

tumor infiltration, postoperative tumor grade, stage and Gleason score.

Conclusions: Patients with higher prostate volume before RP, had higher postoperative PSA, postoperative uPSA levels and grade of AGA after RP. The difference emerged most probably due to higher local DHT activity in the scalp and PSA-secreting urethral glands.

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Using image guided radiotherapy for prostatic cancer treatment

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Introduction and Objectives: Modern Image Guided radiotherapy (IGRT) techniques allow physician to relocate the target volume in order to ensure a better CTV coverage by the delivered dose. CTV margin enlargement to obtain the PTV is a critical step during planning procedures and the aim of this study is the evaluation of movements of CTV (due to internal movements and setup errors) obtained by IGRT methods in order to individualize the PTV margin

Material and Methods: Patients affected by prostate cancer were planned twice during CTV delineation procedure: the 1st time by using a standard CTV to PTV enlargement procedure with margins common to all patients. Afterwards the patients started the treatment and during the 1st week of therapy each one underwent to daily Cone Beam CT (CBCT) scanning before dose delivery (5 CBCT scans for each patient). Subsequently CBCTs were registered with the simulation CT by overlapping the images in order to obtain the superimposition of all CT isocenters, hence allowing the overall movements evaluation both for organ motion and setup movements at the same time. A new CTV-IGRT contour was defined by merging all the positions of the prostate and seminal vesicles in the 6 CTs (1 simulation + 5 CBCT) and finally a further 3 mm margin in all directions was added to obtain the a individualized IGRT based PTV. Both the 1st part of the treatment (before the IGRT based optimization) and the 2nd one were planned using IMRT optimization procedures. The size of PTVs in both phases of the treatment were compared. DVH were collected to compare the dose distribution on bladder and rectum before and after the IGRT optimization process of PTVs in order to evaluate differences in dose distribution due to the PTV optimization procedure

Results: Thirteen prostate cancer patients were enrolled in this study. The shrinking of volumes is always significant comparing the pre-IGRT PTV volume with the post-IGRT optimized PTV using the paired sample T-test. A dosimetric analysis was performed by comparing the volume of the rectum and the volume of the bladder receiving 50 Gy (V50) in all the patients calculating these values on the delineated critical structures on the simulation CT. The reduction of the V50 was significant only for the rectum and not for bladder.

Conclusions: Using CBCT for the optimization of PTV delineation seems to be helpful reducing the amount of the rectal volumes receiving highest dose levels. This fact is due to the PTV shrinkage obtained after a re-delineation and re-plan realized thanks to the CBCT imaging data registered with the simulation CT and this nevertheless a further PTV enlargement over the overlapped PTV delineated on the simulation and cone beam ct scans. In conclusion the CBCT can be considered not only a way to relocate the CTV just during the therapy of the patient but also a useful tool to further optimize the planning procedures on individualized imaging data obtained directly during the treatment phase

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Impact of radiation therapy plus hormonal therapy in patients affected by high risk prostate cancer

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Introduction and Objectives: The role of Radiation Therapy (RT) for high risk prostate cancer is still debated. The aim of this study was to evaluate the biochemical recurrence free survival (b-Ned) in high-risk prostate cancer treated with RT combined Hormonal Therapy (HT).

Material and Methods: Patients affected by high risk prostate cancer were selected for this retrospective analyses. RT was combined with HT. Radiotherapy was delivered on prostate (CTV1) and seminal vesicles (CTV2) ± pelvic lymph nodes (CTV3); total dose was: 64–74 Gy (1.8 Gy/fx), according to T categorize, to CTV1, 55 or 64 Gy to CTV2 according to seminal vesicles status and 45 Gy (1.8 Gy/fx) to CTV3. 3D-conformal RT was always performed while intensity modulated RT was used when CTV3 was avoided. HT were administered combined to RT both neo-adjuvant (NAD) both concomitant and adjuvant (AD). High risk was defined according to the American Society for Therapeutic Radiology and Oncology [ASTRO] (Gleason score [GS] ≥8 and/or PSA ≥20 ng/mL). B-Ned was defined using ASTRO definition based on a sequence of 3 consecutive PSA rises. Acute and late toxicity were evaluated according to the EORTC-RTOG toxicity scale.

Results: From January 1998 to December 2007, 127 patients affected by high risk prostate cancer were identified. Median age was 71 years (range 42–80 yrs). Gleason score was ≤7 in 63 pts, 8 in 39 pts, 9 in 22 pts and 10 in 3 pts. PSA value at the diagnosis was <10 ng/mL in 24 pts, >10 and <20 ng/mL in 25 pts, ≥20 ng/mL in 82 pts. 19 patients presented Gleason score ≥8 and PSA ≥20 ng/mL. Clinical stages were distributed as follows: T1c: 1; T2a: 4; T2b: 4; T2c: ; T3a: 76; T3b: 40; T4: 1. Mean duration of HT was 26 months. Pelvic lymph node was treated in 62 pts while the dose delivered to prostate was 64 Gy in 4 pts, 70 Gy in 37 pts and 74 Gy in 86 pts. Acute gastrointestinal (GI) and genitourinary (GU) toxicity grade >2 was seen in 4 pts (3%) and 3 (2%) pts respectively while the same grade of late toxicity was seen in 3 pts (2%) respectively. Twenty seven pts developed a biochemical recurrence, with an actuarial 5-year b-Ned rate of 68%. The mean biochemical progression-free survival time was 86 months. Correlating the b-ned with the stage of disease, there is not statistical significance (p=0.4).

Conclusions: Our data suggest that RT combined with NAD, concomitant and AD HT for high risk prostate cancer is able to obtain good 5-years b-Ned with acceptable toxicity.

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The modified terminologia Anatomica of the nerve sparing laparoscopic radical prostatectomy: important landmarks of the procedure related with functional anatomy

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Introduction and Objectives: The aim is to stress important anatomic landmarks and functional importance of these in a model of patient who had laparoscopic radical prostatectomy.

Material and Methods: Extraperitoneal nerve-sparing radical prostatectomy might be summarized into seven steps. Terminologia Anatomica and its functional importance were