

HDR brachytherapy of skin cancer in material of Greater Poland Cancer Center

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Purpose: The incidence of skin cancer world wide is constant. HDR brachytherapy in particular localizations is a valuable tool of exact radiation depot inside tumor mass. Localizations such a face, skull skin and inoperable tumors, relapses after surgery, radiotherapy are usually not suitable

for primary or secondary invasive treatment. HDR-BRT is a safe procedure for organs at risk according to rapid fall of a dose outside the axis of applicator with satisfactory dose localization inside the target. The aim of this work was to analyze the results and complications of skin cancer patients, HDR brachytherapy treated in Greater Poland Cancer Center by superficial or interstitial method.

Material and methods: 497 patients with skin cancer were treated by brachytherapy between November 1999 till April 2008. Group consists of 257 men and 240 women in age range 44-97 years (mean 72 years). Radical or paliative brachytherapy was the main treatment idea for respectively 96.57% and 3.42% patients. The most frequent pathologic types observed were basocellular carcinoma ($n = 233$, 48.09%) and squamous cell carcinoma ($n = 118$, 23.74%). 13 cases of skin cancer were qualified to HDR-BRT after previous external beam radiation treatment. 63 of patients (12.76%) were treated as a supplementary therapy, after surgery procedure. 33 of them (6.64%) skin cancer was not the only one tumor according to previous history. In all 497 cases high dose rate brachytherapy has been applied by using Gammamed 12i (till 2001) and microSelectron HDR equipment (Nucletron®). Computer planning system ABACUS and PLATO were used for treatment plan estimating. Bronchial applicators (French 5 i 6) with Freiburg applicator were applied for source depot near tumor mass. The dose reached 50-60 Gy in 10 fractions ($n = 430$ chorych, 86.52%) and 30-40 Gy in 6-8 fractions ($n = 67$ chorych, 13.48%). The reference point of the dose was estimated on 1 cm. In most cases patients were observed according to stage of remission and complications rates after 4 weeks and later 3, 6, 12 months.

Results: Complete remission (CR) observed after 4 weeks since the end of brachytherapy has been reached in 345 of patients (69.41%), partial remission (PR) - in 69 (13.89%), lack of remission (NR) - in 10 (2.01%). After 12 months CR appeared in 356 patients (71.63%), rogression in 73 (4.63%), 83 cases (16.70%) turned out from observation group. All patients experienced early skin reaction after radiation treatment according to RTOG classification, respectively: 1 degree - 372 (74.8%), 2 degree - 81 (16.3%), 3 degree - 44 (8.9%). Late skin reactions were observed as follows: 1 degree ($n = 388$, 78.1%), 2 degree ($n = 85$, 17.1%) i 3 degree ($n = 24$, 4.9%).

Conclusions:

1. HDR brachytherapy is a good alternative for skin cancer treatment according to more invasive methods such a surgery or cryotherapy.
2. High rate of complete remission allows to appreciate HDR-BRT as a effective modality treatment.
3. In some localizations (cancer on face skin, near eyes and nose) brachytherapy allows to reach high rate of cure with good cosmetic effect in comparison with surgery procedure.