Perineural invasion pre-RP: Yes, 11 (6.92%); No, 108 (67.92%) and unknown, 40 (25.16%). Post-RP PSA: <0.20 ng/ml: 58 (35.43%), ≥0.20 ng/ml (Permanently Detectable-PSA or PD-PSA): 55 (34.98%) and unknown: 16 (10.06%). Initial EBRT Intention: Adjunct: 46 (28.33%), Salvage: 113 (71.07%). Corrected EBRT Intention: Adjunct: 23 (14.46%), Salvage: 136 (85.53%), with 23 patients with a PD-PSA (Post-RP PSA > 0.20 ng/ml). Androgen deprivation: Yes 47 (29.56%), No: 112 (70.44%).

**Results:** Between 2003 and 2008, a median NTD of 85.1 Gy (70-93.4) was delivered as salvage RT to the prostate ± seminal vesicles (SV) with EBRT only (n=4) or EBRT + HDR-BT (n=10), adding ADT in 12 patients (median,12 months). Median delivered dose to the whole prostate ± SV was 45 Gy (44-72), with a boost delivered to the local relapse only, using HDR-BT or IMRT in 10 and 3 patients, respectively. One patient was treated to the whole prostate with 72 Gy in 2.25 Gy per fraction using IMRT. No Grade 3 or more acute GI or GU toxicities were observed during RT or 6-weeks after the end of RT. At a median FU of 70 months (range, 48-121), the 5-year Grade ≥3 GI and GU toxicity-free survival figures were 70±12.4% and 42±13.2%, respectively. Three patients presented with combined Grade 4 GI/GU toxicity consisting of rectal-proctitis and/or ano-rectal fistula formation. One patient presented with rectal necrosis requiring colostomy. Ten and 8 patients presented with biochemical and local relapse, respectively. The 5-yr bRFS, LRFS, DMFS and CSS were 35.7±12.8, 50.0±13.4%, and 85.7±9.4% and 100%, respectively.

**Conclusions:** EBRT using 3D-CRT and/or IMRT ± HDR BT as salvage option for patients with local recurrence after initial RT for prostate cancer may result in a relatively low long-term biochemical and local control with a fairly high dose rate of severe radiation-induced side-effects. Alternative salvage treatment modalities should be first recommended, leaving reirradiation as an exceptional option only to be considered in very carefully selected cases.

**EP-1074**

**EBRT with or without HDR brachytherapy for prostate cancer: salvage treatment for local failure after primary RT.**

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**Purpose/Objective:** The objective of this study was to evaluate the safety, feasibility, side-effect profile, and proof of concept of external beam radiotherapy (EBRT) with or without high-dose-rate brachytherapy (HDR-BT) for salvage of local-only failure after primary EBRT for prostate cancer.

**Materials and Methods:** Fourteen patients (median age=68 years) with local-only recurrence after primary EBRT with or without BT were considered eligible for reirradiation. Median delivered dose in 2 Gy-fractions at the first RT (NTD$_{2Gy}$, a/b ratio=1.5 Gy) was 74 Gy (66-98.4) using 2D- (n=4) or 3D-conformal RT (n=10). Pelvic RT and a boost with HDR-BT were used in 6 and 2 patients, respectively, with androgen deprivation therapy (ADT) used in 9 (median duration=6 months). At relapse, all patients presented with a local failure-only as documented by prostate biopsies (n=11) and/or radiological imaging including erMRI (n=11) or PET/CT (n=12). Median time between the first RT and the re-irradiation was 6.1 years (range, 4.7-10.2). PSA at relapse ranged between 4.8 and 116 ng/ml (median, 26.7 ng/ml). Gastrointestinal (GI) and genitourinary (GU) toxicity-free survival and biochemical relapse-free (bRFS), local relapse-free (LRFS), distant metastasis-free (DMFS) and cancer-specific (CSS) survivals were estimated with the Kaplan-Meier method.

