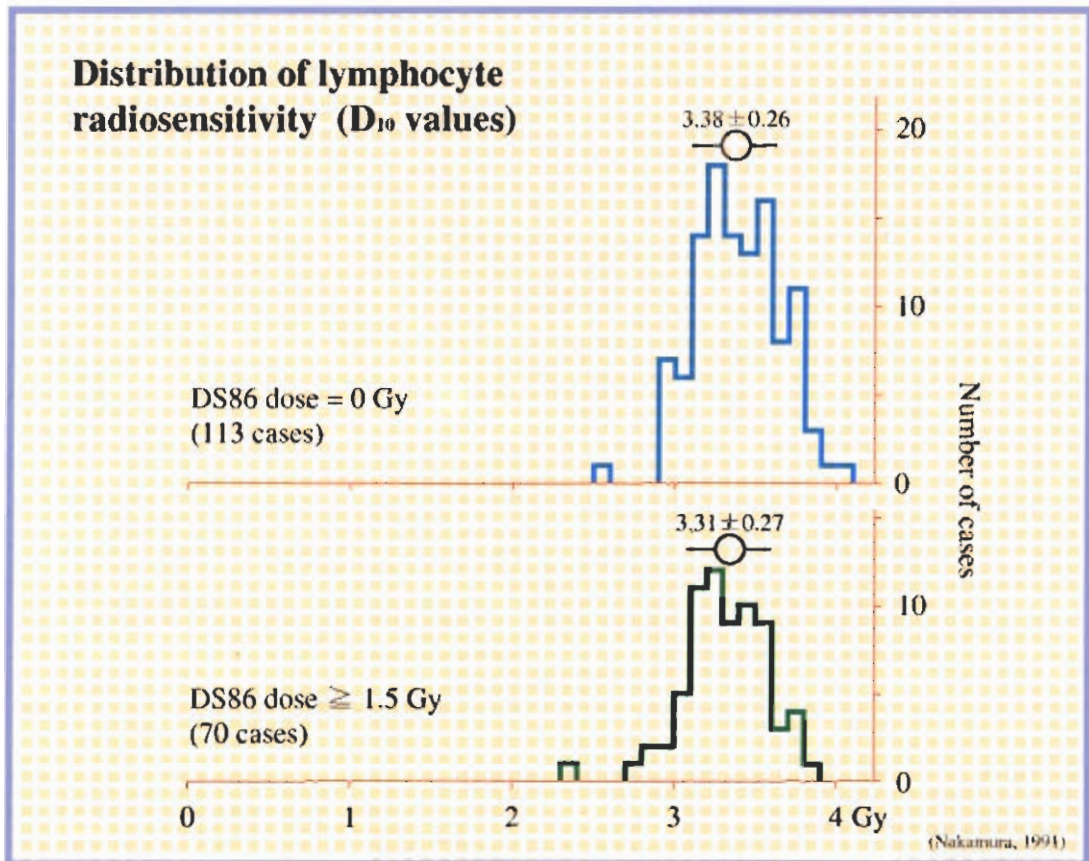


9

Sensitivity to radiation



Radiosensitivity of lymphocytes

In order to determine whether individual differences exist between people with respect to sensitivity to radiation, and whether a disproportionately high number of radiation-resistant individuals survive after exposure to high doses, the sensitivity of lymphocytes to *in vitro* X-ray irradiation was measured in 113 distally exposed survivors and 70 proximally exposed survivors.

The D_{10} value shown in the diagram represents the X-ray dose required to produce the

death of 90% (i.e. all except 10%) of the lymphocytes; it increases with increasing resistance and decreases with a rise in sensitivity. No difference was observed between the distally and proximally exposed populations, thus failing to demonstrate that the heavily exposed group contained a high number of radiation-resistant individuals.

The distribution in repeat studies using the same healthy individuals was similar to the D_{10} distribution in the diagram, suggesting that the latter was mostly due to experimental error. The results obtained from the lymphocyte assay deaths thus suggest that individual differences in radiosensitivity are small.