



STUDY OF THE EFFECTS OF COMBINED USE OF RADIATION AND CADMIUM ON MOUSE SPLEEN

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ABSTRACT

Human beings are constantly exposed to ionizing radiations from different sources and a simultaneous exposure of organisms to heavy metals is also unavoidable due to their increasing utilization in modern technology. The concomitant exposure to cadmium chloride and ionizing radiation produces unforeseen deleterious effects upon biological systems. Owing to high sensibility of spleen to radiation resulted in decreased rates of protein and RNA synthesis. These changes correspond well with impaired ability of nuclei to polymerase RNA, reduction in template efficiency of chromatin, decrease in the activity of RNA polymerase and inhibition in histone phosphorylation. In the present study, there was a drastic reduction in the values of Organo-somatic index of spleen and the most striking histopathological lesions in the spleen were pyknosis, karyolysis, karyorrhexis, necrosis, granulocytic infiltration, vacuolation, loss of lymphoid structure, inflammation, vacuolation, loss of lymphoid structure, inflammation, hyperplasia, fibrosis and dose and time dependent splenomegaly. Indirect effect of radiation causes formation of free radicals which are scavenged by-SH group. When cadmium is administered simultaneously with radiation, these-SH group are not available for radiation, these -SH group are not available for protection because cadmium binds with them. This results in DNA exposure to these free radicals and leads to increased risk during combined exposure.

Key Words: Karyolysis, Karyorrhexis, Hyperplasia, Pyknosis, Necrosis.