

AbstractID: 1312 Title: IMRT to escalate the dose to the prostate while treating the pelvic nodes

Our objective was to assess and quantify the benefit of IMRT over conventional approaches to cover the pelvic nodes while escalating the dose to the prostate. Treatment plans were generated for 8 patients, where the pelvic region received 50 Gy/25 fractions by either conventional four-field box (4FB) techniques with various degrees of rectal shielding based on digitally reconstructed radiographs or whole-pelvic IMRT (WP-IMRT). The boost plans consisted of 26 Gy/13 fractions delivered throughout 6-field 3DCRT or IMRT exposing the prostate alone. Combinations of these approaches produced 13 plans for each patient, which were compared with respect to DVH of pelvic node/seminal vesicles-PTV, rectum, bladder and intestinal cavity. WP-IMRT with a 3DCRT boost provided superior sparing of both bladder (17% reduction in V65) and rectum (10-15% reduction in V65) over any of the 4FB plans with the same boost, and produced a higher number of patients meeting rectal dose objectives regardless of boost technique. Coverage of the pelvic nodes was adequate with WP-IMRT where 98% of the volume received 100% of the prescribed dose, well above several 4FB techniques. Finally, the effect of switching from a 3DCRT to IMRT boost after WP-IMRT had a greater effect on the bladder (9%) than the rectum (3%) at V70. In conclusion, WP-IMRT with a conformal boost allows dose escalation to the prostate while achieving clinical dose objectives in the majority of patients and is dosimetrically superior to 4FB. An IMRT boost should be considered for patients who fail to meet bladder dose-objectives.