Table 1. Comparison of SBRT and VMAT arms in terms of amount of changes over time relative to baseline EORTC-PR25 functioning (sexual activity and sexual) and symptom (urinary, incontinence aid, bowel and hormonal) scores

	SBRT Mean±SD (Median)	VMAT Mean±SD (Median)	p	SBRT Mean±SD (Median)	VMAT Mean±SD (Median)	p
	Sexual Activity Functioning Scores			Sexual Functioning Scores		
RT Completion	-3±29(0)	0,8±39(0)	0,12	0,8±24(0)	0,0±29(0)	0,89
1.5 month	-10±37(0)	-5±41(0)	0,39	-1,7±22(0)	0,8±36(0)	0,56
4.5 month	-8±33(0)	-20±53(0)	0,87	-5,0±29(0)	-15,8±45(-4)	0,54
7.5 month	-13±40(0)	-19±53(0)	0,81	-4,6±29(0)	-16,3±45(-17)	0,40
10.5 month	-29±48(-33)	-28±50(0)	0,63	-20,0±43(-25)	-22,5±47(-17)	0,97
13.5 month	-25±39(-25)	-35±50(-17)	0,61	-19,6±36(-17)	-25,8±44(-21)	0,66
	Urinary Symptoms Scores			Incontinence Aid Scores		
RT Completion	-0,2±21(-2)	-3,7±39(0)	0,97	3,3±10(0)	0,0±19(0)	0,67
1.5 month	-0,8±16(0)	-12,7±37(-4)	0,18	3,3±10(0)	-1,7±17(0)	0,32
4.5 month	-6,7±16(-4)	-10,6±34(-6)	0,88	-1,7±8(0)	5,0±27(0)	0,19
7.5 month	-5,6±19(-4)	-10,4±35(-2)	0,81	1,7±17(0)	5,0±27(0)	0,43
10.5 month	-4,6±26(-2)	-6,9±36,7(0)	0,85	5,0±27(0)	5,0±27(0)	1,00
13.5 month	-5,6±27(-4)	-8,3±36,1(0)	0,90	0,0±22(0)	6,7±28(0)	0,26
	Bowel Symptom Scores			Hormonal Symptom Scores		
RT Completion	2,9±13(0)	-0,4±19(0)	0,98	3,1±16(6)	-2,8±11(0)	0,08
1.5 month	9,2±22(0)	-2,9±16(0)	0,31	6,1±13(6)	-1,1±15(0)	0,09
4.5 month	0,0±20(0)	-5,8±14(0)	0,42	6,9±17(8)	-5,3±15(0)	0,007
7.5 month	-0,4±20(0)	-3,3±20(0)	0,47	6,1±21(8)	-1,9±16(0)	0,10
10.5 month	-2,9±23(0)	-4,2±24(0)	0,76	6,1±21(8)	-5,0±15(-3)	0,027
13.5 month	-2,5±24(0)	-10,4±19(0)	0,21	5,6±23(3)	-7,5±14(-6)	0,021
	Total IPPS Scores			IPSS-Obstruction Scores		
RT Completion	0,1±7(-1)	3,2±6(2,5)	0,046	0,3±5(0)	1,2±3(0)	0,30
1.5 month	-1,0±7(-1)	0,3±5(0)	0,63	-0,9±5(-1)	-0,7±3(0)	0,61
4.5 month	-3,8±7(-2)	-2,0±4(-2)	0,50	-2,9±5(-2)	-1,5±3(-1)	0,40
7.5 month	-4,0±7(-2)	-1,4±5(-1)	0,30	-3,0±5(-1)	-1,5±4(-1)	0,46
10.5 month	-2,8±6(-2)	-0,6±8(-2)	0,57	-2,0±4(-1)	-0,9±6(-1)	0,99
13.5 month	-3,1±7(-1)	-2,4±5(-3)	0,92	-2,3±6(-1)	-2,0±3(-2)	0,79

