P029 Linac-based SBRT for local recurrent prostate cancer after previous radiotherapy

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Introduction & Objectives: Traditionally, the use of external beam radiotherapy has been seen with concern in the case of locally relapsed prostate cancer after first course radiotherapy. Limited data on the use of stereotactic re-irradiation for prostate cancer (PC) are available and mainly referred to robotic techniques. Few experiences are currently available reporting data on the use of Linac-based stereotactic body radiotherapy (SBRT) in this setting of patients. We present preliminary data of 26 patients treated with Linac-based SBRT for recurrent PC after previous RT.

Materials & Methods: Inclusion criteria were as follows: previous curative or post-operative RT, evidence of biochemical recurrent disease with the radiological (MRI or PSMA/Choline PET-CT) detection of local relapse. A minimum interval of 12 months between the two radiotherapy courses was considered mandatory. SBRT re-irradiation was performed using volumetric modulated arc therapy (VMAT) technique. Toxicity was assessed following CTCAE v4.0.

Results:

Between December 2014 and April 2020, 26 patients with median age 75 years (range, 65-89) underwent re-RT for PC and 24 were available for outcomes evaluation. Relapsed disease occurred within the prostate in 15 cases and prostate bed in 11. Local relapse was detected by Choline PET in 19 cases, PSMA PET in 7 cases and MRI in one patient. Median PSA prior to the SBRT re-irradiation was 1.23 ng/ml (0.47 – 7.81 ng/ml). Median PSA doubling time was 12.55 months (5.4-36.3). Four patients received concurrent androgen deprivation therapy. Patients were treated with a median total dose of 30 Gy (25-36 Gy) in 5-6 fractions. Median CTV and PTV were respectively 20.8 cc (0.4–84.9 cc) and 43.4 cc (3.1-147 cc). Median follow-up was 21 months (2-69 months). Acute toxicity was: G1 in 10.3%, G2 in 10.5% for GU; no GI occurred. Concerning late events, G≥2 GU occurred in 19.7% including one G3 urethral stenosis. For GI toxicity we observed one G1, no G≥2. Three patients died with 1- and 2-year overall survival (OS) rates of 95%. Median PSA-nadir post-SBRT was 0.23 ng/ml (0.07 – 4.27 ng/ml). Our 1- and 2-year biochemical relapse-free survival (BRFS) and progression-free survival (PFS) rates were 80% and 54.9%, respectively; 1- and 2-year ADT-free survival rates were respectively 87% and 75%.

Conclusions: In our experience the use of Linac-based SBRT represents a safe and feasible re-treatment option for locally recurrent PC, with one late G3 toxicity reported. Preliminary BRFS and PFS rates are encouraging and also the impact on the potential delay of ADT start is promising; more mature data are warranted.