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Non-toxic potentiation of cancer radiotherapy by dietary oligofructose or inulin.

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Abstract

Non-toxic, dietary treatment with oligofructose or inulin clearly inhibited the growth of a transplantable mouse liver tumor (TLT) and potentiated its chemotherapy. Thus, it appeared interesting to investigate the possible radiotherapy-potentiating effects of the same dietary treatment. Dietary treatment with 15% oligofructose or inulin incorporated in the basal diet was started four weeks before intramuscular transplantation of TLT tumor cells into young adult male mice of the NMRI strain and was continued until the end of the experiment. When the tumors reached approximately 1000 mm³ they were irradiated with a single X-ray dose of 5 to 20 Gy. Tumor dimensions were measured twice weekly and their mean volume per group of mice was compared to the control groups fed the basal diet. This non-toxic dietary treatment with oligofructose or inulin potentiated the effects of radiotherapy at an optimal dose of 10 Gy to a statistically very highly significant (p < 0.0001) level. They were similar for oligofructose and inulin. The introduction of such non-toxic adjuvant treatment potentiating the effect of cancer radiotherapy in classical protocols of human cancer treatment appears to be possible and without any additional risk for the patients.

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