Purpose or Objective: The fear of radiotherapy-induced urinary incontinence (URINC) often contraindicates post-prostatectomy RT (POPRT), despite the lack of accurate data about its real incidence and severity. The purpose of this analysis was to analyze clinico-dosimetric factors predicting severe, self-reported URINC 1 and 2 years after POPRT.

Material and Methods: In 2012 a longitudinal, observational study aimed at assessing URINC from POPRT including prophylactic whole-pelvis irradiation (WPRT) was activated at our Institute. For the evaluation of urinary toxicity, 2 validated questionnaires, IPSS and ICIQ-SF, are to be filled-in by pts at baseline, at RT mid-point and end, and at 3 and 6 months after RT conclusion, and every 6 months thereafter. This analysis pertains to the first 101 pts correctly filling the questionnaires at baseline and at 12 months (60 also at 2 years). Fifty-four and 47 pts were treated with adjuvant (ADV) and salvage (SALV) intent after a median of 4 and 38 months, respectively, from radical prostatectomy (RP), with either conventional (n=42) or moderately hypofractionated (n=59) regimens, at a median 2-Gy equivalent dose (EQD2) to the prostatic bed of 70 and 74 Gy in ADV and SALV cohort, respectively, and a median EQD2 dose of WPRT of 50 Gy.

Results: The mean baseline ICIQ scores were 7.8 and 4.8 in ADV and SALV cohorts, respectively (p=0.009). The corresponding values at 1 and 2 years were 7.4 vs 7.3 and 8.5 vs 7.9, respectively. Severe URINC (≥13 points) was recorded in 23% and 19% at 1 year, and in 17% and 21% of pts treated with ADV and SALV intent, respectively (p<0.001). The 75th quartiles of ICIQ at 12 (ICIQ12) and 24 (ICIQ24) months (12 and 13 points, respectively), were set as end-points for regression logistic analysis. Several clinico-dosimetric factors, including age, diabetes, hypertension, pT and pN stage, # of removed LNs, RT intent, time from RP to RT, fractionation, EQD2, adjuvant androgen deprivation (AAD), IQQ and IPSS baseline values were analyzed. Variables with a p-value <0.20 at univariable analysis were entered into a backward stepwise multivariable model indicating baseline ICIQ and nocturia (IPSS item #7) and AAD as predictors of ICIQ12 (AUC 94%), while baseline ICIQ and EQD2 predicted ICIQ24 (AUC 89%).

Conclusion: The risk of long-term severe URINC 1 and 2 years after POPRT is strongly modulated by baseline URINC, and by AAD and higher EQD2, respectively (Figure 1).

PO-0750
Conventionally-fractionated VMAT vs. SBRT in prostate cancer:PSA kinetics, toxicity, quality of life
M. Tambas1, F. Agaoglu1, A. Iribas1, M. Guevelli1, Y. Dizdar1, M. Okutan2, D. Oezkan3, N. Tenekeci1, E. Darendeliler3
1Istanbul University Institute of Oncology, Radiation Oncology, Istanbul, Turkey
2Istanbul University Institute of Oncology, Medical Physics, Istanbul, Turkey
3Istanbul University Institute of Oncology, Radiology, Istanbul, Turkey

Purpose or Objective: In the present study, conventionally fractionated volumetric arc therapy (VMAT) and hypofractionated stereotactic body radiotherapy (SBRT) modalities were aimed to compare in terms of side effects and quality of life (QOL) in patients with localized prostate cancer.

Material and Methods: Patients who admitted to I.U. Institute of Oncology with a diagnosis of localized prostate cancer during the period from March 2010 to December 2013 were included into the study. Patients received radical RT with dose schedules of either 33.5 Gy/5 fr for SBRT or 75.6 Gy/35 fr for VMAT. Acute and late side effects of treatment were evaluated according to CTCAE version 4. IPSS and EORTC QOL-PR25 forms were used to assess QOL at baseline, end of treatment and during follow-up.

