

International Prostate Symptom Score Assessment following Pd-103 Line Source for Prostate Brachytherapy Implants

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INTRODUCTION

LDR brachytherapy typically relies on loose or stranded isotope whose dosimetry is characterized as point sources. A polymer encapsulated ¹⁰³Pd source with a unique linear radioactive distribution may provide a useful refinement on prostate brachytherapy.

AIM

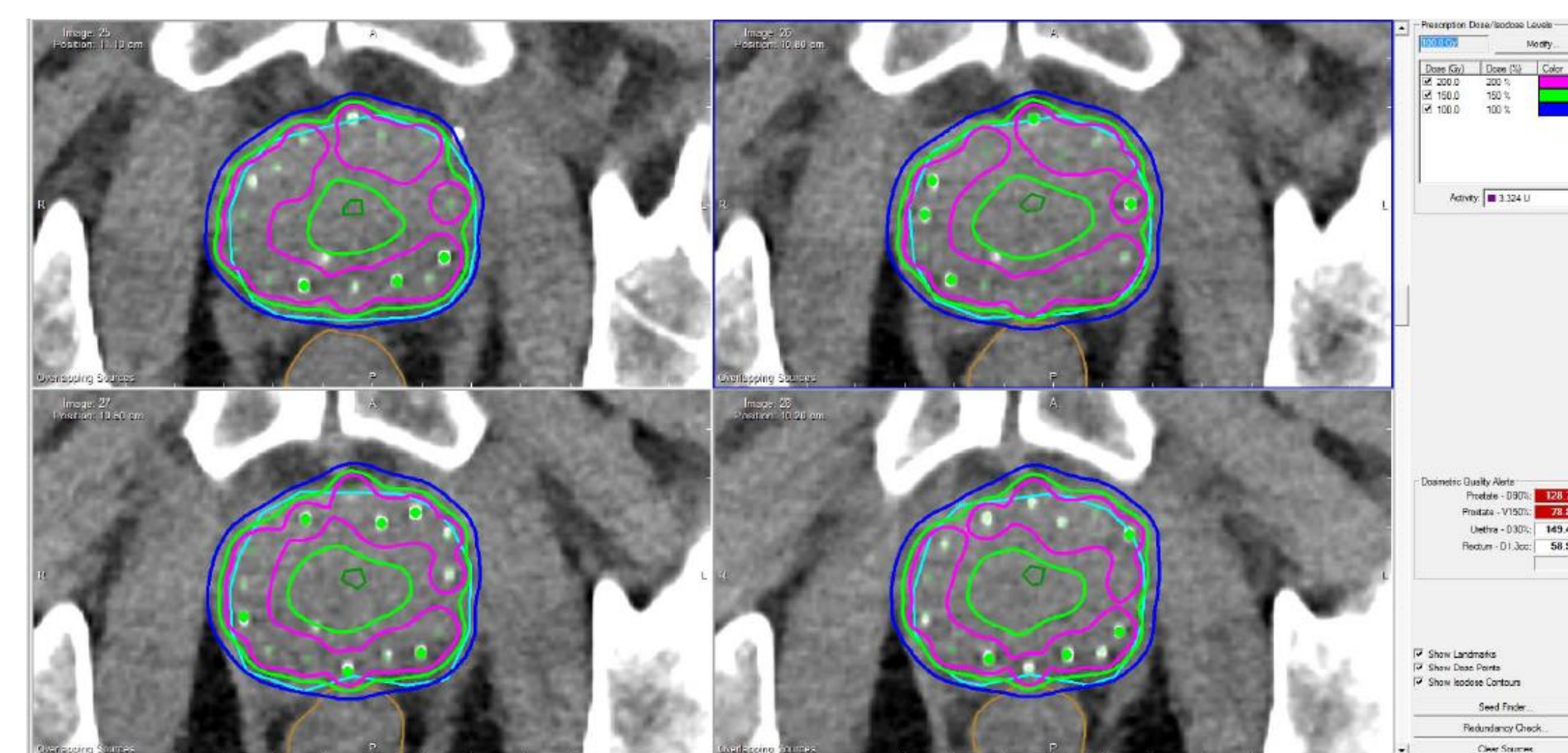
To assess the International Prostate Symptom Score (IPSS) following the implant of a polymer encapsulated Pd-103 source with a unique linear radioactive distribution. A registry study collects patient reported outcomes following brachytherapy, including the IPSS questionnaire.

METHOD

37 subjects with prostate cancer were implanted with the Pd-103 line source. Prostate specific antigen (PSA) was recorded before implant and in 6 month intervals following implant. Patients were asked to respond to the IPSS questionnaire before implant, one month after implant, and at 6 month intervals following implant. PSA and responses to questionnaires have been collected for up to 24 months for some patients. Patients were not excluded based on pre-implant IPSS.

