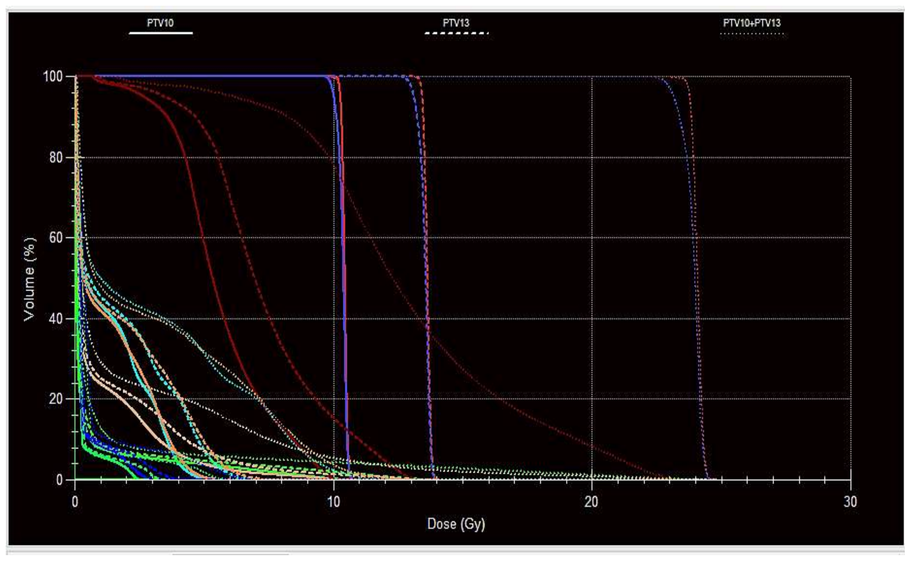
Discontinuous hypofractionated radiation therapy for treating bladder cancer related hematuria

F. Marampon[1], T.Pironti[2], A. Argenone[2], M.Fasano[3], M.Carfora[4], G.L. Gravina[5], V. Tombolini[1], ***V. Carfora[2].***

[1]Radiation Oncology, Department of Radiation Oncology, University of Rome, Sapienza, 00161, Rome;
[2]Radiation Oncology, Department of Radiation Oncology,''San Pio'' Hospital, 82100 Benevento, Italy;
[3]Medical Oncology,Department of Precison Medicine, University of Campania ''L.Vanvitelli'',80138, Naples;
[4]Department of Radiology, Maddaloni, Covid Hospital, 00161, Caserta;
[5]Radiation Oncology,Department of Radiation Oncology, University of L'Aquila, L'Aquila, 67100.

BACKGROUND

Hematuria is described in approximately 85% of patients with bladder cancer, resulting the most frequent symptom (1). Hemostatic radiotherapy represents a valid alternative for palliative care in patients unsuitable for surgery and the most frequently used dose fractionation regimens are 30 Gy in 10 fractions (BED10 = 39 Gy), followed by 20 Gy in 5 fractions (BED10 = 20 Gy) (2). However, the optimal schedule remains undefined and the most widely used fractions require the patient's daily and prolonged collaboration with adverse consequences on the patient's Quality of Life (QoL) (3). Hypofractionated radiotherapy (HFRT) may be able both to ensure a shorter duration of treatment resulting in less impact on QoL and more effective/quick in controlling hematuria (4). Herein we report our experience on using HFRT in 13 patients with bleeding bladder cancer by describing its benefits in symptomatological control and evaluating the limits of the date available in literature, and exploring the results of clinical trials and future directions.



Plan evaluation PTVs and OARs in a patient with non-operable bladder cancer.

METHODS

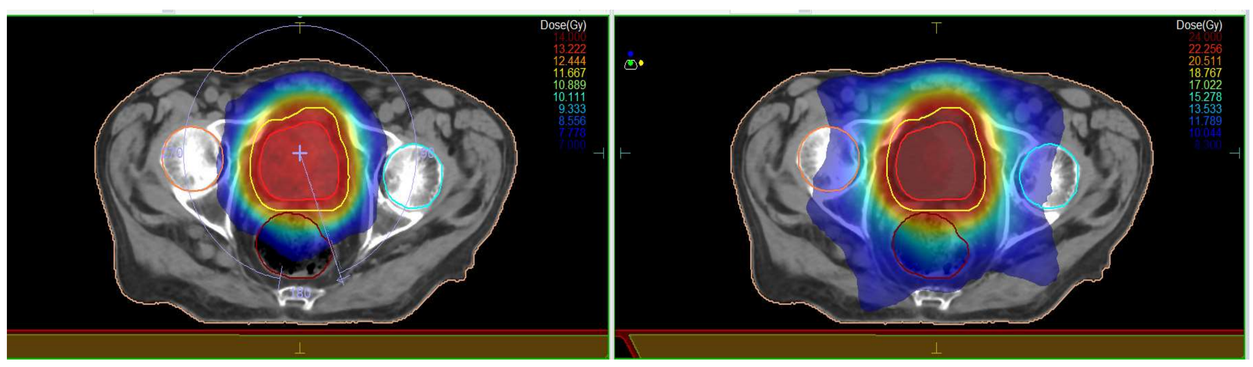
Thirteen patients, nine male and four female, with non-operable bladder cancer were treated with 23 Gy in 4 fractions, 6.5 Gy on days 1 and 3, followed by 5Gy/fr on days 15 and 17. Centering Computed Tomography (CT) was performed at full bladder. Clinical target volumes (CTV) included the whole bladder, with an expansion of 1 cm for Planning Target Volume (PTV). Cone beam CT was performed at the beginning of HFRT and at each treatment session with the Hexapod system for corrections of the table rotation. The dose constraints were applied to meet dose criteria for target and OAR. The primary endpoint was the Hemostatic Control (HC) rate at the end of the radiation cycle. Secondary endpoints included mid-term HC, toxicities and over- all survival. Comparative analyses were performed by exact Fisher test with a cut-off of 0.05 for statistical significance.

RESULTS

HC was obtained in all patients at the end of treatment with HFRT. Haemoglobin levels, well below normal before treatment, were normal at the end of HFRT. No acute or late gastrointestinal and/or genitourinary toxicity was reported.

CONCLUSIONS

HC was obtained in all patients at the end of treatment with HFRT. Haemoglobin levels, well below normal before treatment, were normal at the end of HFRT. No acute or late gastrointestinal and/or genitourinary toxicity was reported.



Dose distribution in HFRT plan

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