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Evaluation of the Effect of Collecting Plants with Medicinal Properties on the Course of Hemolytic Anemia in the Study Conditions

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Abstract: As a direct continuation of scientific research on the study of the antianemic activity of tinctures prepared on the basis of the collection of medicinal plants, the activity of TCMP against anemia caused by the introduction of 25 ml/kg of phenylhydrazine hydrochloride under the skin of experimental animals was studied. At the same time, the digestibility of the studied tincture and the specific drug Coamide was evaluated by such indicators as the survival of animals, their general condition and activity of movements, as well as changes in the general blood test. Based on the studies conducted, it can be concluded that TCMP has a positive effect on hemolytic anemia, such as the drug coamide, which is widely used in medicine, but its effect on this anemia occurs at a level lower than that of the drug coamide. This means that the effect of the tincture on the course of hemolytic anemia was significantly slower than the antianemic results in other models of anemia. Although the studied drug has little activity in relation to the existing drug, it lays the foundation for large-scale scientific research on the preparation and introduction of biologically active additives based on it in the future, which allows it to be used with the main drugs in the treatment of various anemic diseases.

Keywords: Hemolytic anemia, phenylhydrazine hydrochloride, coamide, survival, dietary supplement

INTRODUCTION

Anemia, which is very diverse in etiology, pathogenesis and clinical and hematological symptoms, is an urgent problem of the healthcare industry worldwide, they occur in almost half of the world's population. In turn, although the etiology and pathogenesis of these diseases differ, but the complex of the main clinical symptoms is considered the same, such as the hyperregenerative nature of anemia, impaired bilirubin metabolism due to indirect fraction, hepatolienal syndrome. Hemolytic anemia (HA) is a very important topical problem due to the high level of weight, congenital and orthogexed appearance, mainly in newborns or young children, as well as the high

frequency of deaths. It is known that hemolytic anemia belongs to a group of heterogeneous diseases united by a single pathogenetic property, accompanied by a decrease in the life expectancy of erythrocytes, the development of hemolysis of erythrocytes of varying degrees [1, 2]. The main feature of HA is the lifespan of erythrocytes less than 100-120 days can be caused by the rapid death of erythrocytes and extracellular factors due to intracellular membranes, enzymes, hemoglobin pathologies. Thus, hereditary gas will be characteristic of various cellular defects of erythrocytes, and extracorporeal gas - for acquired hemolytic anemia. Especially acquired toxic hemolytic anemia has recently remained relevant due to the constantly increasing antigenic load. To solve strategic issues of diagnosis of anemia and the choice of therapeutic measures, they are distinguished by the leading pathogenetic mechanism of development, but take into account morphological and classification by color index to facilitate diagnosis and differential diagnosis. Currently, there are many controversial issues concerning the pathogenesis and pathomorphology of acquired ga, the answers to which can only be given by experimental studies, therefore, the development of new experimental models of hemolytic anemia is an urgent task. With this in mind, timely diagnosis and differential diagnosis and treatment of gases, in particular, which are related and unrelated to iron metabolism, as well as occupational measures are an important task [3-9]. In this regard, scientific research is also being conducted in our country concerning the diagnosis and treatment of anemia, which are very important all over the world [10-15].

The purpose of the study. The study of the effect of tincture prepared on the basis of the collection of medicinal plants on hemolytic anemia under experimental conditions was carried out.

Object and methods of research. All the conducted studies were carried out on white laboratory rats with a body weight of 165-200 g and without offspring, which were kept in standard vivarium conditions and cared for. Tubulgibargli beimadaron as an object of research (*Matricaria chamomilla L.*), chamomile officinalis (*Achillea millefolium L.*), water pepper (*Polygonum hydropiper L.*), bird taron (*Polygonum aviculare L.*), sweet brain root (*Radix glycyrrhizae L.*), tincture (TCMP) from the collection of medicinal plants, prepared in a ratio of ratio was used 1:1:1:1:1. Experimental pharmacology uses various analyzers, usually with the aim of causing or causing diseases similar to those found in humans. In particular, when seizures occur in experimental animals, strychnine, corazole, bicyculin and isoniazid [16, 17], when hepatitis occurs, heliotrin, paracetamol, carbon tetrachloride [18], aconitine, barium chloride, calcium chloride, adrenaline [19, 20], sodium nitroprusside in hypoxia, sodium nitride [21], phenamine in psychopharmacological experiments, corazole, such analyzers as reserpine, haloperidol, arecoline are used [22-26]. In this regard, phenylhydrazine hydrochloride was used in the study conditions, which was presented in the guidelines and manuals in order to generate ha [27-29], in which the substance was injected under the skin of experimental animals at a dose of 25 ml/kg daily for 5 days from once a week. At the same time, the main attention was paid to the survival of animals from the 6th day of experiments, the general condition, the concentration of hemoglobin in peripheral blood, the number of erythrocytes and leukocytes, and the lekoformula was taken into account in a new automatic hematology analyzer (BC-6000 MINDRAY). In order to determine the activity of the test substance against ga, herbal tincture prepared in the proportions described above was taken at doses of 5 ml/ kg and 10 ml/ kg, and as a comparison drug, coamide was taken at a dose of 3 ml/ kg and also distilled in a volume equal to the control group for 30 days, water in As a result of the conducted studies, the activity of the studied tincture against anemia was evaluated by comparison with the control group, as well as R.B. Measures were taken to statistically process the results obtained in the tabular method proposed by Strelkov [30].

