

Study of the biological activity of dry extract of breast collection No. 3

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SUMMARY

Medicinal plants, along with synthetic drugs, occupy a prominent place in the arsenal of medicinal products, which raises the question of conducting an experimental assessment of their pharmacological properties, which is necessary to ensure the safety of their future use.

The aim of this work was to study the "acute" and "chronic" toxicity of breast collection No. 3 and dry extract based on it, as well as pharmacological study of the anti-inflammatory effect of the collection infusion and dry extract solution in the experiment "Cramps caused by acetic acid in mice." In the study of "acute" toxicity, the preparations were tested at doses of 150 mg / mouse (7500 mg / kg), 200 mg / mouse (10,000 mg / kg), 300 mg / mouse (15,000 mg / kg). "Chronic" toxicity was studied with the introduction of drugs in a volume of 0.2 ml / mouse (110 mg / kg) - a single dose, 0.6 ml / mouse (330 mg / kg), 1 ml / mouse (550 mg / kg) per for 30 days.

According to the research results, it was experimentally proved the presence of anti-inflammatory activity in the aqueous extract of Breast collection No. 3 and a solution of dry extract; according to the results of the study of "acute" and "chronic" toxicity, the collection and dry extract according to the accepted classification of toxicity can be attributed to the VI class - "Relatively harmless substances".

Recently, a large number of new highly effective synthetic drugs have been created, but a natural source - medicinal plants - continues to occupy a prominent place in the arsenal of medicinal products. The healing effect of medicinal plants on the animal organism is explained by the presence of various biologically active compounds in them. The active substances of plants are extremely diverse and are represented by such groups as terpenoids, steroids, carotenoids, saponins, bitterness, alkaloids, polysaccharides, flavonoids, vitamins, etc., which have a versatile effect on the human body [1; 3].

The subject of our research was Breast collection No. 3 (hereinafter - breast collection) consisting of five components: licorice roots, marshmallow roots, sage leaves, fruits of anise, pine buds - and a dry extract based on it. The collection has an anti-inflammatory, expectorant effect and is produced by the industry [5]. In connection with the development of a new dosage form for this collection - a water-soluble dry extract, we studied the biological activity of breast collection and dry extract.

The research was carried out on the basis of the Research Center of the Moscow Medical Academy. THEM. Sechenov in the laboratory of the Department of Pharmacology. Animals for the experiment were obtained from the Central Vivarium of the Moscow Medical Academy. THEM. Sechenov.

Preparation of white mice of both sexes weighing 19-21 g for the experiment was carried out in accordance with the instructions of SP XI [2]. Two hours before weighing and selecting animals for testing, food and water were removed from them.

Pharmacological study of the anti-inflammatory effect of the infusion of breast collection and a solution of dry extract was carried out in the experiment "Cramps caused by acetic acid in mice" [4]. The experimental group of animals for each test sample consisted of 10 white mice (5 females, 5 males). In experiments, a specific reaction - "cramps" (characteristic movements of animals, including contractions of the abdominal muscles, alternating with their relaxation, stretching of the hind limbs and arching of the back) - was caused by intraperitoneal

the introduction of 0.2 ml of 0.75% acetic acid.

30 minutes before the administration of acetic acid, mice were intragastrically injected with a special probe, 0.6 ml (330 mg / kg) of the tested solutions of breast collection and dry extract, prepared according to the following methods: a solution of dry extract was prepared by dissolving 1.1 g in 100 ml of hot water, and the infusion of breast collection was obtained in accordance with the instructions for use: 10 g of the collection was placed in an enamel dish, poured in 200 ml of hot boiled water, covered with a lid and heated in a boiling water bath for 15 minutes, cooled at room temperature for 45 minutes, filtered through 4 layers of gauze, the volume of the resulting infusion was brought to 200 ml with boiled water. The animals in the control group received only acetic acid solution. The experimental results are presented in table. 1.

Table 1

Anti-inflammatory activity of the studied drugs

Group of animals	The number of "cramps"
Collection	
Control	43 ± 3.90
An experience	19 ± 3.48
Dry extract	
Control	43 ± 3.90
An experience	17 ± 3; 52

Thus, in comparison with the control, the anti-inflammatory activity after the administration of the test solutions increased by 56% (breast collection) and 60% (dry extract).

We have conducted a study of "acute" and "chronic" toxicity of breast collection and dry extract.

In the study of "acute" toxicity, the preparations were tested at doses of 150 mg / mouse (7500 mg / kg), 200 mg / mouse (10,000 mg / kg), 300 mg / mouse (15,000 mg / kg). The first of the doses exceeds 23 times the value of the dose equivalent to a therapeutic dose for a person in terms of the body surface, the second - 30 times, and the third - 45 times.

Before the introduction, the dry extract of the collection was suspended in 1 ml of 1% gelatin solution. For the introduction of the breast collection solution, it was prepared in accordance with the instructions for use, and then the resulting aqueous extract was evaporated under vacuum on a rotary evaporator and the resulting dry residue in the indicated doses was suspended in a 1% gelatin solution.