Abbreviations: SBRT=Stereotactic body radiotherapy, VMAT= Volumetric Arc Therapy, SD=Standard deviation, IPSS=International Prostate Symptom Score
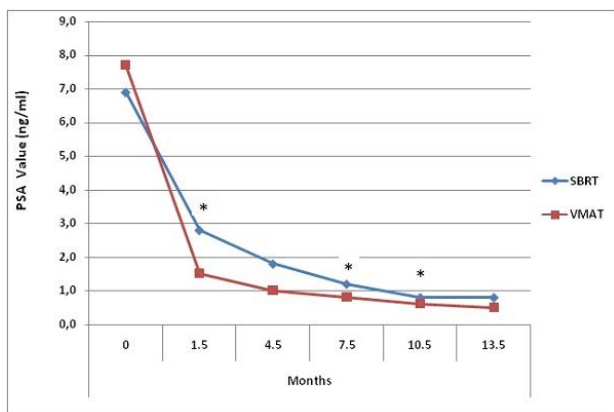
Conclusion: Both SBRT and VMAT treatments were highly successful in terms of PSA control. QOL assessment were found to be mostly similar between treatment modalities. Grade 3 urinary toxicities might be eliminated with careful patient selection for SBRT technique

PO-0751
Predicting recurrence after 3DC Radiotherapy for prostate cancer: proposal for a new classifier
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Purpose or Objective: The aim of this work is to develop an algorithm to predict recurrence in prostate cancer patients treated with radical radiotherapy, getting up to a prognostic power higher than traditional D'Amico risk classification.

Material and Methods: 2493 men belonging to the EUREKA-2 retrospective multi-centric database on prostate cancer and treated with external-beam radiotherapy (3D-CRT and or IMRT) as primary treatment comprised the study population. A Cox regression time to PSA failure analysis was performed in univariate and multivariate settings, evaluating the predictive ability of age, pre-treatment PSA, clinical-radiological staging, Gleason score and percentage of positive cores at biopsy (%PC). The accuracy of this model was checked with bootstrapping statistics. Subgroups for all the variables' combinations were combined to classify patients into five different "Candiolo" risk-classes for biochemical Progression Free Survival (bPFS); thereafter, they were also applied to clinical PFS (cPFS), systemic PFS (sPFS) and Prostate Cancer Specific Survival (PCSS), and compared to D'Amico risk grouping performances.

Results: the Candiolo classifier splits patients in 5 risk-groups with the following 10-years bPFS, cPFS, sPFS and PCSS: for very-low-risk 90%, 94%, 100% and 100%; for low-risk 74%, 88%, 94% and 98%; for intermediate-risk 60%, 82%, 91% and 92%; for high-risk 43%, 55%, 80% and 89% and for very-high-risk 14%, 38%, 56% and 70%. Our classifier outperforms D'Amico risk classes for all the end-points evaluated, with concordance indexes of 71.5%, 75.5%, 80% and 80.5% versus 63%, 65.5%, 69.5% and 69%, respectively.

Conclusion: Our classification tool, combining five clinical and easily available parameters, seems to better stratify patients in predicting prostate cancer recurrence after radiotherapy compared to the traditional D'Amico risk classes. This classifier must be validate by another prostate cancer series.
References: Gabriele D et al: Beyond D'Amico risk classes for predicting recurrence after external beam radiotherapy for prostate cancer: the Candiolo classifier. Radiat Oncol 2015, in press

PO-0752
Outcome of prostate cancer patients treated with 3DCRT: impact of rectal/bladder preparation
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Purpose or Objective: To test the hypothesis that rectal/bladder preparation is associated with an increase in Cancer Specific Overall Survival (CSOS), in Clinical Disease Free (CDFS) and Biochemical Disease free Survival (BDFS)

Material and Methods: From October 1999 to March 2012, 1080 prostate cancer patients (PCa) were treated with 3DCRT. 761 patients (pts) were treated with empty rectum and comfortable full bladder while for 319 pts no rectal/bladder preparation (NRBP) protocol was adopted. The mean age was 69.2±5.6 years. The mean prescribed dose was 76±2 Gy. The mean followup was 81±39 months. Survival analysis was performed by Kaplan Meier method. Comparison between groups were made with the log-rank test. A Cox proportional hazards model was applied for univariate (UVA) and multivariate analysis (MVA). Hazard Ratio (HR) was used to measure how rapidly an event occurs.

