

CHANGES OF THE WHITE BLOOD PICTURE IN ANIMALS WITH SUBCHRONICAL MERCURY INTOXICATION AND PROTEIN HYDROLYSATE TREATMENT

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Our previous investigations have shown the favourable effect of protein hydrolysate upon certain haematological indexes of subchronical mercury intoxication in rats (1). This propitious influence of protein hydrolysate on damaged parenchymatous organs was ascertained by other investigators, too (2, 3, 4). The received results warrant us for studying the influence of protein hydrolysate on the white blood picture of subchronical mercury bichloride intoxication.

Material and methods

The study covers 85 male white rats with weight 150—200 g divided into groups: Ist — control; IInd — injected with, 0,25 mg/kg mercury bichloride s. c. for 45 days; IIIrd — injected with 5 ml/kg protein hydrolysate i. m. for 45 days; IVth — treated in the same way and period with mercury bichloride and protein hydrolysate. On the 7th, 15th, 30th and 45th day and 30 days after the treatment was over the leukocytes were counted up totally and differentially.

Results and discussion

The leukocyte count in all groups varies in normal ranges as compared with that of the controls. It makes an impression that the leukocyte count diminishes on the 7th and 30th day after treatment with mercury bichloride. Then it increases in the recovery period.

The differential blood picture demonstrates the following results: The band neutrophils increase statistically reliable on the 7th day in animals treated with mercury bichloride ($p < 0,02$) and diminished on the 45th day in those given protein hydrolysate ($p < 0,02$). In animals treated with both mercury bichloride and protein hydrolysate no statistical differences are found out. (fig. 1).

A diminution of the segmented neutrophils is observed in animals treated with mercury bichloride in all investigated intervals. From the control value 2394 they decrease to 1261 on the 7th day and from 1536 — to 780 — on the 15th day. The data received on the 7th day are statistically reliable ($p < 0,05$). There is a slight decrease in other intervals. In the recovery period an equalization of segmented neutrophils' values is established in the 1st and 2nd groups. In animals treated with protein hydrolysate alone or combined with mercury bichloride the values don't show any significant differences in all intervals as compared with those of the controls (fig. 2).

Significant amplitudes of eosinophils about the control values are established from 54 to 27, on the 7th day and from 80 to 34, on the 15th day after treatment

with protein hydrolysate. On the 30th day there is a diminution in all groups studied: in the 2nd — from 179 to 60; in the 3rd — to 110, and in the 4th — to 100. In other intervals the eosinophils of experimental animals in the three groups are very near to the control values. (fig. 3).

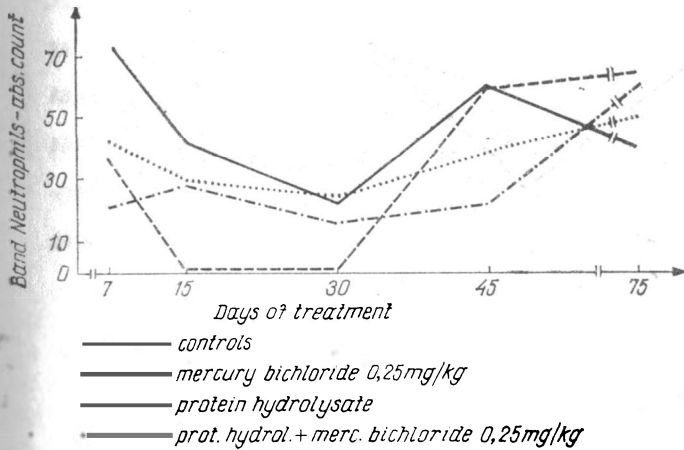


Fig. 1

There is an unreliable decrease of monocytes in all groups on the 30th day. From the control value of 147 they diminish to 63 in the 2nd group, to 78 — in

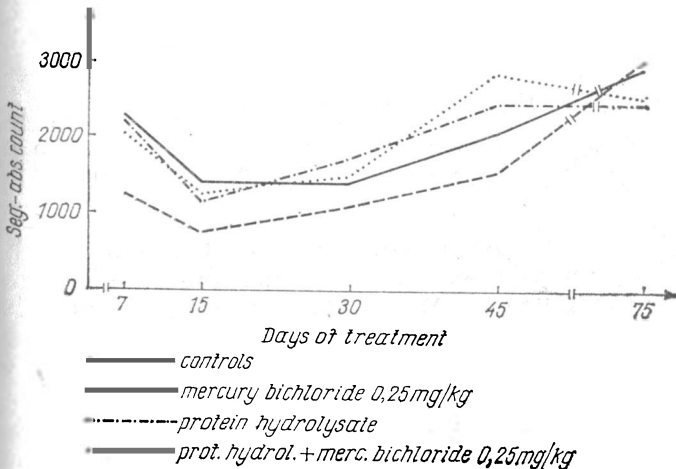


Fig. 2

the 3rd one, and to 62 — in the 4th one. There is also an increase from the value of 93 to 206 in the animals treated with protein hydrolysate on the 45th day which is statistically significant ($p < 0,05$) (fig. 4).

