Ukraine, have acquired special medical and social significance. Hypoxia is a rare etiologic factor in clinical manifestation. It often aggravates the course of the underlying disease and is accompanied by disturbances of oxygen transport system and joins regulatory dysfunctions and involvement of typical and specific pathologic reactions.

There is a great number of preparations which influence the process of brain hypoxia in different ways at the pharmacological market of Ukraine. However, there aren't any remedies for other neuro- and psychopharmacologic groups which do not possess such a composite many-sided spectrum of pharmacologic activity as neotropical drugs have. In particular, a lot of studies deal withPiracetam, which so far remains "the pattern", "the golden standard" of neotropical preparations.

The objectiveof the study was to investigate the effect of different doses of Piracetam on prooxidant-antioxidant system of certain brain structures in case of acute hypobaric hypoxia.

The experiments were conducted on immature and mature outbred male albinorats with a moderate resistance to hypoxia. The animals were divided into the following groups: 1) animals subjected to hypoxia after preliminary injection of saline; 2) rats subjected to hypoxia after preliminary injection of Piracetam in different doses. A single dosage of the preparation was administered intraperitoneally in doses of 100, 200, 300, 400, 500 mg/kg correspondingly. Considering pharmokinetics of Piracetam, the preparation was injected one hour before hypoxia modeling. The obtained data were analyzed by the methods of variation statistics, using the Students' t-criterion.

The investigations were indicative of the fact that Piracetam injection 60 minutes before hypoxia modeling in the dosages of 100, 300, 400, 500 mg/kg resulted in imbalanced prooxidant-antioxidant system in the examined brain structures. However, after administration of Piracetam in the dosage of 200 mg/kg, the content of TBAAP and products of protein oxidation modification decreased, the activity of enzyme antioxidant defense increased - catalase activity reliably raised in all the brain structures. At the same time G-6-FDG activity decreased reliably. The activity of Na+, K+ - AT phase reliably decreased. The activity of Na+, K+ -AT phase was registered twice as much in the cerebral cortex, 2,3 times as much in the hyppocampus, 2,4 as much in blidiycula, 4 times as much in caudate nucleas, as compared to the animals subjected to hypoxia without injection of the preparation.

Thus, Piracetam in the dosage of 200 mg/kg normalizes the disturbed prooxidant-antioxidant balance in the brain structures as the result of acute hypoxia much better than in other dosages (100, 300, 400, 500 mg/kg).

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POTASSIUM-URETIC ACTION OF TRENTAL AND XANTHINOL NICOTINATE UNDER CONDITIONS OF SPONTANEOUS DIURESIS

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Trental and xanthinol nicotinate are synthetic dimethyl xanthines with marked hemorheological properties which, apart from peripheral vessels dilation and microcirculation improvement, increase diuresis and electrolyte excretion. It has been discovered in our previous studies that the drugs under study show saluretic effect more significantly than diuretic one by increasing the egestion of sodium ions by kidneys. At the same time potassium-uretic action of the drugs has been studied not enough, the existing information is contradictory.

The aim of the study was to ascertain potassium-uretic action of trental and xanthinol nicotinate with spontaneous diuresis.

Material and methods of the study. Experiments were carried out on mature albino rats with body weight of 0,12-0,18 kg, being kept in individual interchangeable cages on constant diet with an unlimited water and food consumption. In order to study the comparative effect of methyl xanthinol drugs on potassium-uresis, the animals have been daily peritoneally injected with Trental ("Host", Turkey) and xanthinol nicotinate ("Galichpharm", Lviv) in the dosage of 3 mg/kg for 7 days. And we have observed changes in daily diuresis and excretion of potassium ions in the dynamics of the experiment. After the last injection the urine had still been taken for 4 days, and the changes of potassium-uresis have been studied. The concentration of potassium ions in urine was determined by flame photometry on FPL-1 method.

The results of the study. After a single injection of animals with either trental or xanthinol nicotinate potassium-uretic action of both xanthine drugs hasn't considerably changed. With the aim to form more complete notion of the renal functional condition the dynamics of diuresis and potassium-urine daily changes in animals have been observed. Urine excretion and potassium ions content in it have been gradually increasing by injections of methyl xanthil preparations for a long period of time. The analysis of potassium-uresis successive dynamics testifies that trental significantly increases potassium ions excretion starting from the fourth day of the experiment, while xanthinol nicotinate from the third day. The maximum excretion of potassium ions with urine under the influence of the drugs has been observed on the seventh day of administration of the drugs. Potassium-uresis increases by 60% under the influence of trental and by 45% xanthinol nicotinate, while diuretic action of methyl xanthin drugs was approximately the same and exceeded the control indications by 1,2 - 1,3 times correspondingly. The comparison of potassium-uretic effect of the preparations under study shows that trental is a more significant potassium-uretic, under its influence potassium-uresis was 9% higher than that of xanthinol nicotinate. The observed changes of potassium ions excretion continued to keep up for another day after the injections of the drugs were stopped, potassium-uresis indications returned to the control level after that.

