

Abstract - ID: 72

Author(s): MOHAMED HEGAZY (**Presenter**), KFSH&RC, Riyadh, KSA

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Title: WHICH HAS BETTER DOSIMETRY IN RETROPERITONEAL SARCOMA: RAPID ARC OR 3D CONFORMAL RADIOTHERAPY TECHNIQUES?

Abstract:

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Aim: Our aim to investigate which radiotherapy technique is better in retroperitoneal sarcoma rapid Arc (RA) or 3D-conformal radiation therapy (3D-CRT).

Methods and Materials: Our study was on 10 patients with retroperitoneal sarcoma diagnosed at king Faisal Specialist Hospital & Research Center, Riyadh, Saudi Arabia, planned for preoperative radiation therapy with prescribed dose of 45Gy in 25 fractions. In both techniques, we looked at planning target volume coverage, dose homogeneity and organs at risk dose (stomach, Bowel, Liver, Kidney, Spinal cord).

Results: The PTV coverage, liver, kidney and stomach doses were similar in both plans however; RA improved dose conformity (0.8 vs 0.4, p=0.034), dose homogeneity (1.08 vs 1.3, p=0.026), less small bowel volume (V45 157cc Vs 305cc, p=0.03) and lower maximal spinal cord dose (60% Vs 80%, p=0.043).

Conclusion: Both plans achieved similar target coverage and organs at risk sparing however; RA showed statistically significant better dose homogeneity, dose conformity, bowel sparing volume, and spinal cord dose in treating retroperitoneal sarcoma by preoperative radiation therapy.

Keywords: Retroperitoneal Sarcoma, Preoperative, Conformal, Rapid Arc.

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Abstract - ID: 358

Author(s): Ibrahim Duhaini (**Presenter**), Rafik Hariri University Hospital

Are you an invited speaker/presenter to ICRM2018?: Yes

Title: Out-of-Field Radiation Organ Dose Measurements and Associated Secondary Cancer Risk Estimation in Patients Treated with Breast Cancer in Lebanon

Abstract:

Introduction: According to the National Cancer Registry in Lebanon for the years 2003 till 2007, more than 40 % of registered cancers in Females have Breast Cancer. According to the latest Report published by the NCR, Breast cancer remained the most relatively frequent cancer throughout the years (42-43%). The annual incidence rate for breast cancer has been increasing from 72/100,000 in 2005, to 87/100,000 in 2007. According to the World Health Organization 2003 Report, Breast cancer is the leading cause of cancer deaths worldwide in women under the age of 55 and more than one million women are diagnosed with breast cancer each year. Breast Cancer patients have different options of treatment depending on the age, type of cancer and other factors. These options include: Surgery, Chemotherapy, Hormonal Therapy, Radiation Therapy and other non-traditional therapies. In radiation therapy, our concern, the tumor in the Breast will be exposed to high-energy X-rays that destroy cancerous cells. It is often used as post-surgery therapy in an

effort to kill any remaining undetectable cancer cells that may have invaded areas nearby the original site of the tumor. Purpose: During radiation therapy of the breast, other organs in the body may receive a significant radiation dose that triggers a secondary cancer in these organs. In this study, the Out-of Field radiation doses will be measured in some organs and will be evaluated for the development of radiation induced cancer as recently defined by the International Commission on Radiological protection (ICRP). Materials and Methods: An

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Abstract - ID: 449

Author(s): Mohamed Daoud (**Presenter**), Mansoura university
Mohamed Mahfouz, King Abdullah medical city

Are you an invited speaker/presenter to ICRM2018?: No

Title: Involved-site radiation therapy by Volumetric Modulated Arc Therapy versus 3D- conformal radiotherapy for treatment of stages I & II supra-diaphragmatic Hodgkin`s lymphoma

Abstract:

Purpose: Based on the observation that recurrences of Hodgkin`s lymphoma (HL) typically occur in sites of initial nodal involvement the need to concise radiotherapy to only involved nodes that was termed as involved nodal radiotherapy (INRT) or of involved site lymph nodes, Involved-site radiation therapy (ISRT) is starting to be widely accepted to use in early stage HL. We aimed in our study to compare between Rapid Arc and 3D-conformal radiotherapy in radiation of early stage supra-diaphragmatic HL. Methods and Materials: The clinical and dosimetric data of 34 patients affected with stages I&II supra-diaphragmatic HL, treated between January 2011 and September 2015 with combined modalities therapy in a single institution were analyzed. Patients received 2-8 cycles of ABVD chemotherapy on days 1 and 15 repeated every 28 days. The pre-chemotherapy CTV (contoured on the basis of pre-chemotherapy CT and PET-CT scans) modified according to post-chemotherapy anatomic boundaries. The radiotherapy delivered 30Gy in 15 fractions of 2Gy. Results: After a median follow up period of 30 months, the PFS and OS in both groups were 100%. Oropharyngeal mucositis was the commonest toxicity in both groups. There was no statistically significant deference between the acute radiation toxicities in both groups. The Dmean value for lung was higher in 3D-CRT than RA (12.0Gy±6.1 vs. 9.9Gy±8.6). For the breasts volume, the V5 was slightly higher for 3D-CRT compared with RA at, 7.6% and 6.5% respectively. For the heart, V5 and V10 values were higher for the RA than for 3D-CRT accounting for (51.9±28.9 and

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Abstract - ID: 495

Author(s): ZERGOUG ISMAIL (**Presenter**), EHSO Emir Abdelkader

Are you an invited speaker/presenter to ICRM2018?: No

Title: The evaluation of AAA and MGS dose calculation algorithms in the treatment of nasopharyngeal cancer

Abstract:

Purpose/Objective : The aim of this study is to investigate and compare the accuracy of AAA and MGS dose calculation algorithms in the case of 3DCRT of nasopharyngeal cancer.

Materials and Methods: A comparison between AAA (Eclipse v11) and MGS (XiO v4.4) dose calculation algorithms were performed in 3DCRT of nasopharyngeal cancer. The five fields technique was used for planning. First, the accuracy of an inhomogeneity correction for AAA and MGS algorithms was evaluated by comparing with MC calculation. Next the thirty (30) 3DCRT plans with AAA and MGS algorithms were compared by means of dose volume histogram, dose conformity index, dose homogeneity index and uniformity index of the PTV.

Results: AAA and MGS dose distributions was in good agreement with those of MC. A slight difference in dose in air is observed for AAA algorithm; the dose in air region decreased in order of MC into account by AAA regarding MGS that was able to model more precisely the inhomogeneities effects on scatter radiation using the density scaling method. Conformity index, homogeneity index, and uniformity index for AAA and MGS were respectively: 0.822 ± 0.075 and 0.802 ± 0.078 , 0.374 ± 0.097 and 0.282 ± 0.055 , 1.313 ± 0.174 and 1.194 ± 0.042 .

Conclusion: MGS was relatively more accurate than AAA in the treatment of nasopharyngeal

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