

THE INFLUENCE OF GAMMA-RADIATION ON FERMENTAL HOMEOSTASIS

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Abstract: *The influence of gamma-radiation in Grey dosage 1, 2, 4 and 6 on the quantity of enzymes in the blood of white mature rats which body weight was approximately 150-200 gr. has been studied. As the result of gamma-radiation's influence the decrease of amylaza and lipaza's quantity in blood takes place according to the changes in different organism processes. These processes depend on endosecretion of above-mentioned enzymes by the pancreas, their release from blood by renal and extra-renal way as well as degradation under the influence of special proteoses. It was stated that changes in these processes depend on the dosage of gamma-radiation.*

Keywords: *GAMMA-RADIATION, blood, rats.*

Relevance of the case.

Under the influence of gamma radiation, enzyme protein synthesis is disrupted [1], and as the radiation dose is increased, enzymopathy is observed, first in rapidly and then slowly regenerating organs [4].

With this in mind, the aim of the study is to study the extent to which different doses of γ -radiation affect enzyme homeostasis.

Experimental techniques. The white male rats, which weighed 150-200 g, were irradiated with So60 g-quantum using the Luch apparatus. Irradiation surface 20x20cm, focal length 75cm. The radiation dose is 0.86-0.85 Gr / min. Ingested doses are 1, 2, 4 and 6 Gray. Blood was drawn from experimental rats 1, 3, 10, 20, 30, and 60 days after irradiation at these doses, and amylase and lipase enzymes were detected.

The results obtained and their analysis.

After 3, 7 and 30 days of irradiation at a dose of 1 Gray, the amylolytic activity in the blood decreases by 3-4%. A maximum decrease (8%) of the amylase enzyme in the blood was observed 10 days after irradiation. On the 20th, 45th and 60th days after irradiation, the amylolytic activity of the blood returned to normal.

2 In experimental rats irradiated at a dose of Gray, the amylolytic activity in the blood decreased after 1 day relative to control and reached a maximum at 7 days.

The similarity of the results obtained from irradiation at doses of 1-2 Gray is that the amylolytic activity decreases linearly and returns to its original state within 45 days, but the difference between them is that in rats irradiated at 2 Gray doses, the dose of this enzyme activity decreases.

At a dose of 1-2 Gray, the activity of lipolytic enzymes in the blood remained unchanged.

4 Amylolytic activity in rats exposed to gray dose decreased by 10-12% relative to the control indicator on days 3, 7, 45 after irradiation, and by 3-6% on observations on the remaining days. 60 days after

irradiation, this enzyme activity did not return to normal. At this dose, the lipolytic activity in the irradiated squamous cell carcinoma decreased by 30%. On the 30th day after irradiation, the lipolytic activity in the gland was 90% relative to the control. However, for 45 days, the figure was 25-27% and 15% for 60 days, respectively.

6 Amylase activities in the gray-matter I-dose experiment in rats was significantly reduced from day 1. 1 day after irradiation, the activity of this enzyme was 2 times lower than that of the control group. After illumination, the figure declined from day to day and reached its maximum level in 30 days - a 84% reduction in control, which led to a shift in the number of survivors.

When 1-4 gray light is present, the amylolytic activity in the pancreas changes slightly over that of the adipose tissue, which means that the organism maintains its homeostasis by maintaining the homeostasis of the enzyme. Due to the fact that one of these mechanisms is the intensity of the enzyme inactivation and the pancreas exacerbates the process, the amount of amylase present in the pancreas changes slightly. Due to the weakening of this enzyme secretion under the influence of gamma radiation, the amylase homeostasis has changed from the initial state.

Due to the strong inhibition of gamma radiation by the 6 Gray dose of the amylase enzyme secretion, the incidence of recurrence has also sharply decreased.

6 Changes in lipolytic activity in the blood when irradiated in gray doses are characterized by a decrease from day to day. But this decline was wavy without a straight line. If the highest value was observed 1 day after irradiation (61% as a percentage of control), the lowest value was determined at 30 days (12%). On the 3rd day after irradiation, the lipolytic activity of the blood was 25% of the control, and on the 7th day the figure was slightly restored, ie to 48%, and in the last days it gradually decreased to 12% of the control on the 30th day.

Given that the main source of amylase and lipase enzymes in the blood is the pancreas [2, 3], it is concluded that the decrease in their amount in the blood under the influence of g-radiation is the result of changes in several processes. These processes include endocrine secretion of these enzymes, their separation from the blood by renal and extrarenal routes, as well as degradation by special proteases. Our experiments show that the change in these processes depends on the given γ -radiation dose.

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