Results: Of the 48 patients (28 SBRT, 20 VMAT) who were included into the study, 40 (20 SBRT, 20 VMAT) were evaluated for their QOL status. All demographic and pathological features including median age of the patients, clinical manifestations, and the risk groups were found to be similar between treatment groups. PSA control rates were ≥100 in both arms during the follow up with a median of 23 months. PSA nadir values were detected to be 0.5 ng/dl in both arms. PSA bounce was observed in 43% and 50% of patients in SBRT and VMAT arms, respectively. The magnitude of PSA bounce value was significantly higher in SBRT arm compared with VMAT (0.8 ng/dl vs. 0.1 ng/dl, p=0.01). PSA decline rate in VMAT arm was found to be significantly higher than in SBRT arm (p = 0.028). Grade 3 rectal toxicity was not observed in any of the treatment arms. Although Grade 3 urinary side effects were not seen in patients treated with VMAT technique, 3 patients (10.7%) in SBRT arm with a history of TURP before RT experienced Grade 3 urinary toxicity. No significant difference was observed between the two arms concerning sexual activity functioning and sexual functioning scores whereas the scores at 10.5 and 13.5 months were found to be significantly decreased compared with baseline in both treatment arms. SBRT and VMAT arms did not differ significantly regarding urinary, incontinence, bowel symptom scores and IPSS obstruction scores. The magnitude of increase in IPSS scores at the end of the treatment compared with baseline were detected to be significantly higher in VMAT arm than SBRT arm (p=0.046). The decrease in hormonal symptom scores at 4.5, 10.5 and 13.5 months compared with baseline was detected to be significantly higher in VMAT arm than SBRT arm (p=0.007, p=0.027, and p=0.021, respectively).

![Image](image_url)
Predicting recurrence after 3DC Radiotherapy for prostate cancer: proposal for a new classifier

PO-0751

Predicting recurrence after 3DC Radiotherapy for prostate cancer: proposal for a new classifier


1Candiolo Cancer Centre - FPO-IRCCS, Radiotherapy, Candiolo, Italy
2Candiolo Cancer Institute - FPO-IRCCS, Radiotherapy, Candiolo, Italy
3University of Torino, Neuroscience Department - Physiology Unit, Turin, Italy
4Candiolo Cancer Centre FPO -IRCCS, Department of Radiotherapy, Candiolo Turin, Italy
5IEO Milan, Radiotherapy, Milan, Italy
6Novara H- Univ Agodaro, Radiotherapy, Novara, Italy
7Candiolo Cancer Centre FPO-IRCCCS, Department of Radiotherapy, Candiolo, Italy
8Asti Hospital, Radiotherapy, Asti, Italy
9Bietla Hospital, Radiotherapy, Biella, Italy
10Ivrea Hospital, Radiotherapy, Ivrea, Italy
11Verbania Hospital, Radiotherapy, Verbania, Italy
12Candiolo Cancer Centre FPO-IRCCCS, Department of Radiotherapy, Candiolo, Italy
13Pisa Univ Hospital, Radiotherapy, Pisa, Italy
14Physiology Turin University, Neuroscience, Turin, Italy

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-center 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 predictable 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%, 86%, 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.


PO-0752

Outcome of prostate cancer patients treated with 3DCRT: impact of rectal/bladder preparation

A. Maggio1, E. Garibaldi1, D. Gabriele2, S. Brescia1, E. Delmastro3, A. Di Dia1, A. Miranti1, M. Poli1, P. Gabriele2, M. Stasi1

1Candiolo Cancer Institute - FPO-IRCCS, Medical Physics, Candiolo, Italy
2Candiolo Cancer Institute - FPO-IRCCS, Radiotherapy, Candiolo, Italy
3University of Torino, Neuroscience Department - Physiology Unit, Turin, Italy

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 NRBP, 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 10 Pts, while for CDFS and BDFS the GS, D’Amico Risk Classification, PSA, dose=75 Gy, clinical stage and RBP