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Radical radiotherapy of advanced cervical cancer by concomitant high dose rate brachytherapy and external radiotherapy: A single center experience

KEYWORDS: Cervix Neoplasms; Radiotherapy; Radiation Dosage

Background: Depending on its tradition or infrastructure each center applies different treatment regimens. The aim of this retrospective study was to asses the influence of the treatment doses on survival rate and late severe complications in treatment of advanced cervical cancer by concomitant external beam radiotherapy (EBRT) and high dose rate brachytherapy (BT).
Methods: A retrospective analysis of 151 patients with FIGO stage IIB-IV carcinoma of the cervix treated by radiotherapy during 1993 and 1995 was done. Stage distribution of patients was: stage II 75/151 (49.67%), stage III - 65/151 (43.05%), and stage IV - 11/151 (7.28%). Radiotherapy for all patients included doses of 46-50Gy of 6-10MV external photons or Co-60 teletherapy, to pelvis in 22-26 fractions. Depending of infrastructure a group of 68 patients were treated brachytherapy (BT) with Ir-192 HDR (Microselectron) and 83 patients were treated by Co-60 HDR (Selecrton). Brachytherapy was delivered in 5 applications and 7Gy-8Gy to the point A, to a dose of 35-40Gy. An applicator with two vaginal and one intrauterine source carrier(s) is used. Central shielding was designed after 20Gy of pelvis irradiation, for a certain doses of external radiotherapy (50Gy) or for applied BT doses of 40Gy at the point A. Appropriate statistical tests were applied.
Results: Five years overall survival (OS) according to stages was as follows: stage IIB-76. 1%, stage III-34.1%, and stage IV - 0%. We analyzed OS for all patients according the delivery dose of EBRT and there was a significantly higher survival in the group of patient who was treated with EBRT doses of 46Gy/22f ($p=0.011$). The severe late complication (G3+G4), seen at the rectosigmoid, the bowel and bladder (French-Italian glossary), were significantly higher in the group treated with EBRT dose of 50Gy ($p=0.02$). There was no statistically significant difference in OS according to the delivered BT dose ($p=0.173$) while severe late complications (G3+G4), were significantly higher ($p=0.015$) when BT dose of 40Gy in 5 applications.
Conclusion: In high dose rate BT an increase in dose might increase severe late morbidity and BT individualization is need if it is associated with escalation of EBRT dose. Central shielding in a case of increased total given dose, cannot reduce the developing of late sever complication. With the sophistication of dose delivery it might be improved treatment planning and this should allow dose escalation with sparing of normal tissue.

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Interstitial brachytherapy of inoperable carcinoma vulvae: Case report

KEYWORDS: Brachytherapy; Vulvar Neoplasms; Carcinoma; Palliative Care

The paper presents a 78-years old patient with HP verified carcinoma vulvae (*Ca planocellulare*), stage II, sent by Oncology commission for gynecological tumors of our Institute. Cardiovascular disorder with significant bilateral varicosity of legs, besides her age and clinical picture, were also among the contraindications for surgery intervention. The patient had first come for the checkup in January last year with a visible tumefaction in external genitalia and intensive pruritus. Gynecological examination proved a finding of exophytic tumefaction size 6 x 3.5 cm of infiltrated subcutis in the area of the upper two - thirds of labia majora dexter. Vagina was exposed with a visible prolapse of posterior wall and epithelization of cervix uteri. Our choice was to perform palliative interstitial brachytherapy. Four semi-flexible applicators were applied through the tumor. The applied dosage in ROI was in four fractions each of 820 cGy (equivalent to the dosage of 50 Gy in 25 fractions) at the time interval of 6 hour. After a two months control examination a prominent tumor regression was observed (more than two-thirds). We decided for an addition application in form of three rigid applicators implemented through the remnant tumor with a dosage of 700 cGy in two fractions (equivalent to 20 Gy in 10 fractions). During the control checkup in September this year no tumor was observed and its previous location was transformed in fibrous tissue with shallow post-irradiative crater.