(PB), to examine pre-treatment characteristics for possible selection bias and to investigate toxicity risk factors.
Material and methods: 322 elderly patients (⩾75yr) with ⩾24mo follow-up were eligible for this study: 289 had EBRT (EBRT75+) and 33 had PB (PB75+). A control group of 1353 <75yr patients was used for comparison: 941 had EBRT (EBRT75−) and 412 had PB (PB75). GU and GI toxicity (RTOG scales) were compared among the 4 groups. Pre-treatment factors: diabetes, vascular disease, PSA, Gleason score, T stage, use of hormones were analyzed. IPSS, prostate ultrasound volume were compared between PB75+ and PB75. The above factors were examined for correlation with toxicity.
Results: Age group distributions for elderly patients are: 75−79yr: EBRT-255, PB-32; 80−84yr: EBRT-33, PB-1; 85−89yr: EBRT-1, PB-0. Median follow-ups are: EBRT75+: 57 mo, PB75+: 30 mo vs EBRT75−: 60 mo, PB75−: 30 mo. EBRT75+ have slightly earlier stage (T1−2: 70.2%vs 62.7%; $p = 0.008$) and less hormonal therapy use (37% vs 49%; $p = 0.0004$) comparing to EBRT75−. Pre-treatment factors are similar between PB75+ and PB75−. Toxicity between EBRT75+ and EBRT75− is similar. Toxicity between PB75+ and PB75− is similar except for late grade 3 GI toxicity: 3%(1/33) vs 0.2%(1/412) respectively; $p = 0.02$. There is no grade 4 toxicity. PB75+ has more grade ⩾2 GU toxicity (acute: 46.9% vs 29.4%; $p = 0.04$; late(30 mo): 42.4% vs 9%; $p < 0.0001$) but less grade ⩾2 GI toxicity (acute: 9.4% vs 49.8%; $p < 0.0001$) comparing to EBRT75+. Higher pre-treatment IPSS worsened all GU toxicity outcomes (acute and late; grade ⩾2 and ⩾3; $p < 0.0002$) for PB group. Age group was not a significant predictor for any toxicity when other factors were controlled for.
Conclusions: Toxicity does not appear to be significantly affected by older age, both in EBRT and PB. Late grade 3 GI toxicity is slightly more common in PB75+, comparing to PB75−, although there was only 1 patient affected. Pre-treatment factors do not appear to be different between age ⩾75 vs <75 groups and selection bias is not apparent. Older patients(⩾75yr) have the same side effect profile as younger ones.

817 POSTER

Prostate Cancer: up-staging effect of MRI on conformal radiotherapy planning volumes

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Purpose: To analyze the impact of MRI on CT defined prostate volumes for conformal radiotherapy (CFRT) due to unsuspected detection of extracapsular extension (ECE), seminal vesicle and adjacent organ involvement.
Methods: 104 men with localized prostate cancer who had co-registered CT and MRI simulation images between 2−2002 and 2−2005 were identified. All post-prostatectomy recurrences were excluded. A radiologist reviewed both MRI simulation images and diagnostic MRI.
Prognostic grouping was categorized into low risk (PSA < 10, Gleason < 7, T1, 2a stage), intermediate risk (defined as having ⩾ 1 elevated parameter of PSA 10−20, Gleeson 7, T2b, 2c) and high risk prostate cancer (defined as ⩾ 1 elevated parameter of PSA >20, Gleeson 8−10, T3, 4) with 7, 26 and 71 cases for each group respectively. The majority of the intermediate and high risk patients i.e. 89 patients received 2−3 months of hormonal therapy before simulation and MRI.
Target volumes were initially delineated on CT without prior knowledge of MRI. The treatment volumes were then edited according to the co-registered MRI. Radiotherapy volumes were corrected if there was extracapsular invasion, seminal vesicle involvement or there was invasion of other organs i.e. bladder or bowel on MRI but not suspected clinically or detected on CT.
Results: Mean patient age was 68 years (range 47−78). The mean initial PSA was 25.50 ng/ml (3.6−194). The median Gleeson combined score was 7. The clinical prostate stage prior to MRI was of T1−2a disease in 42 patients, T2b-c in 26 and T3−4 disease in 36.
MRI evidence of ECE was found in 16 cases (15%) of which unsuspected in 8 cases and required treatment volume changes to incorporate the disease. Seminal vesicle invasion was detected by the MRI in 18 patients (17%) and in 16 it was clinically not suspected. The MRI defined segment of seminal vesicle involvement was then included in the high dose radiation prostate volume. Bladder and bowel involvement, mainly focal, was found in 17 (16%) and 7 (7%) patients respectively. This bladder and bowel invasion was not evident prior to MRI in 14 and 7 of the cases respectively. The MRI involved rectal or bladder wall segment was subsequently incorporated into the prostate volume but the dose to this region was limited by dose volume constraints. Overall there were 44 instances of unsuspected MRI defined pathology that resulted in changes to the initial CT determined target volumes in 31 (29%) cases.
Conclusions: Diagnostic and planning MRI has resulted in substantial target volumes changes for the radical irradiation of prostate cancer. MR imaging has reduced potential geographic miss and under-dosing of prostate target volume. The impact of this on clinical outcomes requires longer term follow-up.

