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INFLUENCE OF PHENAZEPAMUM ON ACTIVITY AND TOPOGRAPHY OF ENTERAL ENZYMES AT RATS OF NONAGGRESSIVE GROUP IN THE CONDITIONS OF AN IMMOBILIZED STRESS

Abstract: The digestive organs are almost always involved in the stress reaction of the body. Aggressiveness is an important form of zoosocial behavior in animals of different species, which has adaptive significance and is manifested by a species-specific set of behavioral responses (2,4). But the peculiarities of the functioning of the digestive organs, depending on the behavioral characteristics of the organism, have been studied insufficiently neither in norm, nor under stress.

Keywords: synergy, antagonism, somatotropic hormone, insulin, adrenocorticotropic hormone.

Relevance of work: was clarification of the functional condition of a small bowel at rats from nonaggressive group at a stress under the influence of Phenazepamum tranquilizer.

Purpose of work: studying of influence of Phenazepamum on activity and a topography of enteral enzymes at rats from nonaggressive group in the conditions of an immobilized stress.

Materials and methods: Experiments were made on adult not purebred rats with the body weight of 180–200 g. Three groups of rats – mixed (animals were not checked for aggression), nonaggressive and aggressive groups were used.

Animals were checked for aggression by a technique A.L. Rylova (1983); an irritant were electric impulses, each of which was shown to animals quadruple. Aggression size, the bound to pain, was estimated on an index of "an average score of the fights" which arose in response to a series from 88 impulses and the number of fights from 88 possible. Aggressive rats are those who have "the average score of fights" from 45,6 to 39,7. At rats with average aggression this index fluctuates from 38,8 to 33,4. At nonaggressive individuals it makes 32,6–0. The immobilized stress was caused in rats by the forced immobilization within 24 clocks. Phenazepamumwas administeredorally with

the preventive purpose in 30 minutes prior to a stress in a dose 2mg/kg. As monitoring rats are used with the corresponding typological characteristic to whom orally entered the equivalent amount of distilled water. Weight mucous was determined by routine weighing. The activity of digestive enzymes was determined by the following techniques: monoglitseridlipaza – method of A. M. Ugolev and M. Yu. Chernyakhovskaya (1969), glycyl-1-Leucinum-dipeptidgidrolaza – method of A. M. Ugolev and N. M. Timofeeva (1969), amylase – method Smith – the Swarm in A. M. Ugolev's modification (1969); saccharase– the Heleon method in modification of A. M. Ugolev and N. N. Iyezuitova (1969), lactase – the Dalhqvist (1968) method. The activity of enzymes was calculated on 1 g of mass of crude fabric of a mucosa of a small bowel and was expressed in mg/min/g for an amylase and in μmol/min/g for other enzymes. Statistical data processing was carried out by Student-Fisher's method.

***Results of researches*:** In this series of experiments as monitoring served intact rats from nonaggressive group. Nonaggressive ratsbore well a 24-hour immobilization. There were not lethal outcomes. The mass of a mucosa decreased in 6 h after an immobilization along all gut approximately by 1,5 times, in 24 h and further an index came back to monitoring level. In a homogenate of the mucosa removed along all small bowel, the activity of a monoglitseridlipaza was inhibited in 1,5; 2,2; 2,2 times in 6, 24, 48 h after a stress (tab. 1) The activity of a dipeptidgidrolaza increased through 6, 24, 48, h in 1,5; 1,6 and 2, 2 times. The activity of an amylase decreased throughout all experiment: in 6 h by 2,2 times, 24 h – by 2,4 times, 48 h – in the 1, 7 time. Thesaccharase activity was defined raised in 2, 3; 2,5; 2,7 times in 6, 24, 48 h after an immobilization. The activity of a lactase was inhibited by 2,2 times in 6 h, further did not differ from monitoring.

