Materials and Methods: Two-tailed, paired Student’s T-tests were undertaken using Pinnacle (Version 9.6). The maximum A-P overlap of the SV and rectum was measured on the slice demonstrating maximum A-P overlap on Cho-PET positive sites and followed for a median of 6 months (mean, 9.4 months, range, 38–398 months). A biochemical response was observed in 16 of the 17 evaluable patients (94.1%) and no in-field progression was reported. Only one patient had a biochemical failure 5 months after the treatment, correlating to metastatic progression without evidence of local recurrence. Treatment was well tolerated, with five cases of genitourinary or gastrointestinal acute grade 1 toxicities. No grade ≥ 2 or other acute toxicities were reported.

Conclusions: Stereotactic Body Re-irradiation Therapy using CyberKnife® after failed EBRT showed favorable results in terms of in-field local and biochemical control. Toxicity was low and acceptable. Further prospective studies are needed to confirm these results to select patient and to evaluate the introduction of androgen deprivation therapy.

EP-1225
Is the short course ADT with 76Gy IGRT appropriate for intermediate and high risk prostate cancer?
Purpose/Objective: To evaluate the therapeutic outcomes of short course neoadjuvant and concurrent androgen-deprivation therapy (ADT) and intensity-modulated radiation therapy (IMRT) with fiducial gold markers for intermediate and high-risk prostate cancer.

Materials and Methods: This is a retrospective study of 325 patients with intermediate or high-risk prostate cancer according to the National Comprehensive Cancer Network guidelines who underwent ADT (neoadjuvant: 4-8 months, concurrent: 2 months) and IMRT (76 Gy) with gold marker implantation between 2001 and 2010.

Results: Five-year distant metastasis-free survival was significantly lower for super high-risk patients compared with intermediate and high-risk patients (82.6% vs. 99.4% and 96.5%, respectively; p < 0.01). The 5-year biochemical relapse-free survival rates significantly declined with increasing prostate cancer risk (p < 0.01) and were 95.9%, 87.2%, and 73.1% for the intermediate-risk, high-risk, and super high-risk patients, respectively. With multivariate analysis identified high pretreatment PSA level (≥ 20 ng/ml) and Gleason sum ≥ 8 as significant risk factors for recurrence and the duration of ADT was not statistically significant difference in BRFS in each risk group. Acute genitourinary and gastrointestinal toxicity grade ≥ 3 were not observed in any of the patients. Late grade 3 genitourinary toxicity occurred in 0.3% of patients.

Conclusions: Short course ADT with 76-Gy IMRT using fiducial gold markers resulted in good therapeutic outcomes with few serious complications in patients with intermediate and high-risk prostate cancer except super high risk group. More intensive therapy might be necessary for super high risk group.

EP-1226
Radiotherapy plus hyperthermia for high-risk prostate cancer: thermal parameters correlate with biochemical DFS
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Purpose/Objective: Previous clinical phase I/II trials have confirmed that radiotherapy (RT) in combination with regional hyperthermia (HT) is promising and feasible without severe toxicity in patients with prostate cancer. We hypothesized the positive relationships between the clinical outcomes and thermal parameters. The purpose of our study was to assess the efficacy of RT combined with regional HT and the potential contribution of regional HT with higher thermal parameters to the clinical outcomes in patients with high-risk prostate cancer.

Materials and Methods: According to our institution’s treatment protocol, HT was combined with RT to improve the clinical outcomes in selected patients with high-risk prostate cancer. Eighty-two patients treated with RT plus HT and 64 patients treated with RT alone were retrospectively analyzed. The primary reasons for non-indication of HT were as follows: obesity: n=20, an advanced age: n=12, patient refusal: n=8, cardiac disease: n=6, and others: n=18. All patients were treated with 3D-CRT in 70 Gy at 35 fractions with the exception of nine patients. HT using an 8-MHz radiofrequency-capacitive heating device was applied immediately after RT once or twice a week. The median duration of heating was 50 minutes (range, 30-50) in one heating session. The median number of heating sessions ranged from two to six (median 5). All patients initially underwent neoadjuvant androgen deprivation therapy (ADT) (median, 9 months); adjuvant ADT was continued in 20 patients after the completion of RT (median, 5 months). Univariate and multivariate analyses were performed using several factors including thermal parameters to identify prognostic factors for the biochemical disease-free survival (bDFS).

Results: The median follow-up duration was 61 months. The five-year bDFS rate in 82 patients treated with RT plus HT was 78%, while that in 64 patients treated with RT alone was 72%; the difference was not significant. Among 75 patients treated with RT plus HT with intra-rectal temperature measurements, higher thermal parameters were significant prognostic factors for the bDFS in the univariate analyses. A higher thermal parameter of CEM43 ≥ T90 (≥ 1 minute) and a T stage of T1-2 were significant prognostic factors according to the multivariate analysis. The five-year bDFS rates for the 40 patients with a higher CEM43 ≥ T90 and 64 patients treated with RT alone were significantly different, whereas those for the 35 patients with a lower CEM43 ≥ T90 and 64 patients treated with RT alone were not. A significant negative correlations was observed between the CEM43 ≥ T90 and the thickness of the maximum ventral subcutaneous fat in the pelvic region.

Conclusions: The addition of HT with higher thermal parameters to RT may improve the bDFS in patients with high-risk prostate cancer. The findings also indicate the importance of the careful selection of treatable patients with higher thermal parameters.

EP-1227
Hypo-fractionated biological optimized dose-painting radiotherapy for high-risk prostate cancer
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Purpose/Objective: We report the toxicity and clinical outcome for prostate dose-painting radiotherapy with moderate hypo-fractionation (dose to prostate 66 Gy in 20 fractions, integrated boost dose 66-68Gy in 20 fractions);