818 POSTER

Influence of neoadjuvant hormonal therapy on health-related quality-of-life after brachytherapy and external beam radiotherapy for localized prostate cancer

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Background: The aim of the study was to characterize the influence of neoadjuvant hormonal (NHT) therapy on health-related quality-of-life (HRQOL) following different radiotherapy (RT) techniques for localized prostate cancer.
Material and methods: A cross-sectional survey using the expanded prostate cancer index composite HRQOL instrument was administered to 196 consecutive patients following different RT modalities: external beam RT (80 patients), Ir-192 temporary brachtherapy (BT) as a boost to external beam RT (44 patients) and I-125 permanent BT (72 patients). To avoid bias due to a RT technique, patients with and without NHT therapy were matched according to the RT modality, so that 50% received NHT in each RT technique group. A control group consisted of 196 prostate cancer patients before the start of RT (65 with and 131 without NHT).
Results: Median post treatment time was 26 (range 3−50) months, median age was 72 (range 51−84) years (no statistical difference with or without NHT). NHT independently (of age, post treatment time, RT method, presence vs. absence of prognostic risk factors) diminished urinary, sexual and hormonal HRQOL compared to patients after RT only. Significantly lower scores in all domains compared to the control group without NHT were found after RT with NHT (see table). Other independent factors were Ir-192 BT for decreased urinary function, patient age for urinary incontinence scores and sexual function, and external beam RT for decreased hormonal function.

	RT with NHT (n = 98)	RT only (n = 98)	control without NHT (n = 131)
urinary function	85±20	91±15	92±14
moderate/big problem from urinary dysfunction	28%	12%	14%
bowel function	87±15	89±12	93±8
moderate/big problem from bowel dysfunction	16%	10%	5%
sexual function	19±21	31±24	39±25
hormonal function	80±25	92±16	90±15
poor or no ability to have an erection	60%	35%	24%
moderate/big problem from sexual dysfunction	50%	38%	29%

Conclusions: Addition of NHT to BT or external RT led to significantly diminished HRQOL. General metabolism (e.g. lack of energy) as well as the repair process during/after RT seem to be affected. NHT should be avoided for patients without the evidence for a prognostic benefit.

819 POSTER

High dose rate brachytherapy combined with external beam radiation therapy for the treatment of prostate cancer

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Background: Low Dose Rate (LDR) brachytherapy combined with external beam radiation therapy (EBRT) has been used for quite some time for the treatment of cancer of the prostate. However, LDR brachytherapy is associated with considerable genitourinary side effects. We have incorporated HDR brachytherapy using Ir-192 into the treatment regimen to avoid these side effects.
Methods: Since January 2001, 185 patients with early prostate cancer stage T1, 2NO were treated with a protocol of combined external beam radiation and HDR brachytherapy. External beam radiation was delivered using 3D conformal radiation therapy or Intensity Modulated Radiation