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Prostate cancer: Simultaneous integrated boost with Radixact® System, about a series of 74 patients

Objective:
This retrospective study was done to assess the impact of helical Radixact® (HR) on frequency and severity of acute gastrointestinal (GI) and genitourinary (GU) toxicity in prostate cancer.

Methods and Materials:
Between May 13th,2019 and May 25th,2020, a total of 74 patients who were diagnosed with localized and locally advanced prostate cancer were the first to be treated with HR radiotherapy in our department. We treated these patients with Simultaneous integrated boost (SIB). Of 74 patients, 70 (94.5%) underwent either a short- or long-term androgen deprivation therapy (ADT): neoadjuvant, concomitant and more or less adjuvant hormone therapy. The therapeutic dose for these patients was 52.7 Gy (in four fractions of 1.7 Gy per day) to pelvic lymph node area, while seminal vesicles and prostate received a SIB to a dose of 62 Gy (in four fractions of 2 Gy per day) and 71.3 Gy (in four fractions of 2,3 Gy per day) respectively. A dose of 62 Gy was administrated to the involved lymph node regions. All patients were classified according to the national comprehensive cancer network classification (NCCN): 14 patients (18.93%) were classified as intermediate risk,50 patients (67,57%) either high or very high risk and 8 patients (10.8%) as regional risk. Acute toxicity scores were recorded and evaluated weekly and after 3 months of radiotherapy (RT) using the common terminology criteria of adverse events V 4.03 (CTCAE).

Results:
The mean age was 70.71 years old; the incidence of both acute grade 1 and 2 GI toxicity was (31.15%) and (13.5%). Acute Grade 1 and 2 GU effects were observed in (27%) and (31.15%) of patients respectively. No side effects of grade 3 or higher occurred due to strict dose constraints, dietary and water instructions given by our department.
Conclusion:
The main purpose of our department is to improve the management of patients by increasing the doses of radiotherapy in prostate cancer and reduce side effects to improve the quality of treatment.
The IAEA's contribution is undeniable in implementing IMRT in our department in terms of training medical physicists and radiotherapy manipulators.
PS: We have no potential conflict of interest to disclose

Country or Int. Organization

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