

of x-rays. These observations lead to the assumption that 2 different mechanisms are responsible for the atheromatosis.

MEASUREMENT OF BLOOD FLOW IN THE MOUSE TAIL AFTER IRRADIATION. J. DE RUITER and L. M. VAN PUTTEN, Radiobiological Institute TNO, Rijswijk.

The measurement of the local clearance rate after subcutaneous injection of ^{133}Xe and $^{51}\text{Cr-EDTA}$ provided a way to obtain information on blood flow and capillary diffusion capacity (CDC) in the mouse tail. These studies were performed under normal resting conditions and after the induction of maximal blood flow. A decrease in blood flow and CDC was observed about a year after tail irradiation with a single dose of 3000 rad x-rays. This decrease was most significant under maximal blood flow conditions. The dose effect curves for single doses when measured at 14–17 months after irradiation showed a decrease in blood flow up to 2500 rad whereas following doses higher than 2500 rad, an increase in blood flow was observed. The same phenomenon was observed with the CDC but it was less pronounced. Studies of blood flow and CDC after fractionated irradiations demonstrated no significantly different curves, if the doses were expressed in rets. This indicates that the Ellis formula is a satisfactory predictor of fractionation effects on later functional blood vessel damage. A full description of this study has been published (*Radiat. Res.*, 1975, **61**, 427).

TIME-DOSE RELATIONSHIPS FOR SPINAL CORD DAMAGE. A. J. VAN DER KOGEL, Radiobiological Institute TNO, Rijswijk.

The development of paralysis has been studied after local irradiation of the rat spinal cord with 300 kV x-rays in single, fractionated and protected regimens.

An iso-effect curve of the logarithm of the tolerance dose as a function of the logarithm of the number of fractions has a slope of about 0.45. The effect of longer time intervals between subsequent fractions (5 fractions/28 days, 10 fractions/31 days) on the total dose tolerated by the spinal cord is almost negligible compared with the influence of the number of fractions. These results

indicate that intracellular repair of radiation damage is a very prominent phenomenon, in contrast with repopulation. This is in agreement with the very low rate of cell proliferation in the central nervous system.

With respect to radiotherapy, these experiments suggest that a high tolerance dose of the spinal cord is obtained through the use of a large number of fractions but that an increase of the overall time has little effect.

DIFFERENT RADIOSENSITIVITY OF CHINESE HAMSTER FIBROBLASTS FOR CHROMATID BREAKS IN G₂/PROPHASE. DEPENDENCE ON LET. G. MINDEK, I. RIEHLE, L. CABEZA and H. FRITZ-NIGGLI, Strahlenbiologisches Institut der Universität Zürich.

Irradiated G₂/prophase cells (200 kVp photons, 29 MV photons and 15 MV electrons) were selected by means of $^3\text{H-TdR}$ pulse labelling technique and analysed for chromatid aberrations in the first metaphase. The frequency of aberrations varied with the time the cells remained in culture after irradiation. Dose-effect curves for the three types of irradiation were measured at the most sensitive fixation time after irradiation (1 h) with 5, 12, 25, 50 and 100 rad. Electrons and photons showed different effects depending on the dose; 200 kVp and 29 MV photons showed the same effect, electrons were less effective. The results are in good agreement with earlier investigations (H. Fritz-Niggli and H. R. Schinz, *Strahlentherapie*, 1962, **118**, 503).

INFLUENCE OF CORYNEBACTERIUM PARVUM AND OF ANTI-LYMPHOCYTE SERUM (ALS) ON BONE MARROW TRANSPLANTATION IN SMALL RODENTS. D. JOVANOVIĆ, A.-M. CUVELIER and D. BEMELMANS, Laboratoire de Radiobiologie, Institut du Cancer, U.C.L., Leuven.

The modifying action of horse anti-rat lymphocyte serum (ALS) and of *Corynebacterium parvum* on bone marrow transplants was examined in allogeneic and xenogeneic host donor combinations. Bone marrow aplasia was induced either by supralethal doses of γ -irradiation or myleran.

In myleran treated rats the survival of allogeneic transplant was prolonged for 5 days by the repeated administration of ALS in 2