The possibility of implementing the principle
remote anti-inflammatory effects in experiment (message 2)
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Earlier (communication 1), in experiments on white outbred rats on a model of subacute formalin inflammation [1], we showed a pronounced anti-inflammatory efficacy of an information copy of a preparation based on germanium (certified preparation "A solution of aqueous germanium citrate", TU U 15.8- 35291116-008: 2009 produced by "Nanomaterials and Nanotechnologies LLC"), obtained by transferring the informational properties of the original drug to a secondary carrier - water for injection (2 ml ampoule) [2] ("IPGe"). In previous studies, the information drug was administered intragastrically through a tube.

The purpose of this study was to study the possibility of contactless, remoteinfluence on the course of the inflammatory process.

Study design
The study was pilot and was conducted on white outbred rats (males) weighing 200-270 grams. The animals were kept in standard conditions of a certified vivarium of the FBUZ "Center for Hygiene and Epidemiology in the Rostov Region"(certificate of accreditation of the testing laboratory center No. GSEN.RU.ЦOA.060)...

We used a reproducible model of subacute inflammation caused by the introduction of 0.1 ml of a 2% aqueous solution of formalin under the aponeurosis of the ankle joint of the hind right paw of a rat [1]. The severity of edema was assessed by measuring the thickness of the paw with a caliper at 1, 3, 6, 24, 48, 72, 96 and 168 hours from the start of the study. The study was carried out on animals of three groups (5 animals in each group): 1 - control animals; 2 - animals with remote exposure to the information drug germanium (IPGe) through the apparatus "Golden Section" (ZS); 3 - animals with remote action of the apparatus "Golden Section". The blood for research in all animals was taken from the femoral vein at the same time as the measurements of the paw diameter were carried out; blood smears were recorded and stained as standard.

The animals of the first (control) group did not receive any anti-inflammatory effects. For the animals of the second group, the anti-inflammatory effect of the information drug was carried out remotely, using for this purpose the generator of information transfer "Golden Section", developed by MCIT "ARTEMIDA" and intended for energy-information exchange between various agents [3]. In our study, we used "IPGe" and blood smears (MC) of animals ("IPGe" + MC + 3S) as agents. The "Golden Section" device was located in a laboratory room, located at a distance from the vivarium, in which all manipulations with animals were carried out, at a distance of 80 meters. A slide with a blood smear of an animal of group 2 (blood up) was placed on the device cell (large) for 5 minutes, an ampoule with "IPGe" was placed in a smaller cell in a crystal glass. This was done daily with blood smears of all experimental rats of this group. The first informational impact was carried out one hour after the introduction of formalin and then after 24, 48, 72 and 96 hours. In addition, no additional anti-inflammatory effects were performed on the animals.

To assess the possible anti-inflammatory effect of the apparatus "Golden Section" was formed group 3 (MK + ZS). In this group, only blood smears of experimental animals were used as an agent, which were placed on a large well of the device for 5 minutes; IPGe was not used. The study conditions were similar to those of group 2.

According to the measurements of the diameter of the paws of each animal in the control and experimental groups before the introduction of formalin and during the study, the increase in edema (in% to the initial state) and the effectiveness of the action (in% to the control) were calculated [4]. To assess the effect of anti-inflammatory effects on the functional state of the animal organism, the leukocyte formulas of the animals' blood were tested. The leukocyte blood count makes it possible to assess the functional state of the body and the transitions of these states by testing the developing general nonspecific adaptive reactions: stress reactions (P.

Selye) and anti-stress responses of training (Tr) and activation [5], [6]. The activation reaction is subdivided into calm (Act), increased (ZPA) and reactivation (PeA). Training, calm and increased activation responses represent the physiological response zone of the body. Stress and overactivation are outside of this zone. Based on the indicators of the leukocyte formula, the nonspecific adaptive reactions corresponding to the functioning of each animal were assessed, the absence or presence of tension elements - indicators of the leukocyte blood count, which went beyond the normal range in one direction or another, were analyzed.

Results and discussion

The greatest increase in edema in the control group was observed 6 hours after the start of the study. The maximum edema lasted up to 24 hours, then subsided somewhat by 96 hours and increased again by the end of the experiment (168 hours). In group 2 ("IPGe" + MK + GS) by 6 hours the edema had already begun to subside (the first anti-inflammatory effect was produced 1 hour after formalin administration), then it increased slightly and by 96 hours it had subsided significantly. Two days after the end of the exposure (168 hours), there was no increase in edema. In group 3 (MC + GS), without the use of IPGe, on the first day there was an increase in edema and then an active decrease in edema until the end of the study (Table 1). The severity of the increase in ankle edema was calculated by the formula [4]

$$P = O - I \times 100\%,$$

where P - increase in edema; O- the amount of edema after the introduction of formalin; AND- the size of the paw before the introduction of formalin.