Thus, under conditions of spontaneous diuresis trental and xanthinol nicotinate increase the excretion of potassium ions after being injected for a long period of time. Potassium-uretic effect of xanthinol necotinate has been proved to be less significant in comparison with trental concerning the safety of preparation.

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DETECTION AND QUANTIFICATION OF POLYSACCHARIDES IN MEDICINAL RAW OF PEONY SORTS «ALBA PLENA» AND «ROSEA RLENA»

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Peony (Paeonia officinalis L.) is a perennial herb of the Paeoniaceae family. In folk medicine roots and rhizomes are widely used as analgetic, anticonvulsant, anti-inflammatory, sedative, expectorant, diuretic, antispasmolic, hemostatic agent.

The analysis of published data shows that the chemical composition of roots and rhizomes of peony is represented by such class of biologically active compounds as simple phenols, flavonoids and tannins.

In Ukraine many varieties of ornamental peony grow, the most popular are «Alba plena» and «Rosea plena». Therefore, a phytochemical study of the leaves and rhizomes with roots of varieties of cultivated peony is very important to expand the resource base of medicinal peony and conservation of wild specimens of plants. Water extracts were obtained to identify the polysaccharides in the studied raw material. The presence of polysaccharides confirmed by adding fourfold volume of 96% ethanol, as the result the formation of opalescence was observed. To determine the nature of these polysaccharides qualitative reactions were conducted.

Reaction with 5% sodium hydroxide – in the extract from the rhizomes with roots of both species a light brown color and yellow-green in the extract from the leaves were seen. White voluminous precipitate was formed after adding 10% solution of lead acetate to the colored solution. Reaction with concentrated hydrochloric acid – the extract from the rhizomes with roots of leaves of peony varieties «Alba plena» and «Rosea plena» was of a light yellow color. After adding ethanol opalescence was formed. Thus, in all the studied feedstocks of peony the presence of mucus was found.

The quantitative content of polysaccharides in leaves and rhizomes with roots of peony varieties «Alba plena» and «Rosea plena» was determined by gravimetry method. The results of quantitative determination of polysaccharides content in raw material of peony varieties «Alba plena» and «Rosea plena» are given in the table.

Table

The quantitative content of polysaccharides in leaves and rhizomes with roots of medicinal peony varieties «Alba plena» and «Rosea plena»

Numbers	Raw material	Quantitative content of polysaccharides % in terms of absolutely dry raw material (m = 5)	
		Sort «Alba plena»	Sort «Rosea plena»
1.	Leaves	6,69±0,30	5,53±0,25
2.	Rhizomes with roots	4,81±0,21	5,61±0,27

Note. Probability of error $P \leq 0,05$

As the table shows, the greatest number of polysaccharides accumulate in the leaves of peony of sort «Alba plena», and the smallest – in roots with rhizomes of peony of the same kind.

Therefore, this study enables to recommend the leaves and roots with rhizomes of peony varieties «Alba plena» and «Rosea Plena» for further depth phytochemical study to develop projects of quality control methods and new effective domestic drugs.

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PREVENTION OF GENTAMICIN-INDUCED KIDNEY INJURY BY PINEAL TETRAPEPTIDE

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Kidney injury of different degree occurs in 30% of patients treated with aminoglycosides for more than 7 days, being the reason for serious limitation of their use (A. Muthuraman et al., 2011). Search for drugs able to mitigate the toxic effects of aminoglycosides is an active area of research (B.H. Ali et al., 2011).

The aim of our study was to estimate the nephroprotective potential of tetrapeptide AEDG (L-alanyl-L-glutamyl-L-aspartyl-glycine) synthesized in the St.-Peterburg Institute of Bioregulation and Gerontology (RF) on a model of gentamicin-induced kidney injury in rats.

Experimental study was conducted on 21 non-linear white rats weighting 150-180 g, divided into three groups (n=7): I group – control, II group – animals with gentamicin-induced kidney injury caused by administration of 4% gentamicin sulfate solution in dose 80 mg/kg once a day during 6 days. Animals of the III group received AEDG (7 μg/kg, i.p.) after each gentamicin injection. Kidney function was assessed by diuresis, glomerular filtration rate (GFR), plasma creatinine concentration, urine protein excretion and fractional excretion of sodium. Histopathological