Results: Pts with rectal/bladder preparation (RBP) have significantly lower biochemical and clinical failures rates and lower risk of dying of PCa respect to NRBP pts (log-rank p<0.0001). At 140 months for RBP and NRPB, the CSOS was 95% vs 85%, the CDFS was 81% vs 71%, the BDFS was 64% vs 48 %, respectively. Table 1 shows UVA and MVA results. In MVA, for CSOS the Gleason Score (GS) and RBP predicted for death from PCa, while for CDSF and BDFS the GS, D'Amico Risk Classification, PSA, dose>75 Gy, clinical stage and RBP

predicted for clinical and biochemical failures. MVA indicates that RBP is an independent risk factor for biochemical failure (p=0.003, HR=0.6) while it is the strongest risk factor for clinical failures and PCa deaths (p<0.0001, HR<0.5, regression coefficient b<-0.5). No statistical significant difference in rectal volume between RBP (mean volume 62.4±24.5 cc) and NRPB (mean volume 63.4±27 cc) was observed (chi square p value equal to 0.52)

Cancer Specific Overall Survival	Univariate Analysis			Multivariate Analysis		
	p	b	HR	b	p	HR
% Positive Cores	0.0001	0.020	1.02			
Number of positive Cores	0.0060	0.150	1.16			
Bioptic Gleason Score	<0.0001	0.680	1.98	0.650	<0.0001	1.92
D'Amico Risk Classification	<0.0001	1.020	2.80			
Lymph nodes irradiation	0.0001	1.130	3.10			
Seminal Vesicle irradition	<0.0001	2.180	8.80			
Rectal/Bladder preparation	0.0002	-1.030	0.36	-1.220	<0.0001	0.29
Clinical- radiological Stage	0.0001	0.880	2.42			
Positive lymph node in CT	0.0001	1.300	3.70			
PSA	0.029	0.004	1.00	0.005	0.03	1.01
Biochemical Disease Free Survival	**Univariate Analysis**			**Multivariate Analysis**		
	p	b	HR	b	p	HR
% Positive Cores	<0.0001	0.01	1.01			
Number of positive Cores	<0.0001	-0.09	1.10			
Bioptic Gleason Score	<0.0001	0.32	1.37	0.1	0.027	1.15
D'Amico Risk Classification	<0.0001	0.65	1.92	0.41	<0.0001	1.50
Lymph nodes irradiation	<0.0001	0.81	2.26			
Seminal Vesicle irradition	<0.0001	0.99	2.69			
Rectal/Bladder preparation	<0.0001	-0.65	0.52	-0.60	<0.0001	0.50
Clinical- radiological Stage	<0.0001	0.58	1.79	0.30	0.008	1.34
Positive lymph node in CT	<0.0001	0.81	2.24			
PSA	<0.0001	0.00	1.004	0.002	0.014	1.00
Dose>75 Gy	0.0098	-0.43	0.65	-0.39	0.02	0.67
Clinical Disease Free Survival	**Univariate Analysis**			**Multivariate Analysis**		
	p	b	HR	b	p	HR
% Positive Cores	0.0001	0.01	1.01			
Number of positive Cores	<0.0001	0.14	1.14			
Bioptic Gleason Score	<0.0001	0.45	1.57	0.2400	0.0040	1.27
D'Amico Risk Classification	<0.0001	0.77	2.17	0.560	0.0001	1.73
Lymph nodes irradiation	<0.0001	0.99	2.70			
Seminal Vesicle irradition	<0.0001	1.09	3.00			
Rectal/Bladder preparation	0.0010	-0.52	0.56	-0.4900	0.0030	0.61
Clinical- radiological Stage	0.0002	0.50	1.65			
Positive lymph node in CT	0.0002	0.82	2.28			
PSA	<0.0001	0.00	1.00	0.0034	0.0030	1.00
Age	0.003	-0.04	0.96	-0.041	0.0020	0.96
Dose>75 Gy	0.006	-0.61	0.54	-0.500	0.0200	0.60

