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Expression of TGF-b and IFN-γ genes on rat lymphocytes after low dose gamma whole body irradiation

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Nobody can deny the deleterious health effects of high doses of radiation, although there is no consensus about the health impact of low dose of ionizing radiation. This study aimed to discuss the effect of ionizing radiation doses (including low doses) on the changes of gene expression and serum protein levels of two immune factors TGF-β and IFN-γ in rats. After 24 hours of irradiation of rats with the doses of 1000, 500, 100, 50 and 20 mGy, the gene expression of TGF-β and IFN-γ in lymphocytes was assessed using QPCR. Besides, the protein level of these two factors in lymphocyte plasma was determined by ELISA kits. Significant increase in the expression levels of TGF-β and IFN-γ genes were observed by increasing the dose from 100 mGy to 500 mGy and then 1000 mGy compared to the controls ($p<0.05$). The ELISA tests showed significant differences in the serum level of TGF-β cytokine in the dose of 1000 mGy, while the serum level of IFN-γ cytokine showed significant differences in doses of 20 mGy and 1000 mGy compared to the controls ($p<0.05$). The results of this study showed the changes in the expression of TGF-β and *IFN*-γ genes after irradiation more than 100 mGy in lymphocytes compared to the control group. The changes in the serum levels of these cytokines only occurred in the specific doses compared to the control group.

Biography

Reza Fardid has completed his PhD from Mashhad University of Medical Sciences. He has published more than 25 papers in reputed journals and has been supervising more than 10 MSc students.

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