Table 1.– Activity of a monoglitseridlipaza (μmol/min/g) in a mucosa homogenate, removed along all small bowel at an immobilized stress and at a stress against the Phenazepamum at rats from nonaggressive group (M + m, n = 6)

Experimental conditions	Time in hours after a stress		
	6 hours	**24 hour**	**48 hours**
Intact rats (monitoring)	5,7 ± 0,2	5,7 ± 0,2	5,8 ± 0, 2
Immobilized stress	3,7 ± 0,2 < 0.05	2.6 ± 0.2 < 0.01	2.4 ± 0.1 < 0.01
Immobilized stress against the Phenazepamum	2.7 ± 0.2 < 0.01	4.1 ± 0.3 < 0.05	6.0 ± 0.3 < 0.1

The topography of enzymes at adult rats from nonaggressive group after an immobilization is changed, at the same time the expressed tendency to the shift of peaks of activity of enzymes in the caudal direction was traced.

The Monoglitseridlipaza activity in 6 h and 24 h went down in a duodenum and proximal intestine remained at the level of monitoring in medial department therefore its gradient changed. In 48 h, the indicator was normalized in three top departments, and increased in distal. The activity of a dipeptidgidrolaza through 6, 24,48ch went down in a duodenum, remained at the level of monitoring in proximal and medial departments and increased in distal department that also led to gradient shift in the caudal direction (fig). The amylolytic activity decreased in 6 h and 24 h in a duodenum and proximal intestine, remained within norm in medial department and increased in distal. In 48 h after an immobilization, the topography of activity of enzyme did not differ from monitoring. The saccharasa activity was induced throughout all experience on all sites of a gut, but is especially strong in distal intestine therefore the shift of a maximum of its ac-

tivity in the distal direction took place. The activity of a lactase in all terms after a stress did not differ from monitoring on all sites of a gut and its topography did not change. Preventive introduction of Phenazepamum to a stress rendered to animals of this group approximately the same leveling effect on the studied indicators, as well as in the mixed group of animals, i.e. against the background of a tranquilizer the functional condition of a small intestine was almost completely normalized in 48 h. It concerned activity of enzymes in a homogenate mucous, removed along all small bowel (tab.), a topography of enzymatic activities (fig). The mass of a mucosa did not differ from monitoring.

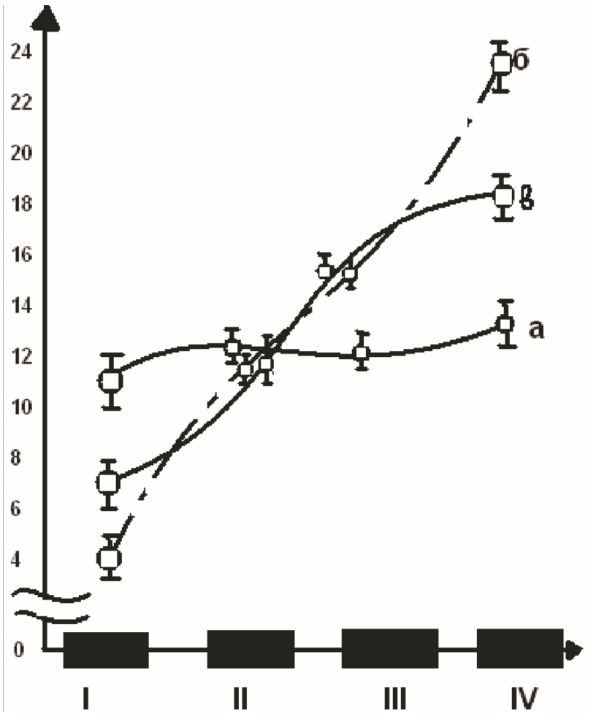

Figure 1. Distribution of activity of a dipeptidgidrolaza along a small bowel in 24 hours after an immobilized stress and after a stress against the Phenazepamum

Axis of ordinates:

a – intact rats (monitoring);
b – an immobilization;
c – an immobilization against the Phenazepamum

Abscissa axis:

I – duodenum;
II – proximal intestine;
II – medial intestine;
IV – distal intestine.

Conclusions

1. The immobilized stress differently influences functional and morphological indicators of a small bowel depending on behavioral features of rats.

2. The stress does not cause death of individuals from the mixed

3. The topography of all enzymatic activities changes, generally at the expense of the shift of their maximum in a distal segment.

4. Decrease in mass of a mucosa on all sites of a small bowel is characteristic.

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