P017 Acute toxicity in moderate hypofractionation with Simultaneous Integrated Boost (SIB) radiation therapy for prostate cancer: A prospective study

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Introduction & Objectives: Clinical trials showed the non-inferiority of hypofractionation radiotherapy compared with conventionally fractionated radiotherapy of prostate cancer. Based on the radiation biology model, hypofractionation radiation therapy may improve the treatment without increasing toxicity in prostat cancer treatment. Our objective was to evaluate the acute toxicity profile using moderate hypofractionation intensity -modulated radiotherapy (IMRT) with SIB to intermediate and high risk prostate cancer patients.

Materials & Methods: We prospectively analized the data of 27 prostate cancer patients with intermediate and high risk prostate cancer treated with moderate hypofractionation IMRT-SIB in our department from June 2018- May 2020. IMRT-SIB plans were designed to deliver 49.4 Gy in 26 fractions to the pelvic lymph nodes (whole pelvis radiotherapy, WPRT) while simultaneously delivering 59.8 Gy in 26 fractions to the seminal vesicles and 70.2 Gy in 26 fractions to the prostate. Of these, 85% received hormonotherapy during RT and 63% in neoadjuvant. The pre-existing symptoms before treatment were excluded to correctly evaluate the toxicity. Acute genitourinary (GU) and gastrointestinal (GI) toxicity were scored weekly during radiotherapy and 4 weeks after completion of the treatment, according the Radiation Therapy Oncology Group (RTOG) scoring system.

Results: The mean age was 71.1 ± 5.25 years (range: 59-81 years). Ten patients (37%) were intermediat risk and 17 patients (63%) were high risk prostate cancer. All patients completed the treatment as planned. Seventeen patients (63%) were treated with WPRT. Acute GU toxicity was observed for grade 1, 2 and 3 in 63%, 30% and 7% of the patients, respectively. Most common GU toxicities were urinary frequency and urgency. None of the patients developed grade ≥ 3 acute toxicity. The rate of acute grade 1 and 2 GI toxicity were 37% and 15% patients, respectively. Most common GI toxicity was rectal discomfort but interventional therapy was not indicated.

Conclusions: Our data demonstrated that moderate hypofractionation IMRT-SIB in prostate cancer achiving high biological effective dose is feasible, well tolerated and with minimal severe acute toxicity profile. Longer follow-up is needed to collect data for late toxicities and clinical outcome assessment.