**Results:** Between 2003 and 2008, a median NTD of 85.1 Gy (70-93.4) was delivered as salvage RT to the prostate ± seminal vesicles (SV) with EBRT only (n=4) or EBRT + HDR-BT (n=10), adding ADT in 12 patients (median,12 months). Median delivered dose to the whole prostate ± SV was 45 Gy (44-72), with a boost delivered to the local relapse only, using HDR-BT or IMRT in 10 and 3 patients, respectively. One patient was treated to the whole prostate with 72 Gy in 2.25 Gy per fraction using IMRT. No Grade 3 or more acute GI or GU toxicities were observed during RT or 6-weeks after the end of RT. At a median FU of 70 months (range, 48-121), the 5-year Grade ≥3 GI and GU toxicity-free survival figures were 70±12.4% and 42±13.2%, respectively. Three patients presented with combined Grade 4 GI/GU toxicity consisting of rectal-proctitis and/or ano-rectal fistula formation. One patient presented with rectal necrosis requiring colostomy. Ten and 8 patients presented with biochemical and local relapse, respectively. The 5-yr bRFS, LRFS, DMFS and CSS were 35.7±12.8, 50.0±13.4%, and 85.7±9.4% and 100%, respectively.

**Conclusions:** EBRT using 3D-CRT and/or IMRT ± HDR BT as salvage option for patients with local recurrence after initial RT for prostate cancer may result in a relatively low long-term biochemical and local control with a fairly high rate of severe radiation-induced side-effects. Alternative salvage treatment modalities should be first recommended, leaving reirradiation as an exceptional option only to be considered in very carefully selected cases.

**EP-1075**

**Acute anaerobic and urinary toxicities in prostate cancer patients treated with IMRT and 3D-CRT.**

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**Purpose/Objective:** To compare acute urinary and anorectal toxicities in prostate cancer patients undergoing intensity modulated radiation therapy (IMRT) with those undergoing three dimensional conformal radiation therapy (3D-CRT).

**Materials and Methods:** Between April 2010 and March 2012, 129 consecutive patients who underwent definitive external beam radiation therapy for prostate cancer were evaluated. Patients were retrospectively assigned to two groups: IMRT (N = 53) and 3D-CRT (N = 76). Acute urinary and anorectal toxicities were investigated using Common Terminology Criteria for Adverse Events (CTCAE) version 4.0. IMRT was delivered with 74Gy/37 fractions by the 7 field step-and-shoot technique; 3D-CRT was delivered with 70Gy/35 fractions by the static 4-6 multiple field technique. Acute toxicity was defined as the worst event within three months after completing radiation therapy. The two groups' characteristics and treatment factors were compared by t-test and Chi-square or Fisher’s exact test, as appropriate. The acute toxicity grades between the groups were compared by Mann-Whitney U-test.

**Results:** Age, National Comprehensive Cancer Network (NCCN) risk groups, and total doses were significantly different between the two groups. There were no grade 3 or higher urinary or anorectal acute toxicities. Although there was no significant difference in urinary acute toxicity, there were significant differences for rectal mucositis (p=0.002) and anal mucositis (p=0.011) for anorectal acute toxicity between the two groups, with milder toxicity in the IMRT group.

**Conclusions:** Acute anorectal toxicity in prostate cancer patients treated with IMRT is significantly milder compared to those treated with 3D-CRT.

**EP-1076**

**Individualized radiotherapy of very high risk prostate cancer with PET and Protons at hands: Learning from two cases.**

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**Purpose/Objective:** The individualized approach of remote monitoring of a proton beam to adjust the dose distribution during fractionated radiotherapy is an evolving technology. This approach would be expected to provide a more accurate dose distribution because of the high spatial resolution of the proton beam. The potential benefits include lower dose for normal tissue and improved dose to the target volume. These potential benefits are demonstrated in this case report of two prostate cancer patients.