

series of CT and MR scans with target volume and organs at risk marked on each slice by the radiotherapist. The planner has to select the positions of isocentres (up to 3), collimator diameters, number and range of the arcs. Additional parameters for optimization procedure are the total dose proportions delivered by each arc. The treatment plan evaluation is based on the analysis of DVHs for target volume and also for organs at risk (orbits, optical nerves, brain stem) in order to minimize the dose and volume irradiated. It was accepted that the dose uniformity factor, defined as a ratio D_{min}/D_{max} within the target volume, should be not less than 0.8, and should approach 0.9 as much as possible.

The above-presented system of quality control, specifying tolerance limits of controlled parameters, assures safe and precise dose delivery in stereotactic radiotherapy.

58.

INFLUENCE OF TOTAL TIME OF SURGERY AND POSTOPERATIVE RADIOTHERAPY ON THE OUTCOME PATIENTS WITH ADVANCED LARYNGEAL CARCINOMA

P. Milecki, G. Stryczyńska,
A. Kruk-Zagajewska, S. Nawrocki,
E. Adamiak

Greatpoland Cancer Centre, Medical University,
Poznań.

Aim: to evaluate influence of total time of combined treatment on locoregional outcome of treatment in group patients with larynx cancer.

Material/Methods: We performed retrospective analysis of 254 patients with with stage III or IV squamous cell carcinoma of larynx who were treated between 1993 and 1996. There were 236 men, 18 women, median age was 56.3 years. Surgery consisted of total laryngectomy and elective/ selective neck dissection. Patients postoperatively were irradiated in conventional way with total dose of 60 Gy. We used shrinking field technique with lateral opposed photon fields to tumor bed and upper-mid neck nodes. Supraclavicular regions (lower neck lymph nodes) were treated with an anterior field. Total time of combined treatment (from the surgery to the end of radiotherapy) was an average 92 days (range, 65 – 131 days). The interval between surgery and the beginning of radiotherapy was an average 45 days (range, 22

– 78 days) and time of irradiation was an average 45 day (range, 40 –74 days).

Results: Prolongation overall time of combined treatment beyond 90 days is strongly correlated with decreasing of locoregional outcome of treatment ($p=0.00036$). Also decreasing in outcome of treatment was noted when interval time between surgery and beginning of radiotherapy was more than 50 days ($p=0.022$) and when the time of irradiation was longer than 44 days ($p=0.0026$).

Conclusions: Decreasing of total time of combined treatment (surgery and postoperative radiotherapy) is crucial in patients with advanced cancer of larynx.

59.

VERIFICATION OF THE 3-D DOSE CALCULATION ALGORITHM DURING TOTAL SKIN ELECTRON IRRADIATION WITH THE ROTARY-DUAL FIELD TECHNIQUE

T. Piotrowski, J. Malicki, J. Pracz

Greatpoland Cancer Center, Medical Physics
Department, Poznań, ZDAJ Świerk

Total skin electron irradiation is the commonly used procedure in the treatment of mycosis fungoides. The aim of this paper was to verify the elaborated algorithm for dose calculation during total skin electron irradiation with rotary-dual fields technique (TSEI-RD).

Material and method: Authors modified the 2-D algorithm published by Podgorsak taking account of dose distribution along the body midline and doses in the body on a larger depth than in the skin. Depth-dose function, beam profile were measured in TSEI-RD conditions (spoiler, source-skin distance $SSD=350$ cm, field size: 36 x 36 cm at 100 cm). Cylindrical vax phantom was used to calculate and then to measure the doses in a depth of 0.4 cm during exposure to the electron beam of 6 MeV (at the output of Clinac-2300CD accelerator). Phantom was rotating with the pre-calculated speed during constant exposure to two fields executed one by one in each fraction. Thermoluminescent detectors (TLD) were used for *in-phantom* dose measurements and Marcus ionization chamber was used for calibration of TLD. Dose homogeneity on the phantom surface was checked for three phantoms with different diameters of 20, 30 and 40 cm. Phantoms were irradiated at different rotating speeds.