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У збірнику представлені матеріали 100 – ї підсумкової наукової конференції професорсько-викладацького персоналу вищого державного навчального закладу України «Буковинський державний медичний університет», присвяченої 75-річчю БДМУ (м.Чернівці, 11, 13, 18 лютого 2019 р.) із стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

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Lenha E.L.

MELATONIN AND ECHINACEA PURPUREA TINCTURE INFLUENCE ON THE CHRONORHYTHM OF CATALASE ACTIVITY IN THE RATS' LIVER UNDER TOXIC HEPATITIS CONDITIONS

Department of Bioorganic and Biological Chemistry and Clinical Biochemistry
Higher state educational establishment of Ukraine
«Bukovinian State Medical University»

Individual physiological and biochemical parameters are known to be subordinated to individual biological rhythms in living organisms. In addition to the dependence on the functioning of their own endogenous pacemakers, the biorhythms of the body can also change under the influence of environmental factors (level of illumination, temperature, action of chemical agents). Restoration of consistent characteristics of rhythms is one of the important aspects of the drug's use in various pathologies.

Experimental studies were carried out on white non-linear male rats weighing 180 ± 20 g in the autumn-spring period. The animals were kept under artificial lighting within 12 hours of light: 12 hours of darkness (12C: 12T).

After a five-day stay under appropriate conditions of the lightening the rats were divided into such groups: I - control; II - animals with toxic hepatitis (intragastrically twice daily (after a day) 50% oily solution of tetrachloromethane was administered to the animals at a dose of 0.25 ml/100 g of the mass); III - within the next five days after the intoxication, the animals received an intragastral injection of Echinacea purpurea tincture (0.25 ml/kg of mass); IV - against the background of toxic hepatitis, the animals received intragastralally melatonin at a dose of 3 mg/kg of weight; V - for the animals with toxic hepatitis combined, the infusion of Echinacea purpurea tincture and melatonin in the above doses were administered. Euthanasia, by decapitation under a light etheric anesthetic, was performed at 8, 12, 16 and 20 hours. The activity of catalase (Korolyuk MA, 1988) and total protein content (Lowry, 1951) were determined in rats' liver homogenates.

In the animals of a control group, the lowest activity of the enzyme was observed at 12.00, and the highest was at 16.00. The administration of hepatotoxin to animals caused a decreased activity of the enzyme at all hours of the study (33%, 43% at 8.00 and 12.00, and three times at 16.00 and 20.00) compared with controls of the animals, as well as shifting the maximum activity in the morning hours and the minimum - in the evening.

An introduction to the animals with tetrachloromethane hepatitis infusion of Echinacea purpurea tincture and melatonin contributed to the restoration of the level and rhythm of changes catalase activity in rats' liver. The use of Echinacea purpurea tincture increased the activity of the enzyme at all hours of the study, and especially at 20.00 - by 82% compared to the intoxicated animals.

The administration of melatonin contributed to the increase in the enzyme activity by 51% at 12.00, 42% at 16.00 and twice at 20.00, compared to the animals of the second group. With a combined administration, the catalase activity increased by 51% at 8.00 and three times at 16.00 and 20.00, compared to the intoxicated animals. The most effective, in relation to the restoration of the daily rhythm of changes in the activity of the enzyme, was the combination of Echinacea purpurea tincture and melatonin using with a proximity to that of animals of Group I.

Thus, toxic tetrachloromethane hepatitis is characterized not only by the decrease in the catalase activity in rats' liver, but also by changes in its rhythm throughout the day. The use of Echinacea purpurea tincture and melatonin promotes increased activity of the enzyme at all hours of the study. Combined administration of drugs has a positive effect on the restoration of the rhythm of changes catalase activity in rats' liver during light period of the day.