The experimental group of animals for each test sample consisted of 10 white mice. The indicated volumes were administered to the animals once intragastrically using a special probe. Animals in the control group received 1 ml of 1% gelatin solution. The total duration of observation of animals in the study of "acute" toxicity was 14 days, and on the first day after administration, the animals were under continuous observation. The general condition of the animals, changes in body weight, and the condition of the coat were regularly recorded. The dynamics of the mass of animals for a dose of 300 mg / mouse is shown in table. 2.

table 2

The dynamics of the mass of white mice after the introduction of breast collection and dry extract

Group of animals		Change in body weight of animals (g)			
		Before introduction drug	In 4 days	After 8 days	After 14 days
Control	Females	19.3 ± 0.49	22.3 ± 0.85	22.7 ± 1.05	23.9 ± 1.16
	Males	20.9 ± 0.61	24.6 ± 0.85	26.1 ± 0.89	26.6 ± 1.08
An experience	Females	19.3 ± 0.49	22.2 ± 0.76	22.9 ± 1.04	23.8 ± 1.18
	Males	20.9 ± 0.61	24.5 ± 0.77	25.5 ± 0.87	26.6 ± 1.01

After the administration of the drugs in each of the above doses, no lethal outcome was observed, and the animals in both the experimental and control groups continued to behave as before, i.e. no change in behavior was recorded. Observation of the animals for 14 days also did not reveal any deviations in their appearance, condition of the coat, body weight in comparison with similar parameters in the control group.

Based on this, it can be concluded that at these doses, the drugs do not have a toxic effect on laboratory animals. When studying the "chronic" toxicity of breast collection and dry extract in an experiment on white mice, aimed at identifying the degree of damaging effect of the drug with its long-term administration, the test solutions were prepared according to the method described in the experiment "Cramps caused by acetic acid in mice." The experimental group of animals for each test sample consisted of 10 white mice. The experiment lasted 30 days. Daily mice were injected intragastrically with the test samples in a volume of 0.2 ml / mouse (110 mg / kg) - a single dose; 0.6 ml / mouse (330 mg / kg), 1 ml / mouse (550 mg / kg). The above doses were administered three times a day at 4 hour intervals. Animals in the control group received 1 ml of water.

Throughout the experiment, the animals were under daily observation: the general condition of the mice, the change in body weight (the assessment was carried out 4 times during the experiment), the state of the coat were noted. The dynamics of the mass of animals is presented in table. 3.

The reaction of experimental animals to the introduction of infusion of breast collection and solution dry the extract was the same, and the death of animals from any of the indicated doses within 30 days was not noted, but with the introduction of solutions in a volume of 1 ml, both in the experimental and in the control group, depression and adynamism of mice were observed, but the next day the state of the animals was restored ... This reaction can be explained by the large volume of the introduced substance.

Table 3

The dynamics of the mass of white mice after the introduction of infusion of breast collection and a dry solution extract

Group of animals		Change in body weight of animals (g)				
		Before introduction drug	In 7 days	After 14 days	After 21 days	After 30 days
Control	Females	19.5 ± 0.56	23.4 ± 0.85	23.9 ± 1.11	26.3 ± 1.46	27.4 ± 0.61
	Males	20.9 ± 0.46	25.7 ± 0.98	26.9 ± 1.10	27.4 ± 0.86	28.4 ± 0.72
An experience	Females	19.5 ± 0.56	23.2 ± 0.91	23.9 ± 1.18	25.9 ± 1.29	27.2 ± 0.56
	Males	20.9 ± 0.46	26.1 ± 1.27	27.7 ± 1.13	27.4 ± 0.75	28.2 ± 0.72

Thus, all of the above doses are not fatal in white mice, i.e. in such concentrations, the drugs are non-toxic,

CONCLUSIONS

The anti-inflammatory activity of dry extract from Breast collection No. 3 has been experimentally proven.

The presence of anti-inflammatory activity in the aqueous extract of the Breast collection No. 3 was confirmed.

When studying the "acute" and "chronic" toxicity of Breast collection No. 3 and dry extract, no lethal outcome was observed, therefore, the collection and dry extract, according to the accepted toxicity classification, can be attributed to class VI - "Relatively harmless substances".

LITERATURE

1. Gammerman A.F., Kadaev G.N., Yatsenko-Khmelevsky A.A. Medicinal plants. - M.: Higher school, 1990. - S. 34-49.
2. State Pharmacopoeia of the USSR. - 11th ed. - M.: Medicine, 1990. - Issue. 2. - S. 182-183.
3. Sokolov S.Ya., Zamotaev I.P. Handbook of Medicinal Plants. - M.: Medicine, 1985. -- S. 199-219.
4. Fisenko V.P. Guidelines for experimental (preclinical) study of new pharmacological substances. - M., 2000. -- 238 p.
5. FS 42-1219-78 Chest collection number 3.

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