

log L, where S = body surface in m^2 , W = body weight, L = body length) (3). The control animals were given intraperitoneally 0.1 ml/square meter of the body surface of physiological saline.

The experiments were carried out in three stages, each of them lasting five days. There was a 24-hour break in drug administration between the individual stages. After completing the cycle, the rats were anaesthetised with chloroform and decapitated. Then their brain tissue was sampled and homogenised according to Folch procedure (4) and the phospholipids were separated by a thin layer chromatography. Phosphorus content was assayed according to Bartlett (1).

The phosphatidylethanolamine, phosphatidylserine and phosphatidylcholine levels in the brain tissue of rats have been investigated.

Statistical analyses were performed by Student's t test for unpaired data with $p < 0.05$ as statistical limit.

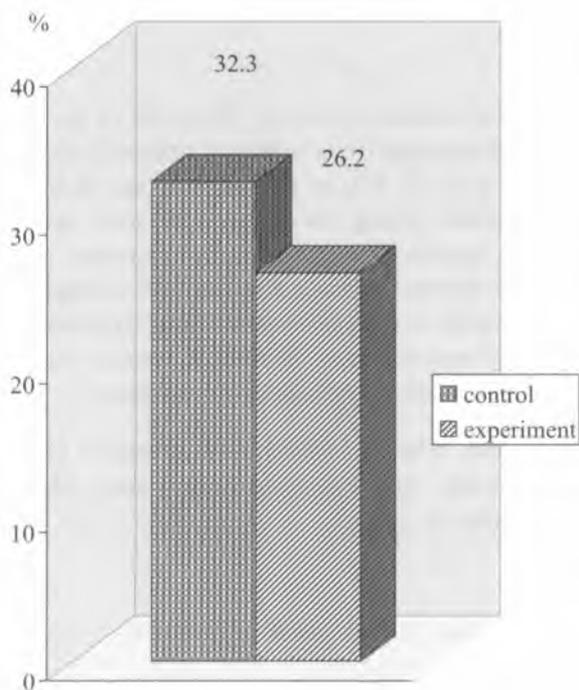


Fig. 1. Changes in phosphatidylethanolamine level induced by cisplatin administration

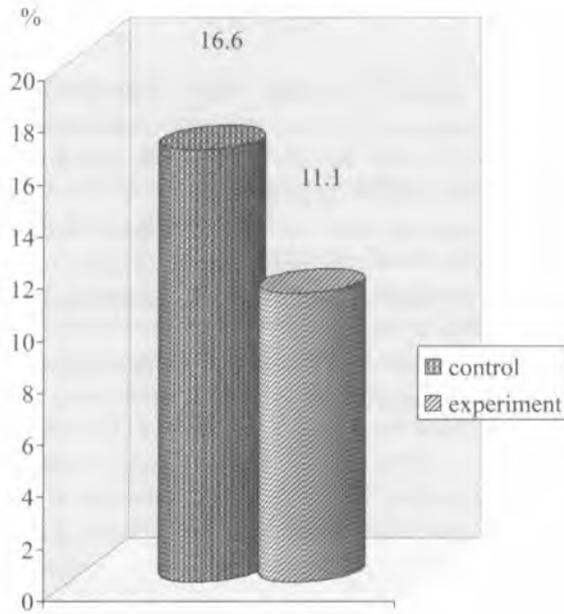


Fig. 2. Changes in phosphatidylserine level induced by cisplatin administration

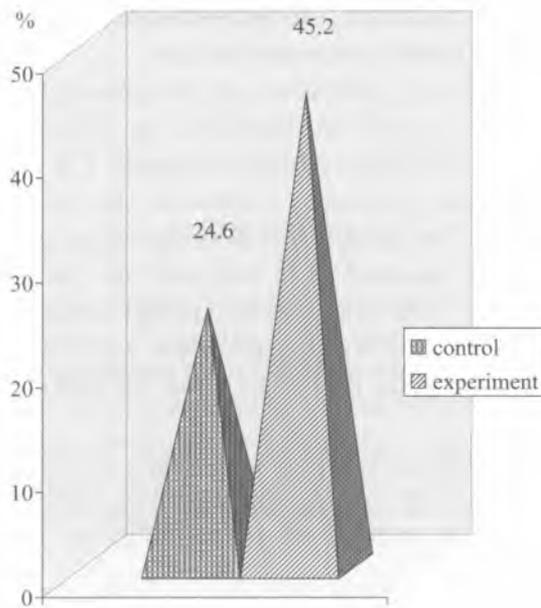


Fig. 3. Changes in phosphatidylcholine level induced by cisplatin administration

RESULTS

The carried out research confirms that cisplatinum, being administered intraperitoneally, causes changes in the phospholipids composition in brain tissue of rats.

In the cerebral hemispheres it was proved that the phosphatidylethanolamine level was decreased from 32.3% to 26.2%. (Fig.1)

Similar effect was observed with reference to phosphatidylserine: decrease from 16.6% to 11.1%, as compared with the control group. (Fig.2).

Figure 3 showed the phosphatidylcholine level in comparison with the control group got increased from 24.6% to 45.2%.

Though the biggest changes were confirmed in phosphatidylcholine, all of these changes were statistically insignificant.

DISCUSSION

The experiments prove that cisplatinum changes the composition of phospholipids in the brain tissue in rats. It is known that phospholipids are components of cellular membranes, and the lipophyl drugs, when dissolving in this layer, change the permeability of the cellular membrane. It causes the change of membrane transport and disturbance of cells functioning. Another mechanism of performance consists in joining the receptor and thus it reacts pharmacologically.

In the study of Giri inhibition of phosphatidylcholine and neutral lipids synthesis was proved in hamsters, to which other cytostatic - bleomycin had been administered intratracheally (5).

Gupta A. and his co-worker confirmed that in brain tissue of rats exposed to cadmium the phospholipids composition got changed (6).

Schiffer et al. showed that contrary to the effects exerted by cisplatinum on brain tumours, general clinical neurological condition of the rabbits to which intraarterial cisplatinum was administered was unaffected and histopathological examination of the rabbit's brain was normal (9).

It can be assumed that the observed changes in the phospholipids composition in the brain tissue of rats are caused by cisplatinum activity or by the changes of cellular membranes permeability or else by connecting it with the receptor.

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Otrz.: 2000.02.02

STRESZCZENIE

W pracy badano wpływ cisplatyny (podawanej dootrzewnowo) na skład fosfolipidów w tkance mózgowej u szczura. W homogenizatach tkanki mózgowej oznaczano poziom fosfatydyloetanolaminy, fosfatydyloseryny i fosfatydylocholiny.

Z przeprowadzonych doświadczeń wynika, że pod wpływem cisplatyny zmienił się skład fosfolipidów. Poziom fosfatydyloetanolaminy i fosfatydyloseryny zmniejszył się odpowiednio z 32,2% do 26,2% oraz z 16,6% do 11,1%. W przypadku fosfatydylocholiny wykazano wzrost z 24,6% do 45,2%. Obserwowane przez nas zmiany były nieistotne statystycznie.