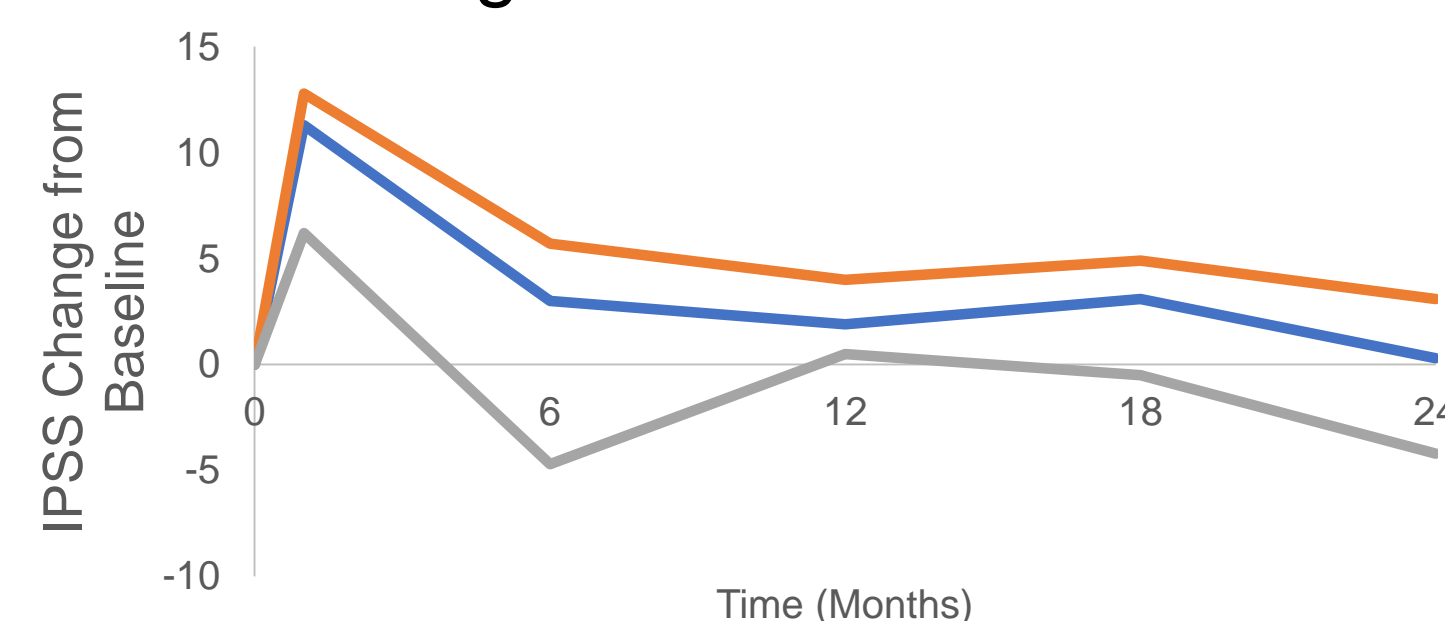
RESULTS

The average PSA prior to implant and at 6 months following implant were 7.7 and 1.2, respectively. A total of 37 patients responded to the questionnaires prior to linear Pd-103 implant. Mild increase in frequency and urgency reported following implant, resolving prior to 6 month follow up. The average baseline IPSS for all patients is 9.1. The pre-implant IPSS is known to impact the post implant results. Of 37 patients, 9 patients had baseline IPSS ≥ 15 with an average of 19.2. 28 patients had a baseline IPSS < 15 with an average of 5.7. The average post implant IPSS change from baseline was 11.3, 3, 1.9, 3.1 and 0.3 for months 1, 6, 12, 18 and 24, respectively. The IPSS reported for Pd-103 linear sources indicate that return to baseline may occur more rapidly than with traditional seeds. Treatment strategy of monotherapy or combined BT+EBRT did not affect the IPSS resolution time.



Isodose lines for selected patient. The prostate gland is uniformly irradiated.

Change in IPSS over time



IPSS Change	0	1M	6M	12M	18M	24M
----- Total	0	11.3	3	1.9	3	0.3
----- <15	0	12.8	5.7	4	4.9	3.1
----- ≥ 15	0	6.2	-4.7	0.5	-0.5	-4.2

Study	Pre Implant	1 month	3 months	6 months	12 months	18 months	24 months
CivaString	9.1	20.4		12.1	11	12.2	9.4
Aaltomaa (n=409)	8	18		12	8		9
Crook (n=150)	6	13	13	10.5	6.5		
Ohasi (n=103)	8.2	16.9		11.2	10		
Stone (n=325)	7.1			12.5	9.1		9.5
Tanaka (n=110)	9	14.2	17.2	14.7	10.3		
Cs-131	5	19	10	9	9		7
Gelblum (n=600)	7		18	15	4		
Merrick (n=170)	5.7	12	8.7	6.2	4.6		

CONCLUSIONS

Preliminary results suggest that the temporary uropathy associated with Pd-103 line source brachytherapy may resolve more rapidly when compared to seeds in the published literature.

ACKNOWLEDGEMENTS

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