



THE INFLUENCE OF THE NEW THIOCARBAMATE DERIVATIVE ON EXUDATIVE AND PROLIFERATIVE INFLAMMATION PROCESSES

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ANNOTATION

In a study on white rats, it was shown that the new thiocarbamate-1.3-bis (n-chloral-benzoyl-thiocarbamoyl) -uracil derivative (code UB-421) has a high anti-inflammatory power, suppressing both exudative and proliferative phases of inflammation caused by the method Selye. According to these indicators, it is significantly superior to butadion and indomethacin.

KEY WORDS: *derivative thiocarbamate, inflammation, exudation, proliferation, butadion, indomethacin.*

INTRODUCTION

Non-steroidal anti-inflammatory drugs (NSAIDs) are the most widely and often prescribed group of drugs when it is necessary to reduce inflammation, lower the fever or ease the pain [1; 72-75].

Despite the high effectiveness of NSAIDs their use is still associated with a wide range of adverse reactions associated in most cases with damage to the gastrointestinal tract, liver, kidneys, skin, etc. [2; 94-97]. In this regard, the search and study of new highly effective anti-inflammatory drugs is of great practical importance [3; 27].

Previously, we found that new derivatives of thiocarbamate exhibit distinct antagonism against "inflammatory mediators" [4; 62-64].

The purpose of this research is to study the effect of a new thiocarbamate derivative (code UB-421) on the exudative and proliferative phase of inflammation.

MATERIAL AND METHODS

This complex is synthesized at the Department of Biological and Medical Chemistry at the Tashkent

Medical Academy and is a yellowish poorly soluble powder in water.

In this regard, this substance was directed in the form of a suspension on a 3% starch paste orally using a metal probe.

The studies were carried on 36 white rats of both sexes of a mixed population weighing 160-180 g.

For comparison, the known non-steroidal anti-inflammatory drugs butadion at a dose of 100 mg / kg and indomethacin 10 mg / kg were used.

To study the effect of drugs simultaneously on exudative and proliferative processes, the Selye technique was used.

On the back of rats, the wool was removed in the inter-scapular region, and 20 ml of air was injected into the subcutaneous fat of this part, and then 0.5% mixture of turpentine in liquid paraffin was injected through the same needle. On the eighth day, the pocket granuloma was separated. The exudate was aspirated with a syringe, the weight of the container in the wet state was determined, it was dried to constant weight and weighed in dry form. The volume of exudate in the container was determined [5; 328].

The studied drug was administered orally at doses of 50, 100 and 200 mg / kg for 7 days once a day.



The animals of under control group received in an appropriate volume of a suspension of 3% starch paste. Statistical processing was performed according to the method of Styudent and Fisher.

RESULTS AND DISCUSSION

It was found that UB-421 has a pronounced anti-exudative effect. As the amount of exudate in the

granuloma sac was on average 1.11 ± 0.089 mg in under-control rats, and in animals treated with UB-421 at a dose of 50 mg / kg, the amount of exudate was 0.6 ± 0.014 , at a dose of 100 mg / kg - 0.48 ± 0.008 ml, and at a dose of 200 mg / kg - 0.36 ± 0.014 ml (Table 1).

Figure 1: The effect of UB-421, butadion and indomethacin on the exudative phase of inflammation (Selye) in rats through oral phase

Drug	Quantity of animals in a group	Dose	The amount of exudate		Anti-exudative effect towards the control(%)	P
			ml	%		
Control	6	-	1.11 ± 0.089	100	0	-
UB-421	6	50	0.60 ± 0.014	54.0	46.0	<0.002
UB-421	6	100	0.48 ± 0.008	43.2	56.8	<0.001
UB-421	6	200	0.36 ± 0.014	32.4	67.6	<0.01
Butadion	6	100	0.58 ± 0.024	52.2	47.8	<0.002
Indomethacin	6	10	0.56 ± 0.015	49.5	50.5	<0.001

Under the same conditions, butadion and indomethacin had a less marked anti-exudative effect. The amount of exudate in the granuloma sac was 0.58 ± 0.024 and 0.55 ± 0.015 ml in the group of animals treated with butadion and indomethacin correspondingly.

Under the influence of UB-421 proliferative processes are also significantly suppressed. In the

control group, the wet weight of the granuloma sac was, on average, 3.35 ± 0.14 g (Table 2), and under the influence of UB-421 the mass of the wet granuloma container was: at a dose of 50 mg / kg - 2.35 ± 0.03 g, at a dose of 100 mg / kg - 2.0 ± 0.05 g, at a dose of 200 mg / kg - 1.60 ± 0.04 g.

Figure 2: The effect of UB-421, butadion and indomethacin on the proliferative phase of inflammation (according to Selye) in rats with oral admittance

Drug	The quantity of animals in a group	Dose ml/kg	Weight of granulated wet tissue		Anti-proliferative effect (%)	P	Weight of granulated dry tissue		Anti-proliferative effect (%)	P
			g	%			g	%		
Control	6	-	3.35 ± 0.14	100	0	-	1.40 ± 0.084		0	-
UB-421	6	50	2.35 ± 0.03	70.1	29.9	<0.001	0.95 ± 0.02	67.8	32.2	<0.002
UB-421	6	100	2.00 ± 0.05	59.7	40.3	<0.01	0.80 ± 0.03	57.1	42.9	<0.001
UB-421	6	200	1.60 ± 0.04	47.7	52.3	<0.05	0.64 ± 0.02	45.7	54.3	<0.01
Butadion	6	100	2.20 ± 0.08	65.6	34.4	<0.02	0.89 ± 0.02	63.5	26.5	<0.002
Indomethacin	6	10	2.1 ± 0.07	62.6	37.4	<0.001	0.86 ± 0.04	61.4	38.6	<0.001



Thus, UB-421 reduces the weight gain of the granule container in the wet form, at a dose of 50 mg / kg by 29.9%, at a dose of 100 mg / kg - 40.3% and at a dose of 200 mg / kg - 52.3%.

Under similar conditions, under the influence of butadiene and indomethacin, the mass increase of the granuloma sac in wet form decrease by 34.4% and 37.4%, correspondingly (in animals treated with butadion and indomethacin, the mass of the granuloma container was 2.20 ± 0.08 g and 2.1 ± 0.07 g). It should be noted that under the influence of UB-421 there is a significant decrease in the dry granuloma sac (see Figure 2).

Thus, basing on the results of the last two series of experiments, it can be concluded that UB-421 has a distinct anti-exudative effect and in this respect is 1.14 times higher than butadion and 1.13 times stronger than indomethacin.

UB-421 also strongly inhibits the proliferative processes of inflammation and in this respect it is 1.5 times stronger than butadion and 1.4 times superior to indomethacin.

UB-421 as a potential anti-inflammatory drug is of real interest.

CONCLUSION

The new thiocarbamate derivative, UB-421, has a marked effect on the course of both the exudative and proliferative phases of inflammation, and in this respect it is more active than butadion and indomethacin.

LITERATURE

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