Conclusion: These early results appear to suggest that intermediate and high risk patients can successfully be treated with brachytherapy. Further study is required into the role of external beam radiotherapy and androgen deprivation.

842 POSTER

Postoperative radiotherapy for prostate cancer – evaluation of target motion and treatment technique (intensity modulated versus three-dimensional conformal radiotherapy)

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Background: The aim of the study was to determine the extent of target motion in postprostatectomy radiotherapy and to analyze the value of intensity modulated radiotherapy (IMRT) compared to three-dimensional conformal radiotherapy (3D-CRT).
Material and methods: 20 patients underwent CT scans in supine position with a full bladder (FB) and an empty bladder (EB) before RT and at three dates during the RT series. Displacements of the CTV centre of mass and the posterior border were determined. 3D-CRT and IMRT treatment plans were calculated and compared.
Results: The mean CM displacement (±standard deviation) was 0.5±3.6 mm, −0.6±3.3 mm and 0.0±1.6 mm in the superior-inferior, anterior-posterior and right-left directions respectively. No significant differences were found comparing target motion in serial FB CT scans with EB CT scans. An initially large rectum filling significantly predicted larger displacements (36% vs. 0% posterior displacement >10mm of the mid-CTV border with initial rectum volume of ⩾100 cc vs. <100 cc, $p < 0.01$).
A better homogeneity and a lower conformity results in 3D-CRT compared to IMRT (see table). Bladder dose load is significantly lower with the IMRT technique. Nevertheless, 3D-CRT treatment with FB renders a better bladder sparing compared to IMRT with EB. Concerning the rectum, IMRT offers an advantage in the high dose (100% isodose) area only. However, the integral dose is higher. We could observe a better rectum sparing in the low dose area (⩽50% of the prescription dose) in plans with FB compared to EB.

	IMRT (mean ± standard deviation)	3D-CRT (mean ± standard deviation)	p
Inhomogeneity index (D max-D min/D mean)	0.18±0.07	0.12±0.07	<0.01
Conformity index (volume with 95% dose/PTV)	1.49±0.10	1.89±0.19	<0.01
Bladder volume with 100% dose	1±2%	9±12%	<0.01
Bladder volume with 90% dose	18±11%	28±20%	<0.01
Area under dose-volume histogram for bladder	29±17%	37±23%	<0.01
Rectum volume with 100% dose	0±2%	7±9%	<0.01
Rectum volume with 90% dose	21±10%	19±9%	0.30
Area under dose-volume histogram for rectum	42±9%	39±9%	<0.01

Conclusions: Target position stability was the same in the series with FB compared to EB. A large initial rectum filling has to be avoided to minimize posterior safety margins. IMRT offers an advantage for better bladder sparing in all dose areas and for reducing the rectum and non-target volume in the high dose area – a good option for dose escalation. An adequate bladder filling is paramount to reduce the bladder dose load.

843 POSTER

Prostate brachytherapy in morbidly obese patients

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Background: Morbidly obese patients present challenges for definitive treatment of localized prostate cancer. Treatment can be technically challenging and these patients are often presented with limited options. Lower cure rates and higher rates of complications have been reported in this cohort of patients. We report our experience with transperineal prostate brachytherapy (PB) in morbidly obese patients.
Methods and Materials: Sixteen morbidly obese patients (defined in this study as weight >136 kilograms and Body Mass Index (BMI) of >34) underwent PB between November 1997 and December 2003 at a single institution, had adequate follow up, and completed quality of life surveys. Median height, weight and BMI were 72 inches (range 64–81 inches), 141.6 kilograms (range 136–168.2 kilograms) and 43.6 (range 34.3–52.9), respectively. Median age was 64.6 years. 9 patients were clinical stage T1c, five were T2, one was T3a and one patient could not be clinically staged. All patients were Gleason grade 6 or 7, and mean pretreatment PSA was 8.5±6.4 ng/ml. 7 patients received hormonal therapy and 3 patients received external beam radiation therapy (EBRT) in addition to their modified peripherally loaded seed implant. Median follow-up time was 34.3 months. Quality of implant was assessed by post op CT based dosimetry with D90 and V100. ASTRO consensus definition was used to assess PSA failure. All patients were mailed the University of California-Los Angeles Prostate Cancer Index (UCLA PCI) to assess their urinary, bowel and sexual function and bother. UCLA PCI quality of life scale ranges from 0–100 with higher scores representing better outcomes.
Results: All 16 patients were successfully implanted with no acute perioperative complications. There were no technical issues concerning ability to image the entire prostate nor were there issues with needles being long enough to implant the base. Mean post implant D90 and V100 were 129.6 Gy±36.1 Gy and 86.6%±8.8% respectively. At last follow up there were no PSA failures; mean PSA at last follow up was 0.4 ng/ml±0.3 ng/ml. The mean urinary function and bother scores for the study group was 80.7±20.5 and 73.4±35.9, respectively. The mean bowel function and bother scores for the study group was 84.5±20.0 and 76.5±32.2, respectively. Finally, patient sexual function and sexual bother scores were 31.1±2.7 and 33.9±25, respectively.
Conclusions: Morbid obesity is not a contraindication to performing prostate brachytherapy (PB). PB is technically feasible in morbidly obese patients and appears to result in side effects and cure rates similar to the general PB population.

844 POSTER

Is Iodine allergy a contraindication to prostate brachytherapy using Iodine125?

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Background: Iodine allergy is a frequently mislabeled condition that is often associated with a previous allergic reaction (AR) to shellfish or intravenous contrast medium (IVCM). IgE antibody mediated AR to iodine itself is undocumented and most experts question its existence. AR to seafood is a reaction to proteins in the food such as parvalbumins and tropomyosin. IVCM "anaphylactoid" reaction is the result of osmotic effect and subsequent release of histamines. Regardless, patients who are candidates for I^{125} prostate brachytherapy (PB) experience additional anxiety if they have a suspected Iodine allergy fearing the risk of severe reactions. Our objective was to evaluate the actual incidence of AR to Iodine implants in patients who believed they were allergic to Iodine and underwent an I^{125} PB procedure.
Methods and Materials: We evaluated the treatment records of 3370 patients who underwent PB at a single institution between October 1997 and January 2003. 2698/3370 (80%) patients were implanted with Amersham 6711 I^{125}radioactive seeds. 62/2698 (2.3%) patients reported having an Iodine allergy prior to implant. These patients were contacted by telephone and administered a questionnaire by a staff nurse. Specifically, attention was directed to potential signs and symptoms of an AR. 40/60 (66.7%) patients responded to the telephone questionnaire. 2 patients were deceased at time of phone call due to causes other than prostate cancer and were therefore excluded. Median time to follow-up was 40 months (range 4–76 months).
Results: With a median follow-up time greater than three years, 0/40 (0%) patients reported having any signs or symptoms suggestive of AR related to Amersham 6711 I^{125} implant.
Conclusions: Patients with known Iodine allergies are acceptable candidates for PB using radioactive I^{125} sources. The radioactive Iodine is contained within a titanium enclosure. Therefore, unless this seed capsule is ruptured, I^{125} cannot be released into the bloodstream. Furthermore, if indeed Iodine were to be released into the patient's body, the likelihood of an allergic reaction is negligible. Therefore, patients are not at risk for allergic reactions to the I^{125} sources and prior history of Iodine allergy should not deter appropriate patients from undergoing PB.