Dosimetric analysis of permanent prostate implant with I-125 and Pd-103 seeds.

This study was undertaken to assess CT based dosimetry for patients undergo transperineal interstitial permanent prostate brachytherapy (TIPPB) using Pd-103 or I-125 for over 500 patients. TIPPB was performed using a peripherally weighted placement of isotope via an interstitial gun. Post-implant CT images were obtained on 2 weeks after the implant. Preliminary analysis of 100 patients showed that there is no difference in the mean V100% (target volume covered by prescription dose) between I-125 and Pd103. The mean minimum peripheral dose was 60% of prescribed dose for I-125 and 40% for Pd-103. Analysis of minimum point dose (cold spot) was found more commonly in implants with Pd-103. A difference between the pre-implant ultrasound prostate volume and post-implant CT volume was also apparent. In conclusion, good dose coverage of the prostate is attainable with TIPPB. Prostate volume changes post implant likely represent edema. Differences in minimum dose points between I-125 and Pd-103 may require different implant techniques. The impact of these findings on TIBBP will be discussed in detail.