Acute toxicity was defined as up to 18 weeks from the start of RT and was assessed using the modified RTOG toxicity criteria weekly during RT and then at week 10, 12 and 18. The NCI CTCAE v4 scoring system was used pre-RT and at week 18. Patients were also asked to complete IPSS questionnaires at these times. Peak toxicity grade (G) was dichotomized: modified RTOG G0&1 (n=13) vs G2&3 (n=37) and NCI CTCAE v4 (G0 vs G1&2). The Mann Whitney U test was used to compare toxicity groups using a range of dosimetric descriptors for each GU pelvic structure. Data was analysed in SPSS, v22 (IBM SPSS, Armonk, NY).

Results: 36 patients (72%) experienced a peak G2 RTOG acute toxicity and 1 patient G3. At week 18, half of the patients had no toxicity according to the NCI CTCAE v4. IPSS median and IQR at pre-RT and 18 weeks (n=45) were 5 (4-9) and 7 (5-9) respectively.

There were statistically significant differences in a number of dose surface parameters for WB and BT using NCI CTCAE v4. No urethral dose parameters related to toxicity (Table 1). There were no statistically significant results for RTOG peak toxicity.

Conclusions: Our technique to produce the dose surface map of the BT has enhanced the dosimetric information available for analysis of acute GU toxicity. The results suggest that modifying dose surface parameters to BT and WB may impact on the incidence of acute toxicity.

PO-0737
Adjuvant hormone therapy in intermediate-high risk prostate cancer: LH-RH agonist versus anti-androgens
J. Capuccini1, G. Macchia1, L. Giachetti1, M. Zompatori1, G. Nuzzo2, G.C. Mattucci2, M. Ntreta3, F. Deodato3, V. Valentini3, A.G. Morganti1
1Policlinico Universitario S. Orsola Malpighi, Radiotherapy Department, Bologna, Italy
2Fondazione Giovanni Paolo II Catholic University of Sacred Heart, Radiotherapy Department, Campobasso, Italy
3Catholic University of Sacred Heart, Radiation Oncology Unit, Roma, Italy

Purpose/Objective: Adjuvant hormonal therapy (AHT) improves the prognosis in intermediate-high risk prostate cancer treated with radiotherapy (RT). Luteinizing hormone-releasing hormone(LH -RH) agonist represent the standard AHT, although this treatment is associated with several adverse effect. An alternative treatment, not based on pharmacological castration, might be represented by high-dose antiandrogens (bicalutamide 150 mg / day). However, data comparing this treatments in terms of disease control are lacking. Therefore, aim of this study was to compare the results of two groups of patients who underwent AHT with LH- RH analogues or with bicalutamide, respectively.

Materials and Methods: We analyzed data from three different clinical trials in which patients received radiotherapy (RT) and AHT with LH- RH agonist or high doses bicalutamide. The therapeutic choice was based on the urologist and/or patient preferences. Biochemical recurrence-free survival (according to Phoenix criteria), local control, disease- free and overall survival were assessed using the Kaplan-Meier method. Survival curves were compared by log-rank test ( univariate analysis ) and Cox’s Proportional Hazard Method (multivariate analysis , considering as covariates : stage , pretreatment Prostate Specific Antigen, Gleason Score, duration of AHT, RT doses delivered to the pelvic lymph nodes). Patients were classified according to the National Comprehensive Cancer Network 2014 risk.

Results: A total of 315 patients were included in the analysis. The 5 year results at univariate analysis are reported in the table.Multivariate analysis confirmed the lack of impact of type of AHT on biochemical recurrence -free survival (p= 0.758).

Conclusions: The results of this study showed no significant differences in terms of biochemical and clinical outcomes among patients undergoing adjuvant AHT with LH -RH agonist or antiandrogen. Based on the lower toxicity profile of antiandrogens , further prospective studies comparing these two therapeutic alternatives appear justified.

PO-0738
Adjuvant conventionally fractionated 3D-CRT vs hypofractionated IMRTSIB: comparison of two prospectives studies
L. Tontini1, A. Galuppi1, M. Mazzaccesi1, M. Ferro1, L. Tagliaferri2, G. Macchia1, S. Cammelli1, F. Deodato1, V. Valentini2, A.G. Morganti1
1Policlinico Universitario S. Orsola Malpighi, Radiotherapy Department, Bologna, Italy
2Fondazione Giovanni Paolo II Catholic University of Sacred Heart, Radiation Oncology Unit, Roma, Italy

The results of this study showed no significant differences in terms of biochemical and clinical outcomes among patients undergoing adjuvant AHT with LH -RH agonist or antiandrogen. Based on the lower toxicity profile of antiandrogens , further prospective studies comparing these two therapeutic alternatives appear justified.
PO-0739
Plasma citrulline is a potential biomarker for small bowel toxicity following radiotherapy for prostate cancer
D. Brady1, S. Horn1, S. Yakkundi1, C.K. McGarry1, A.R. Hounsell1, K.M. Prise1, J.M. O’Sullivan1
1Queens University Belfast, Centre for Cancer Research & Cell Biology, Belfast, United Kingdom