The results of the study and their discussion. The effect of doide on the course of the study in order to damage experimental animals with phenylhydrazine hydrochloride, studies have shown

that during the diagnosis of peripheral blood carried out on the 6th day of the experiment, a sharp decrease in the amount of hemoglobin and erythrocytes was observed in rats. In particular, the amount of hemoglobin in the peripheral blood of rats in the experiment is up to 3.8 g%, and the number of erythrocytes - 4.4 million decreased to. Neutrophilic leukocytosis, peikilocytosis, hypochromia and anisocytosis were also recorded in the blood.

The general condition of the animals in the experiment significantly worsened after administration of phenylhydrazine hydrochloride, control over their appearance, behavior and behavioral-negative changes compared to rats in the Intak group was not observed. In particular, there were signs of slowing down their motor activity, licking their fur and licking around their nose and eyes. At the same time, the animal's passion for food and water has significantly decreased. The data obtained on the basis of the conducted studies are presented in detail in Table 1.

Table 1. In experimental animals under the influence of phenylhydrazine hydrochloride, there are differences in the general blood test.

№	Indicators	Initial indicator	After administration of phenylhydrazine g/ch
1.	Hemoglobin, g%	12.1±0.40*	3.8±0.29*
2.	Erythrocytes, mln.	6.5±0.41*	4.4±0.31*
3.	Leukocytes, ming	11.5±1.24*	22.3±1.87*
4.	Leucoformula		—
	Young, sticks	—	7.5±0,44*
	Nuclear sticks	1.0±0,12	1.0±0,12
	Basophil	1.5±0,12	1.5±0,08*
	Eosinophils	2.5±0,09*	42.0±2,41
	Lymphocytes	28.5±1,2	44.0±1,89
	Segmented Core	64.0±2,48	—

Note: * is the accuracy coefficient relative to the control P < 0.05.

Blood tests were performed during their treatment with the studied drugs, on the 15th and 30th day of the experiment, until phenylhydrazine hydrochloride was administered and anemia was caused by administration of phenylhydrazine hydrochloride. In this case, the main focus was on the survival of rats, their general condition, the amount of hemoglobin and erythrocytes in peripheral blood, the morphology of erythrocytes and the number of leukocytes. The results obtained are shown in table 2 below.

Table 2. Comparison of the effects of TCMP and coamide when administered for 15 days in hemolytic anemia caused by phenylhydrazine hydrochloride.

№	Indicators	Intact group	Control (phenylhydrazine g/ch)	TCMP 5,0 ml/kg	TCMP 10,0 ml/kg	Coamide 3,0 ml/kg
1.	Hemoglobin, g%	12.0±0.73	4.3±0.41	4.7±0.42	5.1±0.64*	7.3±0.81*
2.	Erythrocytes, mln.	6.1±0.96	4.7±0.75	5.2±0.57	5.5±0.36	5.3±0.42
3.	Leukocytes, ming	12.5±0.90*	13.5±1.21*	13.0±1.04*	13.5±0.64*	14.2±0.74*
4.	Leucoformula					
	Young, sticks	—	0.5±0,09	0.75±0,08	1.0±0,012	0.75±0,01
	Nuclear sticks	1.0±0,08	6.0±	3.5±0,33	4.0±0,12	4.5±0,24

	Basophil	1.5±0,01	1.25±0,04	1.5±0,01	1.0±0,03	1.5±0,012
	Eosinophils	2.5±0,02	1.25±0,08	1.0±0,03	0.75±0,04	2.5±0,08
	Lymphocytes	28.5±1,89	43.5±3,72	29.5±1,12	32.0±1,2	28.5±2,41
	Segmented Core	64.0±3,89	43.0±2,41	56.0±4,8	57.5±3,36	60.0±2,89

Note: * is the accuracy coefficient relative to the control P < 0.05.

