

P020 Image guided radiotherapy with fiducials in low and intermediate prostate cancer. Outcomes a six years

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Introduction & Objectives: Intensity-modulated radiotherapy (IMRT) for prostate cancer (PC) has facilitated the delivery of high radiation doses to the prostate and is associated with excellent biochemical tumor control outcomes for patients with localized disease. Image-guided radiotherapy (IGRT) takes advantage of intraprostatic fiducial marker (FM) placement and imaging of the target daily, increased technical precision and high dose to the target volume with dose limiting to the rectum and bladder (OAR). The objectives are to report long-term tumor control and late gastrointestinal (GI) and genitourinary (GU) toxicity rates in low e intermediate prostate cancer patients, treated with IMRT and IGRT with FM.

Materials & Methods: Between January 2012 and April 2016, 120 men with PC (T1c-T3a), prostate-specific antigen (PSA) 5-20 ng/dL, or Gleason score (GS) 4-7, received normofractionated external radiation therapy and IGRT. 31% received short androgen deprivation (AD) and 69% without AD. The dose was 76 Gy at least 98% the planning target volume in 38 (2 Gy) daily fractions, using IMRT with 6 Mv. Daily image guidance of the prostate was performed with two Electronic Portal Imaging Device (EPID) (antero-posterior and lateral) by automatic matching of the four fiducial markers, in ONCOR. Planning target volume was defined as prostate ± seminal vesicles with 7-mm margin in all directions, except 5-mm in rectal margin. Constraints: rectum V70<10%, V50<50%; bladder V70<35%, V65<50%. Biochemical failure was defined according to Phoenix criteria (nadir + 2ng/dL), and metastases was defined in bone imaging, computed axial tomography(TAC) or positron emission tomography-choline (PET). In general, follow-up was every 6 months during first 3 years and annually thereafter. GI and GU toxicity were prospectively assessed and scored according to the Radiation Therapy Oncology Group (RTOG).

Results: Median follow-up was 72 months (range 34-88). Median age was 69 years (range 52-79); 91% had a Gleason score (GS) of 4-6, and 9% had a GS of 7. Mean and median initial PSA was 7.8 and 7 ng/dL (range 3.6 -19 ng/mL). 71 (59%) patients were T1C, 29 (24%) T2A, 2 (1,6%) T2B, 15 (12,5%) T2C and 3 (2,5%) T3C. 91(76%) had low risk, 23 (19%) intermediate and 6 (5%) high risk. 11 (9%) patients developed biochemical failure and three of them with bone metastases. 14 (12%) patients died from other causes, and 7 (6%) were lost. Six-year actuarial biochemical recurrence-free, overall survival and cancer-specific rates were 79,2%, 87.5% and 99,2%, respectively. At the last follow-up (median 72 month), grade 1-2 late GI and GU toxicity rates were 4,1% and 12,5 %. No grade 3 or 4 late toxicity occurred.

Conclusions: IMRT and IGRT with intraprostatic FM for low and intermediate prostate cancer is associated with excellent long-term biochemical control and overall survival with very low late GU and GI toxicity.