

## The use of intensity modulated radiotherapy as a mean of reducing dose to bone marrow for patients with cancer cervix treated at NCI, cairo, Egypt

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**Purpose:** In this study, our aim is to make the BM as organ at risk in the treatment planning process to reduce the irradiated bone marrow volume in cases treated for cancer cervix.

**Patients & Methods:** At the NCI, Cairo, Egypt, C-T simulation was done for 13 patients with cervix cancer with contrast and full bladder. The clinical target volume was contoured on axial CT slices consisting of the upper one-half of the vagina, parametria, uterus, cervix, presacral region and regional lymph node regions (common, internal and external iliac lymph nodes). 1 cm margin was added around the clinical target volume to form the planning target volume. The organ at risk (OAR) included the bladder and rectum. Also, the external contour of the pelvic bones was delineated to define the bone marrow (BM). Four plans were done for every patient with AP/PA, 3DCRT, IMRT and BMS-IMRT.

**Results:** BMS-IMRT reduced the BM volume receiving dose 20, 30, 40 and 45 Gy compared with 3DCRT and IMRT plans. A significant reduction in V20 BMS-IMRT compared with 3DCRT ( $P < 0.03$ ). The PBM volume receiving 5, 10 and 20 Gy with AP/PA was lower than BMS-IMRT ( $p < 0.01$ ,  $p < 0.001$  and  $p < 0.04$  respectively). BMS-IMRT provided a significant reduction in the rectum and bladder volumes received 40 and 45 Gy compared with AP/PA and 3DCRT planning techniques.

**Conclusion:** BMS-IMRT reduced the BM volume compared to other techniques as 3DCRT and AP/PA without compromise in target volume coverage, moreover it reduces also the volume of the rectum and bladder irradiated.

### Biography

Mohamed Mahmoud is currently working in the Department of Radiation Oncology, National Cancer Institute, Cairo University, Egypt. He has many papers published in reputed journals to his credit.

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