In the rats of the control group, the course of hemolytic anemia released on the surface of phenylhydrazine hydrochloride was very severe. Changes in the morphology of red and white blood cells were noticeable, as in anemia caused by repeated blood excretion. In leukocytes, a high level of neutrophilic leukocytosis was noted, which resolved to the left. By the end of the experiment, 70% of the animals (7 out of 10 died) had a case of death, while the rest of the animals had peripheral blood elements that could not reach their state.

Under the same conditions, the amount of hemoglobin in the peripheral blood of animals injected with a tincture of medicinal plants at a dose of 5 ml / kg increased by 0.9 g% on the 15th day of the experiment, the number of red blood cells was 0.3 million and rose to. In animals receiving the drug at a dose of 10 ml / kg, the amount of hemoglobin and erythrocytes became more intense and increased by 1.3 g% and 0.45 million, respectively.

Table 2. Comparison of the effects of TCMP and coamide when administered for 30 days in hemolytic anemia caused by phenylhydrazine hydrochloride.

№	Indicators	Indicators	Intact group	Control (phenylhydrazine g/ch)	TCMP 5,0 ml/kg	TCMP 10,0 ml/kg
1.	Hemoglobin, g%	11.9±0.74	6.7±0,7*	7.0±0.56*	8.56±0.50*	8.8±0.77*
2.	Erythrocytes, mln.	6.4±0.40	5.0±0,4	6.0±0.78	6.5±0.34*	6.3±0.54*
3.	Leukocytes, ming	12.0±0.82*	12.5±0,74	12.3±0.6*	12.3±0.68*	12.3±0.5*
4.	Leucoformula					
	Young, sticks	—	—	—	—	—
	Nuclear sticks	1.0±0,01	4.0±0,24	3.0±0,12	3.5±0,96	3.0±0,72
	Basophil	1.5±0,1	1.2±0,01	1.25±0,14	1.5±0,12	2.0±0,44
	Eosinophils	1.5±0,12	0.5±0,04	1.0±0,09	1.25±0,33	1.0±0,12
	Lymphocytes	23.0±1,2	22.5±1,2	21.5±1,2	22.0±0,96	20.5±0,72
	Segmented Core	64.5±3,36	69.5±2,41	71.0±2,41	72.5±3,36	73.5±3,36

Note: * is the accuracy coefficient relative to the control P < 0.05.

Changes in the morphology of erythrocytes and leukocytes have significantly decreased. The leukoformula has approached the physiological norm.

The amount of hemoglobin on the 30th day of the experiment, the results on the 15th day of the experiment are 2.3 g, respectively. % and 3.4 g. the number of red blood cells increased to 0.85 million and 1 million, the morphology of red blood cells returned to normal, while white blood cells were about the physiological norm.

Comparative use of the drug coamide in doses of 3 mg / kg with phenylhydrazine on the 15th day of the experiment for the course of hemolytic anemia increased the level of hemoglobin in peripheral blood by 3.5%, and the number of red blood cells - to normal.

Table 4. Evaluation of the effect of TCMP and coamide on the survival of experimental animals when administered for 30 days with hemolytic anemia caused by phenylhydrazine g/ch.

№	Experience Groups	Doses in ml/kg	Number of animals	Died	Not dead	Survival in %
1.	Intact group	Дис.сув	10	0	10	100
2.	Control (phenylhydrazine g/ch)	Дис.сув	10	7	3	30
3.	TCMP	5,0	10	2	8	80
		10,0	10	1	9	90
4.	Coamide	3,0	10	0	0	100

It is worth noting that in the groups that received tincture of medicinal plants in doses of 5 ml/kg and 10 ml/ kg, 2 and 1 rats died, respectively, before the end of the experiment. In the group of rats treated with the drug coamide, taken for comparison, not a single case of death was recorded.

Conclusions. In conclusion, we note that the tincture of the collection of medicinal plants has a positive effect on hemolytic anemia, similar to the drug coamide widely used in medicine, but its effect on this anemia occurs at a level lower than that of the drug coamide. Hence the influence of tincture on the course of hemolytic anemia, which is recorded much slower than its anti-anemic results in other models of anemia. Although the studied drug has little activity in relation to the existing drug, it lays the foundation for large-scale scientific research on the preparation and introduction of biologically active additives based on it in the future, which allows it to be used with the main drugs in the treatment of various anemic diseases.

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