

**EFFECT OF K-72 AND BUTADION ON FORMALIN-INDUCED  
INFLAMMATION IN WHITE MICE WHEN ADMINISTERED ORALLY**

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**Annotation.** The second series of experiments was conducted on white rats. The anti-inflammatory effect of the drug was assessed by changes in the volume of rat paws, which was recorded oncometrically in dynamics. In the control group of rats, the average increase in paw volume 6 hours after formalin administration was  $0.79 \pm 0.34$  ml, and in rats that had previously received K-72 in doses of 50, 100 and 150 mg/kg, the average increase in paw volume was  $0.45 \pm 0.028$ ;  $0.39 \pm 0.020$ ;  $0.37 \pm 0.030$  ml, respectively. As can be seen, the anti-inflammatory activity of K-72 is equal to 41.1% at a dose of 50 mg/kg, 49.6% at a dose of 100 mg/kg and 52.6% at a dose of 150 mg/kg. At the same time, in the group of animals receiving butadion, the average increase in paw volume was  $0.56 \pm 0.033$  ml, and the anti-inflammatory activity was equal to 29.1%, and in the group of animals receiving voltaren, the average increase in paw volume was  $0.44 \pm 0.024$  ml, while the anti-inflammatory activity was equal to 43.6%. For indomethacin, these indicators were equal to  $0.44 \pm 0.021$  and 42.8%, respectively.

**Key words:** anti-inflammatory effect, paws, formalin, anti-inflammatory activity

**Introduction.** For clarity, the protocols for one of the control and experimental series are provided as an example. A male rat weighing 170 g was given 0.5 ml of acacia suspension orally 72, 48, 24 and 2 hours before the formalin injection. 30 minutes before the formalin injection, the volume of the right hind paw up to the ankle joint was 0.73 ml (100%). 0.2 ml of 1% formalin solution was injected under the plantar aponeurosis of this paw. The paw volume was: after 6 hours 1.52 ml (108.2% of the initial volume). The results of the experiments on studying the effect of K-72 on the exudative phase of inflammation caused by silver nitrate showed that in control rats the average amount of exudative fluid in the abdominal cavity was 2.54 ml, while

in animals receiving K-72 a decrease in the amount of perineal fluid was observed. Thus, at a dose of 50 mg/kg its average amount was 1.44 ml, at a dose of 100 ml/kg - 1.36 ml and at doses of 150 ml/kg - 1.30 ml. As can be seen from Table 7, K-72 causes a statistically significant decrease in the amount of exudative fluid in the abdominal cavity. Under the influence of K-72 at a dose of 50 mg/kg a decrease in exudative fluid by 43.31% is observed, at a dose of 100 mg/kg - by 46.46% and at a dose of 150 mg/kg - by 48.82%. At the same time, the anti-exudative activity of butadion is 32.30%, indomethacin 36.7% and voltaren 40.2%.

Thus, we can conclude that K-72 exhibits a pronounced anti-exudative effect. In this indicator, it exceeds butadion by 1.5 times and is noticeably stronger than indomethacin, voltaren.

**Materials and methods of research.** The course of the inflammatory process, as is known, is divided into three phases: alternative, exudative and proliferative. In the final phase of inflammation, proliferative processes predominate. Therefore, we found it interesting to study the effect of K-72 on the proliferative phase of inflammation. For this purpose, 2 series of experiments were conducted. In the first series, the “cotton pellet” method was used.

**Results and discussion.** caused coloration after  $6.24 \pm 0.440$  min, at a dose of 100 mg/kg - after  $6.40 \pm 0.034$  min, at a dose of 150 mg/kg - after  $6.61 \pm 0.024$  min, after 30 min the time of appearance of blue coloration on the skin at the site of xylene application was  $6.64 + 0.029$ ;  $7.20 + 0.028$ ;  $7.72 \pm 0.036$  min, and after 60 min after the introduction of the dye it was  $7.02 \pm 0.040$ ;  $7.82 \pm 0.45$ ;  $7.95 \pm 0.023$  min, respectively, for the doses. A 3400 g rabbit had its abdominal skin area 10–15 cm in size carefully dehaired the day before the experiment. 6.4 ml of 1% trypan blue solution was injected into the marginal vein of the rabbit's ear. 72, 48, 24, and 2 hours before dye injection, the rabbit was given 6.4 ml of acacia suspension orally. 5 minutes after dye injection, 0.02 ml of xylene was applied to two symmetrical areas of abdominal skin on either side of the abdominal midline. Weak staining appeared at the sites of xylene application, after 5 min 15 sec on the right, 5 min 25 sec on the left, and 5 min 19 sec on average. 30 minutes after dye injection, 0.02 ml of xylene was again applied to symmetrical areas of abdominal skin, slightly below the initial irritation application. Weak tissue staining occurred on the right after 5 min 20 sec, and on the left after 5 min 35 sec, on average after 5 min 26 sec. When xylene was applied to the abdominal skin 60 min after the dye was introduced, blue staining became noticeable on the right after 5 min 36 sec, on the left – after 5 min 52 sec. On average, this time was 5 min 42 sec.

**Conclusions.** A rabbit weighing 3300 g. The day before the experiment, hair was carefully removed from a skin area measuring 10 x 15 cm. The rabbit was placed in a machine with its belly up, and 6.2 ml of a 1% trypan blue solution were injected into the marginal vein of the ear. 72, 48, 24 and 2 hours before the dye was applied, the rabbit was orally administered 6.2 suspensions of the K-72 preparation at a dose of 150 mg/kg. 5 min after the dye was administered, 0.02 ml of xylene was applied to two symmetrical areas of the abdominal skin on both sides of the midline. Weak staining appeared at the sites of xylene application: on the right after 6 min 55 sec, on the left after 6 min 66 sec, on average 6 min 61 sec. 30 min after the dye was administered, 0.02 ml of xylene was again applied to symmetrical areas of the abdominal skin, slightly below the initial application of the irritant. Weak staining occurred on the right side after 7 min 40 sec, on the left side after 7 min 80 sec, on average after 7 min 72 sec. When xylene was applied to the abdominal skin, blue staining became noticeable 60 min after the dye was administered: on the right side after 7 min 91 sec, on the left side after 8 min 30 sec, on average 7 min 95 sec. In experimental rabbits given butadion, the time of appearance of blue staining on the skin at the site of xylene application after 5 min was  $6.22 \pm 0.0031$  min, after 30 min –  $6.61 \pm 0.0373$  min, after 60 min after the dye was administered it was  $7.48 \pm 0.043$  min. After the administration of indomethacin, the time of appearance of blue coloration on the skin at the site of xylene application after 5 minutes was  $6.28 \pm 0.029$  min, after 30 minutes it was  $6.72 \pm 0.037$  min, after 60 minutes –  $7.61 \pm 0.0373$  min, and for voltaren – after 5 minutes it was  $6.35 \pm 0.0188$  min, after 30 minutes –  $7.18 \pm 0.040$  min, after 60 minutes after administration it was  $7.71 \pm 0.043$  min.

From the presented results it is evident that against the background of K – 72 the time interval elapsed from the moment of application of the irritant to the skin is significantly extended. Consequently, under the influence of K-72, the reactivity of skin capillaries to the action of an inflammatory irritant is significantly reduced and in terms of activity it is stronger than butadion, indomethacin and voltaren.

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