ABSTRACTS

141 Modification of Radiosensitivity by Low Dose Irradiation - VI.

Pre-irradiation of mice (ICR strain) results in two types of acquired radiore sistances (increase in the 30-day survival rate after sublethal X-irradiation) depending on the pre-irradiation doses; with 0.3-0.5 Gy it appeared 2 weeks later, and with 0.05 Gy 2 months later. In the present study, partial preirradiation of mice with 0.5 Gy was tested whether head and/or trunk preirradiation results in radiore sistance 2 weeks thereafter. Preirradiation of trunk or whole-body resulted in significant radiore sistance. But that of head did not. Therefore, response of blood-forming tissues, not central nervous system, is important for acquiring radiore sistance in this dose range of the preirradiation.

142 Dose and Dose Rate Effectiveness Factors of Radiation Induced Myeloid Leukemia in C3H male mice.
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C3H male mice were exposed for 22 hours daily to several dose -rate and dose levels from Cs gamma-rays. The animals were then maintained for their normal life span. Dead mice were pathologically examined to estimated incidences of myeloid leukemia and other neoplasms. Dose effect curves for myeloid leukemia incidences in high-dose-rate (H: 88.2cGy/min) groups and in two low-dose-rate (A: 0.0298cGy/min, C: 0.0016cGy/min) groups were obtained. There was no relationships between life shortening ratio and dose rate. Dose and dose rate effectiveness factors were estimated from linear regression line of these dose effect curves as 5.5 between H and A group, 11.7 between H and C group.

143 Effects of Repeated Irradiation on a Biological Response with High Sensitivity to Exposure (IV)

Low dose irradiation of mice causes temporary inhibition of incorporation of 14C-UdR. We investigated the degree of inhibition of UdR uptake into small intestine, spleen and thymus at 4 hours after single and split dose exposure. Balb/c mice were exposed to 0.05 ~ 0.2 Gy of X-rays 4 hours after preirradiation with 0.05 Gy. 14C-UdR incorporation into spleen and thymus 4 hours after second irradiation decreased in proportion to the total dose. In spleen and thymus, however, the degree of inhibition of UdR incorporation by second exposure was smaller than by single irradiation with 0.1 ~ 0.25 Gy. The inhibitory effect of UdR uptake by second exposure was similar to that obtained by the single irradiation in small intestine.