

Tarnawski, Rafal; Skladowski, Krzysztof; Swierniak, Andrzej; Wygoda, Andrzej; Mucha, Anna

Repopulation of tumour cells during radiotherapy is doubled during treatment gaps. (English) [Zbl 0962.92022](#)
J. Theor. Med. 2, No. 4, 297-305 (2000).

Summary: The aim of this work is to analyse the proliferation of tumour cells in the treatment gap during the radiotherapy for head neck cancer.

Material and Methods: The clinical material is based on records of head and neck patients treated by radiotherapy alone in our institution. The effect of radiotherapy was assumed to be described by a linear-quadratic model. The patient data were fitted directly to the radiobiological model and the parameters were estimated using maximum-likelihood procedures.

Results: According to our model results of treatment were significantly correlated with Normalised Total Dose of radiation, the tumour progression (according to TNM), the overall treatment time and the gap duration. The laryngeal cancers had better prognosis than cancers of oro- and nasopharynx. When the treatment time is prolonged without treatment interruptions 0.36 Gy/day is lost due to the repopulation of tumour cells. During the treatment gap proliferation is faster and 0.67 Gy/day is lost.

Conclusion: Proliferation of tumour cells is faster during the treatment gap than during the days with irradiation.

MSC:

92C50 Medical applications (general)

Cited in 1 Document

Keywords:

treatment time; treatment gaps; tumor proliferation; radiotherapy

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