

Helical Tomotherapy in the treatment of unfit bladder cancer patients: a mono-institutional study (2011-2017)

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AIMS

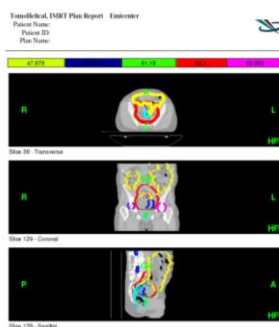
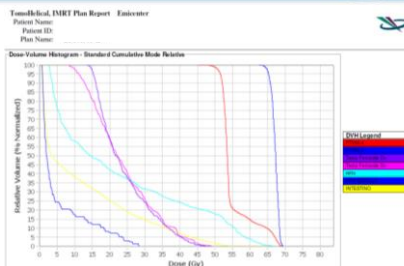
To evaluate the use of Helical Tomotherapy (HT) in the treatment of bladder cancer. The HT system employs a compact 6 MV Linac-based on CT ring gantry to rotationally deliver intensity modulated fan beams. Patients are translated through-out the gantry on a treatment couch, resulting in helical irradiation geometry. The HT unit also contains a mega-voltage CT detector array located opposite the radiation source for pre-treatment verification, allowing accurate re-positioning. This technique permits to precisely target tumors while minimizing impact on surrounding healthy tissue: this could be very interesting for unfit bladder patients, to reduce GU and GI toxicity.

METHODS

Thirty-one patients (age: 54-87) with bladder cancer were treated in our Institution from 2011 to 2017 with Helical Tomotherapy. None of these patients were fit for surgical indication due to concomitant medical conditions. None of these patients had concomitant chemotherapy due to medical conditions. 18/31 (58%) of these patient had positive lymphonodes. CT axial scanning was performed at 5-mm intervals: for this purpose a CT Multislice GE Healthcare Discovery 590HT was used. The radiation oncologists contoured the volumes of interest (CTV) according to the RTOG guidelines. The planning target volume (PTV) was generated from the CTV volume by adding a 3 mm margin in all directions. Accurate delineation of organ at risk was performed. In these patients, we used several radiotherapy schedules, according to volume and site of cancer and considering performance status of the patients. Treatment plans were evaluated on a dedicated TPS.

RESULTS

27/31 of these patients performed scheduled radiotherapy: 3 patients ended early treatment for cardiac condition, 1 for diabetes complications. Median follow up was about 11 months (range 2-41). All patients had acute GU toxicity: 17 patients (63%) had G1, 7 patients (25%) had G2 and 3 patients (12%) had G3. Late GU toxicity was seen in 7 patients (26%) as G1 and in 2 patients (7%) as G2. 15 patients (55%) had GI toxicity: 13 patients (86%) had G1, 2 patients (14%) had G2. Late GI toxicity was seen in 4 patients (15%) as G1. Overall Survival (OS) was 79% at 1 year, 66% at 2 years and 41% at 3 year.



DISCUSSION

Helical Tomotherapy is a safe and feasible technique to treat unfit patients with bladder cancer. All patients had acute GU toxicity, but it was acceptable for the greatest part of them. Acute GI toxicity was acceptable too. Late toxicity, both GU than GI, was never \geq G3. The OS is surely influenced by the poor clinical concomitant conditions of the patients too.

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