

## AbstractID: 1595 Title: Comparison of Pre- and Post-Implant Dosimetry of Permanent Prostate Brachytherapy

This study describes the results of Iodine-125 pre- and post-implant dosimetry. Twenty patients were randomly chosen from over 200 cases treated in our institute in the past 7 years. This group consisted of 10 cases treated with external-beam radiation therapy (EBRT) to 50.4 Gy, followed by a brachytherapy implant boost of 95 Gy; and 10 cases with implants only, prescribed to 144 Gy. All patients in this study were treated by the same physician who also defined the prostate volumes. Pre-implant Computed Tomography (CT) images were acquired 3 weeks before the implants. Post-implant CT images were acquired 3 hours after the implants. The pre- and post-implant target volumes and dosimetry were evaluated using our in-house system. The ratios of post-/pre implant volumes were 0.9 and 1.1 for post-EBRT and brachytherapy alone. For post-EBRT the mean pre-implant D90, D100, V100, and target mean doses were 132 Gy, 92 Gy, 99.9%, and 219 Gy, and the corresponding mean post-implant values were 111 Gy, 78 Gy, 95.2%, and 213 Gy respectively; For brachytherapy alone, the mean pre-implant D90, D100, V100, and target mean dose were 188 Gy, 132 Gy, 99.5%, 310 Gy, and the corresponding mean post-implant values were 150 Gy, 105 Gy, 90.7%, 287 Gy respectively. The mean values of the ratio of total activity and prescription dose were 0.22 mCi/Gy and 0.19 mCi/Gy for post-EBRT and brachytherapy alone. Our data indicated that the post-EBRT implants had better coverage than the brachytherapy alone probably due to less edema for those post-EBRT patients.