Results: 47% of the patients had extraprostatic extension, 36% had positive margin, and 20% had Gleason Score 8-10. Nomograms were developed for the predicted probabilities of having the indications of adjuvant radiation therapy (Fig 1ABC). The calibration curve for probabilities showed good agreement between prediction by nomogram and actual observation (Fig 1DEF). The C-index of the nomograms for predicting extraprostatic extension disease, positive margin, and Gleason Score 8-10 were 0.799, 0.746, 0.879, respectively. The risk of having one of the indications of adjuvant radiation therapy increased with increases in predictors except for T stage for predicting Gleason Score 8-10 (p=0.25).

Conclusion: We produced nomograms that may accurately predict the probabilities of having indications for adjuvant radiation therapy after RP in men with localized prostate cancer, which may contributes to properly selecting initial treatment option.

EP-1341
Single-nucleotide polymorphisms associated with toxicity to radiotherapy in prostate cancer patients
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Purpose or Objective: Together with surgery, radiotherapy (RT) is a cornerstone in the treatment of prostate cancer. Despite similar prognostic factors, a wide inter-patient variability was observed in tumour response and side effects. Many studies have been made to understand molecular behaviour of tumours exposed to ionizing radiation. It has been hypothesized that single-nucleotide polymorphisms (SNPs) impact response and adverse reactions for patients (pts) receiving RT. We focused on the analysis of some candidate SNPs in pts treated with RT for prostate cancer.

Material and Methods: Between January and September 2014, 66 pts with prostate cancer underwent RT with radical or adjuvant intent. RT was delivered using 4-6 coplanar 10-18 MV beams at a dose of 70-80 Gy (2.5-2 Gy/fraction). At baseline and weekly during treatment, acute gastrointestinal (GI) and genitourinary (GU) toxicities were scored by a fixed questionnaire. The RTOG toxicity scale served as a basis, but additional symptoms were evaluated as well. Genotyping was performed from whole blood samples at the beginning of RT. DNA was purified with the QIAamp DNA Mini Kit. Assays of samples were performed using the “Radiotherapy response” kit (Diatech Pharmacogenetics, Italy). Pyrosequencing analysis was carried on the PyroMark Q96 ID (Biotage, Sweden). Status of candidate SNPs (GSTP1 A313G, RAD51 G135C, XRCC1 G28152A, XRCC3 A4541G and XRCC3 C18067T) was unknown to interviewers and participants.

Results: Treatments were delivered successfully without any interruption. Grade 1, Grade 2 and Grade 3 GI toxicities were observed in 33%, 12% and 3% of the pts, respectively, during the whole period. Grade 1, Grade 2 and Grade 3 GU toxicities were seen in 50%, 32% and 15% of the pts. Eight items of GI toxicity and six items of GU toxicity were used to calculate, for each patient, his own toxicity score. Time of onset of side effects was taken into account too. Using R statistical program, no significant relation was found between total toxicity or precocity of side effects and the mutational status of our 5 candidate loci, except for GSTP1 and toxicity. Kruskal-Wallis test demonstrated that GSTP1 status (wild-type, heterozygous and mutant) is a strong predictor of GI effects, especially diarrhea (p=0.01), frequency of stools (p=0.01), incontinence (p=0.01) and rectal blood loss (p=0.02).

Conclusion: Overall, RT is a well tolerated therapy for prostate cancer. Five SNPs were analyzed in four genes of relevance for RT. GSTP1 showed to be the most important SNP regarding GI toxicity to RT in pts treated for prostate cancer. Other examined SNPS did not prove to play a significant role in this particular subset of pts. Our findings require validation in larger replication studies and open to future clinical trials. One of the next steps will be evaluate if GSTP1 is associated with response to RT too. This would permit personalization and optimization of RT for each prostate cancer patient.

EP-1342
F-18 Fluorocholine-PET/CT guide salvage therapy in biochemical failure of prostate cancer
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Purpose or Objective: To describe the F-18 fluorocholine PET/CT (cPET/TC) activity after biochemical failure in localized prostate cancer. To analyze the response to cPET/TC-guided salvage therapy.

Material and Methods: N: 80 patients(p) with cPET/TC between 2006-2012, 64p at time of biochemical failure. All diagnosis 15p T1 (19.5%), 37p T2 (46.4%), 23p T3 (28.8%) and 5p T4 (6.3%). NO (87.5%), Gleason score: 6: 30p (37.6%), 7: 27p (33.8%), 8: 20p (25.1%), missing: 3p (3.8%). Baseline median PSA 9.0 ng/ml [0.9-114.5].

Initial treatment: 45p (56.4%) prostatectomy, 13p (16.3%) radiotherapy and hormones 2.5 years, 11p (13.8%) radiotherapy and hormones 6 months, 7p (8.8%) radiotherapy alone and 4p (5%) had hormones alone. cPET/TC -guided salvage treatments were: 23 radiotherapy (36%), 2 brachytherapy (3.1%), 8 radiotherapy and hormones (12.3%), 29 hormones (45.3%), 1 chemotherapy (1.6%) and 1 radical prostatectomy (1.6%).

Results: Median time from diagnosis to cPET/TC failure: 44.03 months [2.37-126.83]. Median PSA values were 1.69 ng/ml [0.1-70.6]. cPET/TC local failure(LF) occurred in 39p (60.9%), nodal failure(NF) in 15p (23.4%) and metastatic failure(MF) in 10p (15.6%).

With a median follow up of 55 m after rescue treatment, 15p (23.4%) had biochemical failure again. At 5 years biochemical relapse free survival (BRFS) was 65%. Overall survival 5y: 91% (median: 119 months).

