27.

TIME FACTOR IN POSTOPERATIVE RADIOTHERAPY FOR SQUAMOUS CELL HEAD AND NECK CANCER; A MULTIVARIATE LOCOREGIONAL CONTROL ANALYSIS IN 942 PATIENTS

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Purpose: To analyze the influence of overall radiation treatment time and duration of the interval surgery-radiotherapy on local tumor control (LTC) in postoperative radiotherapy (PRT) for squamous cell head and neck cancer (SCHNC).

Material/methods: A multivariate Cox proportional hazard regression analysis included 942 patients with locally advanced SCHNC. Mean total radiation dose, dose per fraction, treatment time, and the interval surgery-PRT were 62,5 Gy, 2,1 Gy, 46 days, and 62 days respectively. No interruptions during PRT (except for weekend brakes) appeared in 29% of patients, while 28% had more than 5 days of gap. The data were grouped into seven categories depending on the position of gap (weeks 1-7).

Results: Increase in treatment gaps, the presence of tumor recurrence after surgery, N stage, and extra-laryngeal site of cancer were significantly related to decrease in LTC. The duration of time interval surgery-PRT had only marginal significance for LTC. Other variables did not appear significant. Consideration of seven time intervals for treatment gaps in the multivariate model has shown a significant progressive increase in the hazard of recurrence for gaps in the respective weeks 1 to 7.

Conclusions: This analysis shows a detrimental effect of interruptions during PRT, and only marginal decrease in LTC from the extension of the interval surgery-PRT. Therefore it seems unjustified to rush with PRT at the expense of possible increase in radiation treatment gaps. However, excessive delays in initiating PRT should be avoided, since they may lead to a recurrence prior to irradiation.

28.

COMPARISON OF DOSES MEASURED BY THERMOLUMINESCENT AND SEMICONDUCTOR DETECTORS DURING TOTAL BODY IRRADIATION AT COBALT-60 AND 15 MeV LINEAR ACCELERATOR

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In-vivo dosimetry is an important way of dose verification during total body irradiation (TBI).

Aim: The aim of this paper was to compare the doses measured *in-vivo* with two types of detectors: thermoluminescent (TLD) and semiconductor (SEM) during TBI.

Patients: Since 1993, 38 patients have TBI performed, out of them - 22 on Cobalt-60 and 16 on 15 MeV linear accelerator. Total dose of 12,6 Gy was prescribed and delivered in 8 fractions during 4 days. Combination of lateral and anterior-posterior fields, with lung shields was used. Doses were measured with the aim to verify primarily calculated doses (in ten reference points in the body).

Methods: Measured doses were normalised to those pre-calculated. Mean doses and their standard deviations (SD) were calculated separately for each of ten sections, for doses measured with TLD and SEM detectors respectively. Analysis was carried out for doses measured in points lying on the beam to the body entry during irradiation at lateral fields.

Results: Mean dose for the whole group of patients treated on Cobalt-60, for all ten sections together, measured with TLD detectors was equal to 1,05 (normalised to calculated dose) with standard deviation (SD) of 3,4 % and for SEM was equal to 0,98 with SD = 2,5 %. Respectively, for 15 MeV linear accelerator mean dose for TLD was 1,05 with SD = 3,1 % and 1,02 with SD = 3,1 %.

Conclusions: Mean differences between doses measured with TLD and SEM dosimeters at beam entry at lateral fields were equal to 6,8 % for Cobalt-60 and 3,1 % for 15 MeV.