

AbstractID: 6545 Title: Radioprotective and Immunostimulating Effects of Deuterium-Depleted Water

RADIOPROTECTIVE AND IMMUNOSTIMULATING EFFECTS OF DEUTERIUM-DEPLETED WATER

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Mice fed during 15 days with Deuterium-Depleted Water (30 ppm deuterium) had a statistically significant increased survival compared with control groups fed with normal distilled water (150 ppm deuterium) after 8.5 Gy irradiation (61% survival in test group towards 25% in control group). Hematological picture showed maintaining of the normal WBC, RBC and platelet count in test groups. Immunological parameters (serum opsonic and bactericidal capacity, bactericidal capacity of the peritoneal macrophages) showed a marked increase in test groups compared to a severe decrease in the control groups. Auxiliary tests using chemical radiomimetics (hydrochloric embihine) and immunosuppressors (cyclophosphamide) showed a strong protective effect of deuterium-depleted water against the decrease of the leukocyte counts and other immunologic parameters. In conditions of experimental inflammation with subcutaneous-implanted pellets, deuterium-depleted water feeding statistically significant increased inflammatory response, obviated by increased percentages of PMN and lymphocytes in the peripheral blood and increased phagocytic capacity of the peripheral blood PMN. Experimental infections with *K. pneumoniae* 506 and *S. pneumoniae* 558 in mice irradiated or treated with cyclophosphamide showed increased non-specific immunity parameters. All results show a marked intensification of the immune defenses and increased proliferation of the peripheral blood cells, probably accounting for the radioprotective effects.