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PAPER TITLE CHANGES OF 5-AMINOLEVULINIC ACID-INDUCED PORPHYRINES
ACCUMULATION IN THYROID GLAND CELLS UNDER IRRADIATION OF ANIMALS

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ABSTRACT (See instructions overleaf)

Changes of 5-aminolevulinic acid-induced porphyrines accumulation in thyroid gland cells under irradiation of animals

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The control of proliferate activity of cells under irradiation of organism gives a valuable information about process of cell populations reparation in different organs, danger of pathologic changes development as well as efficiency of radioprotective agents. We studied a changes of velocity of ALA-induced endogenous porphyrins accumulation in rat thyroid gland cells in different terms after acute (up to 3 Gy) and chronic (treatment up to 1400 kBq ¹³¹I) irradiation of animals. The control experiments showed a correlation between indicated parameter and proliferate activity of cells. During the first week after acute irradiation it was registered an increase (in 1,2-3,0 times) of ALA-induced velocity of uro-, copro- and protoporphyrin accumulation in gland cells. The similar, but less pronounced changes were been detected during 1,5 month under chronic irradiation of animals. This effect strengthened under increasing of irradiation dose. With using of digital fluorescent microscopy in thyroid gland of irradiated rats after addition of ALA the appearance of cells with bright porphyrin fluorescence has been registered. A relation of observed changes with radiation-induced changes proliferate activity of thyroid gland cells as well as diagnostic value of used parameter are discussed.