and Materials:** Patients with prostate cancer were treated with brachytherapy as monotherapy without neoadjuvant androgen deprivation between 01/00 and 12/04. Patient selection in both groups were staging of T1C, pretreatment PSA <8 and Gleason's score of  $\leq 6$ ; the mean age in both groups was 65 years. Ultrasound volume study was performed two weeks prior to implant procedure. The dosimetry results from 40 patients divided into two groups were analyzed after full dose I-125 implantation. Group one (20 patients) implanted using the Mick Applicator and group two (20 patients) were implanted using the Strand. CT transverse images of the implant volume were collected. Dose volume histogram parameters were analyzed for prostate volume changes, including D 90, V100, and V150.

**Results:** The reference dosimetry was performed post-implantation, one day after using computed tomography (CT). Variseed software was used for dosimetric evaluation of each implant to compare the D 90, V100, and V150 dose obtained by the two sets of study. The average prostate volume was 35cm cubed (range 25-59). In group one (using the Mick) the median D 90 was 98.4% (range) and was achieved in 9 out of 20 patients. A comprehensive evaluation is shown in table 1. In group two (using the strand) the median D 90 coverage was 108.5% (range) and was achieved in 14 out of 20 patients. An elaborate evaluation is shown in Table 2.

**Conclusion:** The above results clearly demonstrate that when we started using the strand we achieved a superior dosimetric outcome that is greater than the minimal therapeutic D 90 value of 140Gy.