Our experience of mold brachytherapy technique for basal cell carcinoma of the face

Owczarek Grzegorz, Bialas Brygida, Smolska Beata, Szlag Marta, Mazur Ewa, Fijalkowski Marek

Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology, Gliwice Branch, Poland

Purpose: The aim of this study is to evaluate the treatment results in the basal cell skin cancer patients treated with HDR brachytherapy via mold applicators and description of the technique.

Material and methods: A total of 93 patients with basal cell carcinomas of the face were treated between July 2001 to April 2006 by mold aplicators and HDR brachytherapy with iridium-192.There were 44 men and 49 female. The mean age was 69 years (range 35-101). 63 lesions were 2 centimeter or less in diameter, 30 lesions were greater than 2 centimeter. Four step scale was used for evaluation of the response: 1 – complete response, 2 – partial response, 3 – no response, 4 – progression. Toxicity was assessed according to RTOG/EORTC criteria. Individual mold applicators were used in each treatment. Dose per fraction ranged from 5 Gy to 6 Gy and total one from 30 Gy to 45 Gy. Dose was specified half centimeter from the surface of the applicator which is made of poly (methyl-methacrylate) (PMMA) in the process described below. First, two component silicon medium ismixed 30 seconds in hands than put on the patients' face to obtain treated surface impression. Silicon impression is used to make "negative" of plaster. This negative is put in press and the PMMA platelet is put on it. Plaster negative and PMMA platelet is treated with temperature 240-250°C and

4.5 atmosphere pressure. After cooling the applicator it is cut with diamond wheel and polished with buffing wheel. Afterloading drains are put on the surface of the applicator parallel with each other in the desired area with 0.5 to 1 centimeter distance and fixed with acryl glue.

Results: Complete and partial response was observed in 88% and 12% respectively. Progression or no response was not observed. Acute toxicity was not observed in 35, grade 1 was observed in 48, grade 2 in 6 and grade 3 in 0 and grade 4 in 4 patients, respectively.

Conclusions: HDR brachytherapy with mold applicators is a safe and effective treatment modality in patients with basal cell carcinoma of the skin. This method is easy in practical application. It enables reconstruction of all surface curves and use of individual shields if necessary. Patient were satisfied with cosmetic results.