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Implementation of IMRT technique in treatment of prostate cancer Experience of oncology radiotherapy department of Habib Bourguiba Hospital

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Purpose :

The aim of our study was to share our transition experience from 3D conformal radiotherapy to intensity modulated radiotherapy (IMRT) in treatment of prostate cancer.

Patients and methods :

From 2011 to 2016, 84 patients were consequently treated with curative intent for localized prostate cancer with 3D conformal radiotherapy in 46 cases (group 1) and IMRT in 38 cases (group 2). The median age was 69.5 years (50-81 years). According to D'Amico classification, 25 patients (54.3%) and 29 patients (76.3%) were at High risk in group 1 and 2 respectively. The positioning control was made by repeated portal imagery (PI). The objective was to carry out a PI per week for the 3D technique and at least 3 PI per week for the IMRT technique. Patients were followed weekly during treatment to determine the acute toxicities which were graded according to the Common Terminology Criteria for Adverse Events (CTCAE) v.4.

Results :

The dose of radiation was greater or equal to 74 Gy in 19 patients (41.3%) of the first group and 31 patients (81.7%) of the second group. No patient in the first group had prophylactic lymph node radiotherapy against 20 patients (52.6%) of the 2nd group. The median number of PI during treatment was 8 (3-11) for the first group and 15,5 (6-40) for the second group. We note that for the first 7 patients treated with IMRT IP was repeated almost daily to a better control. During radiotherapy 42 patients (91.3%) in group 1 had developed urinary toxicity, including three patients with Grade 3 toxicity. In addition, 18 patients (39.1%) had gastrointestinal toxicity, mainly grade 1 (17 patients).

For the second group, 36 patients (94.7%) had developed urinary toxicity grade 1 in the majority of cases (73%). Gastrointestinal toxicity was found in 18 patients (47.3%), mainly from grade 1 (14 patients). No grade ≥ 3 toxicity was noted. The difference was not significant between the 2 groups.

Conclusions :

The results of our study show that IMRT allows dose escalation beyond 74 Gy and prophylactic lymph nodes irradiation without increasing incidence and grade of acute toxicities with essentially the absence of acute toxicities \geq grade 3. On the other hand the IMRT was associated with an increase of the time of occupation of the treatment machine especially in relation, with the repetition of the PI.

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