Table 1

The increase in edema in% in relation to the diameter of the paw before the introduction of formalin in the control (K);
in the 2nd experimental group ("IPGe" + MK + ZS); in the 3rd experimental group (MK + ZS)

Group	6 o'clock	24 hours	48 hours	72 hours	96 hours	168 hours
Control	100 %	100 %	83.3%	83.3%	66.7%	93.4%
IPGe + MK + ZS	28.6%	42.6%	42.6%	28.6%	14.2%	19.2%
MK + ZS	75%	85.7%	47.6%	47.6%	40.2%	twenty %

The anti-inflammatory efficacy of the effects was assessed by the degree of inhibition of the edematous reaction in comparison with the control (Table 2) according to the formula [5]:

$$100\% - (O - AND\ (O) : (O - I\ (k)) \ NS\ 100\%,$$
$$(AND\ AND)$$

where k is the control group; o - an experienced group.

table 2

The effectiveness of anti-inflammatory effects in% relative to control
in the 2nd experimental group ("IPGe" + MK + ZS); in the 3rd experimental group (MK + ZS)

Group	6 o'clock	24 hours	48 hours	72 hours	96 hours	168 hours
IPGe + MK + ZS	71.4%	57.4%	48.9%	65.7%	78.7%	79.5%
MK + ZS	25.0%	14.3%	42.9%	42.9%	39.7%	78.6%

Thus, on the model of subacute formalin inflammation, the anti-inflammatory efficacy of the effects carried out in this experiment was shown, significantly exceeding 30% [7].

Efficiency used anti-inflammatory impacts clearly is shown in Fig. 1.
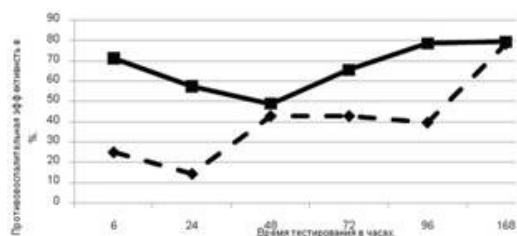
Rice. 1. The effectiveness of anti-inflammatory effects in% to control:Group 2 ("IPGe" + MK + 3C) - solid line; 3rd group (MK + 3C) - dotted line.

Before the start of the study (background), calm and increased activation reactions were tested in the control. After 72 hours, all control animals were tested for the training response, and after 96 and 168 hours, stress was also tested. In addition, by the end of the study, as the inflammation increased, the tension elements also increased, which indicated a decrease in the level of resistance and inadequacy of the developing reactions.

In animals of both experimental groups, before the start of the study and during the study, the reactions of calm and increased activation were tested. Only in one animal of group 3 during the study the activation reaction was replaced by the training reaction. By the end of the study (96–168 hours) in all animals of both experimental groups against the background of decreasing inflammation, increased activation reactions with a decrease in voltage elements were tested, which indicates an increase in nonspecific resistance and harmonization of the work of the body's subsystems.

The type of reaction (Str, Tr, ZSA, ZPA) is determined, first of all, by the percentage of lymphocytes in the leukocyte formula (Fig. 3), the rest of the white blood cells, the total number of leukocytes, being only additional signs of the reaction, indicate the degree of completeness of the reaction , the degree of its tension in relation to the generally accepted boundaries of the norm [8]. During the study, the percentage of lymphocytes, the leading link of cellular (including anti-inflammatory) immunity, gradually decreased in control animals, while in experimental animals (Fig. 2), after a slight decrease, it increased.
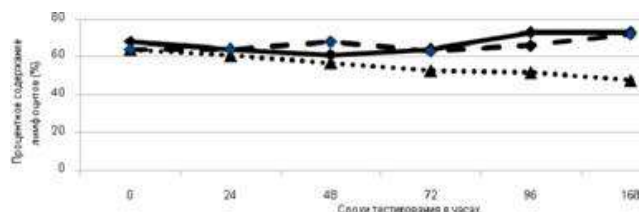
Rice. 2. Change in the percentage of lymphocytes in the leukocyte blood count incontrol animals - dotted line; in animals of the 2nd group ("IPGe" + MC + GS) - a solid line; in animals of the 3rd group (MC + GS) - a dotted line.

By the end of the study, the adaptive response of the control animals occurred at the lower limit of the physiological norm with an increase in stress elements. The adaptive response of animals of both experimental groups at the end of the study (48–168 hours), during the period of maximum efficiency of resorption of formalin inflammation, occurred at the upper boundaries of the physiological zone of the norm, and there were practically no tension elements.

conclusions

Thus, on the model of subacute formalin inflammation in the experiment, the anti-inflammatory efficiency of the energy-informational exchange carried out using the generator "Golden Section" between the information copy of the anti-inflammatory drug based on germanium and the blood smear of the experimental animal (group "IPGe" + MK + 3S) was shown, and also using in the generator "Golden Section" only a blood smear of an experimental animal (group MK + 3C). Moreover, the energy-information exchange took place at a considerable distance from the place

finding experimental animals (remoteness of the generator "Golden Section"), and, therefore, we can talk about a remote anti-inflammatory effect.

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