Figure 1: Univariate and multivariate Cox regression analysis

Conclusion: We found strong evidence that rectal/bladder preparation significantly decreased (HR<0.6, b<-0.5) the probability of death from PCa, biochemical and clinical failures in patients who were treated with 3DCRT for PCa without daily image-guided prostate localization, presumably because pts with RBP are able to maintain a reproducible empty rectum and comfortable full bladder for all the treatment. These results also emphasize the routinely need of image-guided radiotherapy to improve outcome in prostate cancer patients

PO-0753
Prospective evaluation of urinary function in patients with prostate cancer treated with RT
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Purpose or Objective: The aim of the study is to prospectively evaluate urinary symptoms using the International Prostate Symptom Score (IPSS) in patients with localized prostate cancer (CaP) treated with radical (RRT) or postprostatectomy (PRT) radiotherapy delivered with conventional (CONV) or moderately hypofractionated (HYPO) fractionation.

Material and Methods: We considered patients enrolled in the two multicentric prospective observational studies DUE01 (RRT, CONV and HYPO) and IHU WPRT TOX (RRT and PRT, including irradiation of the pelvic lymphnodal area, CONV and HYPO). The IPSS questionnaire, evaluating 7 symptoms (IPSS1-IPSS7) and a quality of life (IPSS8), is filled in before and at the end of RT, then 3 and 6 after treatment end and every 6 months thereafter up to 5 years after the end of treatment. In this preliminary analysis only data relative to first year will be analyzed. Longitudinal trends were assessed by analysis of variance (anova).

Results: The analysis pertains to 146 RRT CONV pts, 104 RRT HYPO pts, 74 PRT CONV pts and 94 PRT HYPO. The median age in the 2 studies was 71 (RRT) and 66 (PRT) years (p = 0.0001). Overall, urinary function was always better in the RRT CONV cohort. Statistically significant differences among the 4 groups have emerged with respect to urinary frequency, urgency, effort, nocturia. When comparing RRT vs PRT, frequency (p = 0.007) and stress (p = 0.01) were significantly more present in PRT, while only a borderline difference in terms of urgency (p = 0.07) was evident. The last item of IPSS shows a significant difference of quality of life between groups, especially at 12 month where RRT cohort, especially CONV, shows a better score than PRT patients. Figure 1 shows the comparison of each group for all IPSS items (incomplete emptyng, urinary frequency, intermittence, urgency, urinary stream, obstruction, nocturia, QoL), evaluating the mean response in the first five time of compilation (Rt start, RT end, 3m, 6m, 12m).
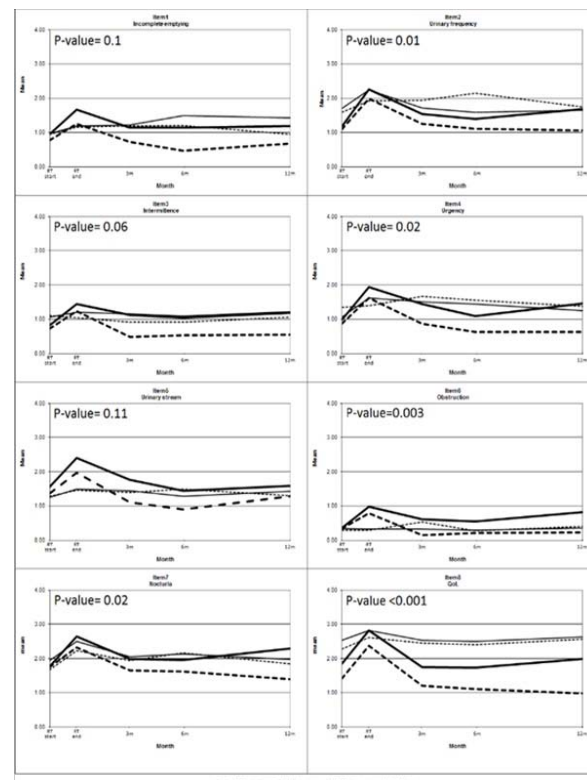
Conclusion: These preliminary results seem to suggest that RRT would result in less deterioration of urinary symptoms over time than PRT, especially RRT with conventional fractionation. Further analyses are ongoing in order to study the effect of baseline urinary situation, age, doses to the bladder and the impact of each urinary symptoms on quality of life.

PO-0754
Whole body Integral dose is associated with radiotherapy related fatigue in prostate cancer
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