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Letter

Comments on: Extended-term effects of head and neck irradiation in a rodent. *Eur J Cancer* 2001, **37**, 1938–1945

A.W.T. Konings[a,*], A. Vissink[b], R.P. Coppes[a]

[a]*Department of Radiation and Stress Cell Biology, University of Groningen, Ant. Deusinglaan 1, 9713 AV Groningen, The Netherlands*

[b]*Department of Oral and Maxillofacial Surgery, University Hospital, Hanzeplein 1, PO Box 30.001, 9700 RB Groningen, The Netherlands*

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We would like to express our disagreement and concern with respect to the main conclusion in the article entitled 'Extended-term effects of head and neck irradiation in a rodent' (*Eur J Cancer* 2001, **37**, 1938–1945) [1]. The article describes the late effects of radiation damage in the rat after treating the whole head and neck of the animal with different doses of X-rays. It appears from the results that one year after irradiation none of the rats irradiated with 15 Gy, has survived the treatment, while after a dose of 7.5 and 10 Gy, approximately 80 and 50% of the animals, respectively, had died within that year. These results are discussed in the context of long-term effects of head and neck irradiation in humans after radiotherapy for head and neck malignancies.

However, the radiation set-up which is used in these experiments has no relation to the way patients are treated currently or have been in the recent past. In clinical practice, the use of conventional conformal (CRT), 3D-conformal (3D-CRT) and intensity modulated radiotherapy (IMRT) is aimed at delivering a high dose to the tumour, while maximally sparing the healthy tissue. In the case of head and neck cancer, the salivary glands are the main organs at risk, even under conditions of conformal dose delivery. This clinical situation is, however, incomparable with the radiation conditions mentioned in the article under discussion. The side-effects observed in the rat studies, e.g. immunocompromisation, liver and thymus atrophy, malocclusion, tongue ulcers and cataracts, normally do not occur (together) in the clinic after head and neck irradiation. In order to obtain knowledge on the radiation tolerance of whole and partly irradiated salivary gland tissue in the clinical situation, experiments with animals may serve the purpose. To mimic the clinical situation in experimental animals, as well as to perform fundamental studies, it is important that the measured reduction in the flow of saliva and the change in composition after the treatment can be fully attributed to the primary radiation damage to the gland under investigation and not also to indirect effects caused by non-gland tissue laying within the treatment portals.

The article refers [2] to investigations on radiation damage to salivary glands using this whole head/neck rat model. We would like to state that the reduced flow of saliva measured in the experiments aimed at are likely to be influenced by indirect effects of radiation damage to non-gland tissue. Evidence for this can be deduced from published results [3–6] from our laboratory, where a much smaller radiation field is chosen and none of the abovementioned side-effects was observed. Moreover, in our studies no rats died due to a treatment with 15 Gy of X-rays and almost no loss of body weight was found when compared with sham-treated rats.

In summary, the experiments described in the article under discussion seem clinically irrelevant with respect to side-effects and non-gland damage, allow no interpretation on the radiation tolerance of salivary glands and are unnecessarily rude to the animals.

* Corresponding author. Tel.: +31-50-363-2912; fax: +31-50-363-2913.

E-mail address: a.w.t.konings@med.rug.nl (A.W.T. Konings).

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