Influence of Water with Modified Isotope Structure on Development of Radiation Damage in Experim

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As the duration of space missions increases the problem of durability of space crews and their resis
space flight factors becomes more important. The purpose of the present work was to study the radiop
effects of lowered deuterium content water in experimental animals after repeated exposures to low
gamma radiation. Both male and female adult mice of (ÑÂÀõÑ57Âl6)F1 and BALB/c lines were ex
0.25, 0.5 and 1.0 Gy of ^{60}Co gamma rays by multiple fractions. The dose rate was 0.32 Gy/min. Start
one month prior to the first irradiation fraction till the end of the experiment the animals were only
with lowered deuterium content water *ad libitum*. The control group of mice consumed tap water only. T
were sacrificed by means of cervical dislocation within one month after finishing the last irradiation
The following parameters were registered: the weight of body, thymus and spleen, number of leucocyte
formula, number of caryocytes in femur bone marrow, cytogenetic lesions in nucleated bone marro
The water with lowered deuterium content was produced by means of electrolysis with a special devi
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A long-term consumption of water with lowered deuterium content by irradiated mice was found
in lower levels of depletion of peripheral blood leucocytes and bone marrow cells, in a decrease in t
of cytogenetic aberrations and in a less intensive reduction of the mass of immune organs as compa
the control group. Cytomorphologic examination showed a better dynamics of thymus and spleen fun
namely, a less degree of cell destruction and an activation of lymphoid cell proliferation. No changes
formula were revealed. The findings confirmed a stimulation of the general resistivity of mice to r
Favorable effects of water with lowered deuterium content make it possible to recommend its use in
practice for increasing the durability of persons exposed to harmful factors, including low doses of
radiation.