AbstractID: 6861 Title: Do stranded seeds improve the quality of permanent prostate seed implant?

Purpose: The aim of this study is to find out if the stranded seeds improve the quality of the permanent prostate seed implant by doing retrospective dosimetric analysis for patients with localized prostate cancer and have been treated using loose or stranded Iodine-125 seeds in 2005 and 2006 at our center.

Method and Materials: The dosimetric results reconstructed from patient CT scans at the same day of seed implant (day1) and the 21st day after implant (day21) were compared between 31 patients with loose seeds and 31 patients with stranded seeds. Treatment plans were all generated in real time by a single experienced medical physicist using a single planning system before the procedure of implant. Most of the implants were performed by a single experienced radiation oncologist with transrectal ultrasound image and x-ray image guidance using preloaded needles. The needles with stranded seeds were loaded in real time using a special-designed seed loader by putting seeds and spacers in plastic sleeves which are made of PGA and Lactide materials.

Results: There is some improvement on the mean value of D90 at day21 for stranded seeds (95.7% vs. 93.4%) but it is not significant (p=0.247). And no significant difference was observed on the mean values of V100 and V150 at day21 (86.9% vs. 87.0% with p=0.485 and 53.7% vs. 53.4% with p=0.465). They also have a similar histogram distribution. The mean values of D90 and V100 at day1 show that patients with stranded seeds are even little bit worse than those with loose seeds, 80.5% vs. 87.4% with p=0.025 and 79.0% vs. 82.3% with p=0.063.

Conclusion: Comparing the dosimetric parameters at day21 and day1, we can conclude that the quality of prostate seed implant was not improved significantly by using stranded seeds which required more resources and manpower.