

# ERYTHROPOIETIC ACTION OF NEROBOL IN GUINEA PIGS DURING PROLONGED IRRADIATION

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Prophylactic administration of nerobol helps to restore normal erythropoiesis in irradiated animals.

The anabolic steroids facilitate regeneration of hematopoiesis in acute radiation sickness [2-8].

The prophylactic action of nerobol on erythropoiesis was investigated in irradiated animals.

## EXPERIMENTAL METHOD AND RESULTS

Experiments were carried out on 118 male guinea pigs weighing 350-400 g, receiving whole-body irradiation from Cs<sup>137</sup> in a dose of 576 R (dose rate 0.27 R/min). For the 3 weeks before irradiation, 53 of the animals received nerobol daily by mouth in a dose of 1 mg/kg, and the other 65 animals did not receive the compound. On the 7th, 10th, 14th, 21st, and 30th days after irradiation, the erythrocyte and reticulocyte counts in the circulating blood and the acid resistance of the erythrocytes were determined in all animals [1].

Of the 65 irradiated animals not receiving nerobol, 34 (53%) survived. Of the 53 guinea pigs receiving nerobol before irradiation, 21 (61%) died. The severity of the clinical manifestations was the same in the animals of both groups.

The greatest decrease in the erythrocyte and reticulocyte counts in the blood was observed on the 10th day after irradiation. In animals receiving nerobol, the erythrocyte and reticulocyte counts were significantly ( $P \leq 0.05$ ) higher in animals receiving nerobol than in the controls. At all times of observation except the 10th day, a significantly greater ( $P \leq 0.05$ ) number of highly resistant erythrocytes was found in these animals, and on the 14th and 21st days the differential erythrocyte count showed a shift to the right.

The beneficial effect of nerobol was manifested by an early (7th day) and considerable inflow of young, highly resistant erythrocytes, and a much smaller number of erythrocytes with low resistance. The results suggest that nerobol, if given before irradiation, prevents catabolic effects in the body. It should also be remembered that nerobol stimulates hemoglobin synthesis after irradiation [6].

## LITERATURE CITED

1. I. I. Gitel'zon and I. A. Terskov, The Differential Erythrocyte Count in Clinical Investigation [in Russian], Krasnoyarsk (1959).
2. D. E. Grodzenskii et al., Probl. Éndokrinol., No. 4, 31 (1958).
3. I. N. Efimov, Radiobiologiya, No. 5, 758 (1968).
4. O. V. Molotkov and D. E. Grodzenskii, Med. Radiol., No. 4, 48 (1967).
5. A. Danysz et al., Strahlentherapie, 135, 90 (1968).
6. A. Danysz and R. Panek, Strahlentherapie, 135, 459 (1968).

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7. H. Graebner and C. Weisse, *Strahlentherapie*, Special edition, 62, 161 (1966).
8. I. C. Marsh, D. R. Boggs, et al., *J. Cell Physiol.*, 71, 65 (1968).