BRFS was 59% without LF vs 83% with LF (p 0.26).
BRFS was 75% without NF vs 30% with NF (p 0.065)
BRFS was 77% without MF vs 17% with MF (p = 0.001)

Conclusion: cPET/TAC detect initial local and regional relapses that can be treated with local radiotherapy with or without hormonal therapy with good results.

EP-1343
PET-CT-related treatment changes in high risk and recurrent prostate cancer
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Purpose or Objective: To prospectively evaluate the impact of Choline/ PSA-M PET-CT imaging on management of patients with prostate cancer (PC).

Material and Methods: Fifty patients with high risk or recurrent PC received a 11C-choline and/or a 68Ga-PSMA-PET-CT before radiation treatment planning within a prospective register study. Main subgroups were identified and only patients with a conventional staging before PET-CT were evaluated to compare treatment management decisions before and after PET-CT with regard to treatment intent, target volume (TV) definition, radiation dose and duration of androgen deprivation therapy (ADT).

Results: The three main subgroups fulfilling the mentioned conditions above were high risk (HR, n=17), recurrence after prostatectomy (R, n=12) and R plus salvage radiotherapy (RSR, n=7). In HRPC, TNM-changes (n=12/17) led to treatment changes (n=14) including TV-changes (n=12). In R, TNM-changes (n=8/12) resulted in treatment changes (n=8) including TV-changes (n=7). In the group after RSR, TNM-changes (n=6/7) resulted in treatment changes (n=6).

Management was changed in 82% (HRPC), 66% (R) and 85% (RSR). Of these groups (n=36) only two patients were initially stratified as M1. PET-CT led to downstaging (M0) or diagnosed only oligometastatic disease enabling curative treatment in both patients. However, in 12 patients initially planned for curative treatment detection of M1-disease (n=3/9) or newly diagnosed M1-disease (n=9/11) shifted treatment allocation to palliative therapy.

Taken together, curative treatment could be offered to initially diagnosed M1-patients (n=2). Since patients with RSR were usually in the palliative situation, PET-CT enabled in further 28% (2/7) of patients disease localization and curative treatment. However, of initially curatively planned patients (27/29) with or without HRPC, PET-CT facilitated to avoid overtreatment in ~30% (8/27) of patients due to early visualization of incurable disease. Main limitation is the absence of histological verification.

Conclusion: PET-CT had a pronounced impact on decision making and management in this group of patients with high-risk or recurrent prostate cancer. Therefore we suggest that PET-CT should be considered in the work-up in specific clinical situations.

EP-1344
Influence of surgical margins on the biochemical and radiological characteristics of the recurrence
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Purpose or Objective: To evaluate the possible impact of positive margins (PM) after surgery for prostate cancer on: I) biochemical parameters of recurrence (immediate failure rate and the time to development of biochemical recurrence) and II) the incidence of macroscopic disease at magnetic resonance imaging (MRI) realized before salvage radiation therapy (SRT).

Material and Methods: Data from 101 prostate cancer patients treated between 2012-13 was analyzed. Fifty (49.5 %) had MRI before SRT. PSA failure was defined as a value greater than 0.2 ng/ml after 6 weeks after prostatectomy. Cases with PSA >0.2 at the first measure 6 weeks after the surgery were categorized (no vs yes) and considered separately for the analysis of immediate failure. Categorical analysis were done using chi-square test. The time to the development of biochemical recurrence was presented in Kaplan Meier and log-Rank test was used to compare PM vs negative margins (NM) group. Mann-Whitney-Wilcoxon test was used to compare the PSA means between groups (PM vs NM / macroscopic recurrence present vs absent). The statistical analysis was done using SPSS V.20.

Results: The basic characteristics of this population were: age 66.8 years (median), initial PSA 8.0 ng/ml (median), 52.6% pT2 and 34.7% pT3. The proportions of each pathological risk group were 7%, 42% and 51% (low-risk, intermediate risk, high-risk) and 43.6% had PM (n=44). Those with PM had an increased chance of immediate PSA failure (p=0.004) and an earlier development of biochemical recurrence (23.4 months vs 49 months, p = 0.001). The mean PSA of the recurrence was 1.4 (+/- 1.7) ng/ml vs 2.6 ng/ml (+/- 6.1) (p = 0.839), for NM and PM respectively. Patients with macroscopic recurrence had a greater pre-SRT PSA: 3.5 (+/- 1.7) vs 0.8 (+/- 0.7) ng/ml. The incidence of biochemical recurrence with prostatic nodule in the MRI was not influenced by margin status (p=0.108) and marginally not influenced by pathological status (low or intermediate risk vs high risk) (p=0.002).

Conclusion: PM patients have had an earlier development of biochemical recurrence but our series did not find a significant impact of margin status on the incidence of nodule on prostatic bed. A possible delay in the detection of the recurrence in margin negative patients should be evaluated in next studies.

EP-1345
SBRT in low- and intermediate-risk prostate cancer: results of a phase II study
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Purpose or Objective: Recent evidences has fostered the emergence of Stereotactic Body Radiation Therapy (SBRT) as a promising treatment modality for the management of localized prostate cancer. In fact, given the low alpha/beta ratio of prostate cancer, the delivery of very high radiation doses in few fractions, may even improve the therapeutic ratio in the treatment of this disease. This phase II study was aimed to evaluate the efficacy and toxicity of SBRT in a series of patients with low or intermediate risk prostate cancer.

Material and Methods: Biopsy confirmed prostate cancer patients were enrolled in this phase II trial, provided that they had the following characteristics: iPSA < 20 ng/ml, Gleason Score < 7, IPSS < 7. The treatment schedule with 35 Gy in 5 fractions, delivered every other day with VMAT technology inFFF modality. Toxicity was recorded according