Purpose/Objective: Small bowel toxicity from external beam radiotherapy (EBRT) for prostate cancer is poorly predicted from current DVH based models. The dose absorbed by this mobile organ throughout a fractionated course of EBRT cannot easily be calculated from a single planning CT scan. Plasma levels of citrulline (an amino acid, secreted by the gut) is a putative biomarker of small bowel radiation induced damage and as such a decrease in levels may predict small bowel toxicity. In this prospective, clinical study, we explored the relationship between the change in plasma citrulline in relation to both gastrointestinal toxicity and small bowel dosimetry in patients receiving radical EBRT for prostate cancer.

Materials and Methods: We recruited 15 patients treated with EBRT to either prostate only (n=6) or prostate and pelvis (n=9). Plasma citrulline levels were measured prior to radiotherapy and weekly during treatment and at 6 weeks, 3 months and 6 months post EBRT. Bowel toxicity was assessed at the same time points using EPIC bowel summary scores. Small bowel dosimetry was calculated on a single pre-treatment radiotherapy planning scan.

Results: The strongest correlation between the fall in plasma citrulline levels from baseline and greatest bowel toxicity was observed after 3 weeks of radiotherapy (two tailed Spearman’s rank test p=0.03). We further explored the ability of this week 3 plasma citrulline decrease to predict bowel toxicity up to one year post radiotherapy with two-tailed Spearman rank tests between radiotherapy week 3 citrulline change and EPIC bowel toxicity change. A strong predictive trend was noted with positive correlations at 6 weeks post radiotherapy (correlation co-efficient =0.594, p=0.025), 3 months post radiotherapy (correlation co-efficient =0.534, p=0.060), 6 months post radiotherapy (correlation co-efficient =0.606, p=0.037), 9 months post radiotherapy (correlation co-efficient =0.618, p=0.019) and 1 year post radiotherapy (correlation co-efficient =0.358, p=0.034). No significant correlation was found between changes in plasma citrulline levels or EPIC reported toxicity and the small bowel V15, dose to 1cm², dose to 17cm² or max point dose.

Conclusions: Decreases in plasma citrulline after 3 weeks of pelvic EBRT may have the potential to predict small bowel toxicity in prostate cancer patients receiving radical external beam radiotherapy. Further study in a larger cohort is warranted.

PO-0740
An image-guided SBRT phase II study with a dose of 42 Gy in 7 fractions for the localized prostate cancer
C. Foti1, A. Magli1, M.R. Malisan1, T. Ceschia1, M. Crespi1, A. Prisco2, G. Parisi1, F. Titone2, S. Fongione2
1Azienda Ospedaliero Universitaria Udine, FISICA SANITARIA, Udine, Italy
2Azienda Ospedaliero Universitaria Udine, RADIOTERAPIA ONCOLOGICA, Udine, Italy

Purpose/Objective: Radiation therapy (RT) after radical prostatectomy (RP) improves prognosis in patients with high risk prostate cancer. However 5-year biochemical recurrence-free survival (bRFS) is only 75-80%. An advantage of hypofractionation is to reduce RT duration and to improve the probability of cure. However hypofractionation is potentially associated with an increased incidence of late toxicity, especially after RP. Data on efficacy and tolerability of hypofractionated RT in the postoperative setting are still lacking. Therefore, aim of this study is to compare two different trials using postoperative RT with conventional fractionation versus hypofractionation.

Materials and Methods: In an observational study, postoperative RT was performed with three dimensional conformal radiotherapy (3DCRT) (Total dose: 70.2 Gy/1.8 Gy per fraction). In a fase I-II trial, postoperative RT was performed with intensity modulated radiotherapy (IMRT) using simultaneous integrated boost (SIB) technique (Total dose 62.5 Gy/2.5 Gy per fraction). In both trials, prophylactic nodal irradiation and/or adjuvant hormonotherapy were administered according to risk factors. bRFS (PSA < 0.2 ng/ml), local control, disease-free-survival (DFS) and overall survival (OS) were analyzed using Kaplan-Meier method. A comparison of the survival curves was performed using long rank test (univariate analysis) or Cox Proportional Hazards Method (multivariate analysis; covariates: risk group, nodal irradiation and hormonotherapy duration).

Results: Considering the two studies, 194 patients were enrolled. Three-year bRFS was 83.3% (pN0: 90.3% vs pN1: 62.5%). The results are shown in Table 1. In terms of bRFS there was no statistical difference between the two series, even at multivariate analyses (p= 0.689).

Conclusions: High dose adjuvant RT modulated based on risk factors (+/- prophylactic nodal irradiation, +/- adjuvant hormonotherapy) produced a better biochemical control compared to standard postoperative RT. Patients treated with IMRT-SIB technique showed a lower rate of acute and late gastrointestinal toxicity.