The decrease of lymphocyte count in experimental animals on the 7th day in comparison to the control value isn't statistically reliable. These values are near to the control ones on the 15th, 30th and 45th day. The lymphocyte count increases in the 2nd group in the recovery period statistically significantly ($p < 0,001$) (fig. 5).

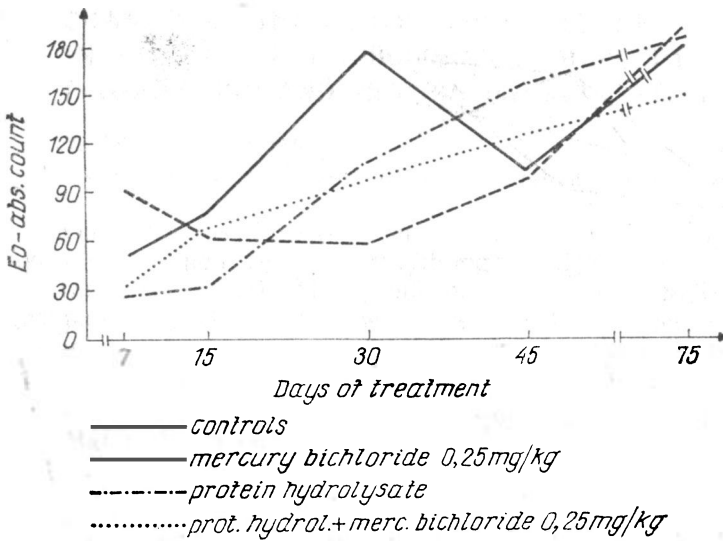


Fig. 3

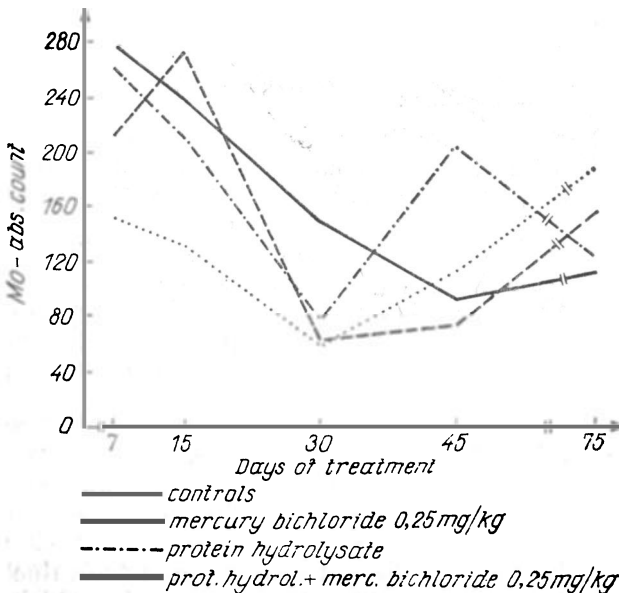


Fig. 4

The experimental data show that the substances at these dosages used have led to variations of the white blood picture which are about the physiological norms. The lower rates of cells from the differential picture in experimental animals except those in the recovery period can be due to the action of these agents.

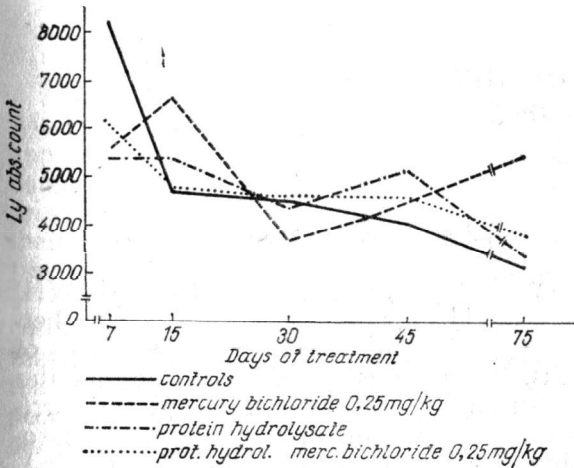


Fig. 5

The mercury bichloride suppresses the haemopoiesis at the dosages used. The influence of protein hydrolysate depends on its dose of alone and combined application with mercury bichloride. This dose was unsuccessfully determined and needs a correction in further investigations.

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ИЗМЕНЕНИЯ БЕЛОЙ КАРТИНЫ КРОВИ У ЖИВОТНЫХ ВСЛЕДСТВИЕ ВВЕДЕНИЯ БЕЛКОВОГО ГИДРОЛИЗАТА ПРИ СУБХРОНИЧЕСКОЙ ИНТОКСИКАЦИИ ХЛОРИСТОЙ РТУТЬЮ

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РЕЗЮМЕ

Эксперименты проведены на 85 белых крысах, распределенных в 4 группы: I группа — контрольная; II группа — с подкожным введением хлористой ртути по 0,25 мг/кг; III группа — с интрамышечным введением белкового гидролизата по 5 мл/кг и IV группа — с одновременным введением хлористой ртути и белкового гидролизата в указанных дозах.

Указанные введения приводят к изменениям белой картины крови в границах физиологической нормы.

Белковый гидролизат, введенный самостоятельно и в сочетании с хлористой ртутью на оказывает значительного влияния на дифференциальную лейкоцитарную формулу при ртутной интоксикации.