

BRAIN, KIDNEY AND LIVER DAMAGE IS THE CAUSE OF DEATH OF RATS IN ACUTE TOXICITY STUDIES OF DICLOCOR

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Introduction. NSAIDs are associated with various adverse effects. Thus, vigorous work is being carried out throughout the world to make these drugs safer. Diclocor, a newly developed drug containing 25 mg of diclofenac and 40 mg of quercetin, is a promising medicine in this regard.

Aim. To study acute toxic effects of Diclocor on viscera of rats.

Materials and methods. Acute toxicity was studied by Prozorovsky method on 36 rats, which were divided into 6 groups (6 animals in each group). Diclocor was administered in doses 500, 700, 900, 1100, 1300, and 1500 mg/kg, respectively for different groups of rats. In case of death of an animal, the procedure included autopsy with macroscopic analysis of viscera in order to exclude death due to operational mistakes and determine probable causes of death. In the end of experiment autopsy was performed in survived animals as well. The viscera (brain, heart, kidneys, liver and spleen) were weighed and calculation of their mass coefficients was carried out.

Results and discussion. No animals died in group 1, in contrast to other groups, where mortality was proportional to the dose of the drug. Macroscopic analysis of the viscera of abdominal cavity of the dead rats showed signs of stomach damage, namely, oedema of mucosa and many pinpoint hemorrhages. This is typical for diclofenac. Moreover, kidney and hepatic necrosis were evident. The results of weighing of the rats' viscera are shown in the table below.

Mass coefficients of the rats' viscera (M±m, n=6)

Group	Dose, mg/kg	Mass coefficient, %				
		brain	heart	kidney	liver	spleen
1	500	1,05±0,02	0,40±0,02	0,32±0,01	3,26±0,04	0,35±0,01
2	700	1,23±0,21	0,39±0,06	0,36±0,03	3,50±0,07*	0,37±0,01
3	900	1,19±0,07	0,39±0,03	0,42±0,10	3,58±0,19	0,34±0,05
4	1100	1,29±0,12	0,39±0,04	0,45±0,04*	3,62±0,13*	0,35±0,02
5	1300	1,32±0,10*	0,42±0,02	0,42±0,04*	3,68±0,16*	0,39±0,05
6	1500	1,36±0,09*	0,40±0,02	0,40±0,02*	3,72±0,19*	0,38±0,03

Footnote. * – $p < 0.05$ compared to group 1

Conclusions. Significantly increased mass coefficients of the brain, kidneys and liver in rats having received high toxic doses of Diclocor compared to rats having received 500 mg/kg dose are evidence of oedema and destruction in these organs, which, in our opinion, is the main reason of animals' death.