EXPERIMENTALLY EVALUATED SPECIFIC EFFECT OF THE MEDICINAL PREPARATION MADE OF ANIMAL RAW MATERIAL

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Preface. A study of hypolipididemic activity of antiatherosclerotic preparation "ALIPROL" as obtained from the duodenums of pigs is important for confirming its specific effect. It is well known that heparinoids have the double effect: influence the intensity of lipid metabolism and change the blood coagulation system. To prove the presence of antiatherosclerotic effect of medicinal preparation "ALIPROL", a study of its influence on the level of cholesterol, β -lipoproteides (LDL - lipoproteides of low density) and triglycerides in blood and livers was undertaken.

Experimental methods. Hypolipidemic activity of "ALIPROL" (0.3 g tablets) was analysed on the model of hyperlipidemy provoked by specific diet: animals (male rats, 130 - 135 g of live weight) received atherogenic feed ration containing: milk millet or oatmeal porridges supplemented with butter (6.0 g), cholesterol (400.0 mg), and mercasolil (2.0 mg) per rat/day for three weeks. The preparation was used from the first day - 200 mg/kg for similar period (per substance) per os. All animals were divided into three groups (20 rats in each): K^+ group - intact rats received the standard ration in vivary; K^- group - rats received the atherogenic diet without "ALIPROL"; O group - rats received atherogenic diet supplemented with "ALIPROL", each day for three weeks. Body weight of all animals was registered once a week. After completing the experiment, main indices of the lipid metabolism were determined by generally used biochemical methods.

Results. First signs of metabolic disturbances (decrease of body weight) were demonstrated by rats that received the atherogenic diet, at the fourth day of experiment and at the end of the first week. Rats in K^+ group had an increase of body weight + 48.3% average; rats in K^- group had the decrease of body weight - 23.1% and the rats in O group had a decrease - 26.2%. In two last days of the experiment, 40.0% of animals died in K^- group, but only 10.0% of rats died in O group. As a result of 3-week intake of the atherogenic diet, rats demonstrated significant disturbances of lipid metabolism (table).

Table

Group of animals	Indices of lipid metabolism (M ± mx)					
	Blood				Liver	
	LDL, mg/%	Cholesterol, mg/%	Triglycerids, mg,/%	Lipoproteid-lipase activity*	Cholesterol, mg/%	Triglycerids, mg/%
K^+	51.02 ± 4.7	89.2±1.8	41.3±3.2	190.0 ±9.36	323.1± 4.8	547.2 ± 7.1
K^-	402.4 ±13.8	120.5±1.5	130.2±5.5	87.57±6.52	450.8±15.8	1215.4± 47.5
O	255.7 ±20.4	113.9±2.2	100.6±2.7	118.0 ±7.52	383.0± 9.6	927.0± 40.6

* - (N mol of fatty acids), h x ml of plasma.

Data summarized in table indicate that the rats that received the diet without "ALIPROL" demonstrated 7.9 time higher LDL content in blood, 1.3 time higher cholesterol content in blood and liver, 3.2 time higher triglycerides content in blood, and 2.2 time higher triglyceridess content in liver in comparison with intact animals (K^+). It was evident that lipoproteidlipase activity dropped sharply (2.2 time) in the blood plasma of rats that received atherogenic diet (K^- group) as compared with control animals. Chronic administration of this preparation provoked partial recovery (35.0%) of the enzyme activity. However, the enzyme activity did not reach the control level.

Discussion. Preventive administration of the preparation from the first day of the experiment in dose of 200.0 mg/kg made it possible to correct lipid metabolism disturbances revealed. Thus, in spite of the fact that LDL content in blood of rats in O group was 5 times higher than in K^+ group, it occured to be surely lower than in K^- group. Cholesterol content in blood and liver of rats in the experimental group was by 28% and 19% higher, respectively, than in the group of intact rats, but significantly lower than in K^- group. This preparation rendered the similar effect on the content level of triglycerides. The study revealed the incomplete recovery of lipid metabolism indices that could take place because of the strict character of the model system used. On the other hand, a similar partial recovery was characteristic of such an antiatherosclerotic preparation as benzoflavine (1).

Conclusion. Analysis of hypolipidemic effect rendered by "ALIPROL" medicinal preparation was carried out on the model of strict hyperlipidemic diet. The data obtained indicated that although this preparation did not prevent from the decrease of rat body weight,

it prevented from the death of rats in consequence of great metabolic disturbances, it normalized to some extent the disturbed indices of lipid metabolism - LDL content in blood, cholesterol and triglycerides in blood and liver; restored lipoproteidlipase activity in blood. Thus, it was revealed that "ALIPROL" medicinal preparation had an expressed hypolipidemic effect.

References

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