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101 – ї
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Матеріали 101 – ї підсумкової наукової конференції професорсько-викладацького персоналу вищого державного навчального закладу України «Буковинський державний медичний університет» (м. Чернівці, 10, 12, 17 лютого 2020 р.) – Чернівці: Медуніверситет, 2020. – 488 с. іл.

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У збірнику представлені матеріали 101 – ї підсумкової наукової конференції професорсько-викладацького персоналу вищого державного навчального закладу України «Буковинський державний медичний університет» (м.Чернівці, 10, 12, 17 лютого 2020 р.) із стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

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0.0013, p = 0.012). The results obtained indicate a higher functional activity of the cells of the hypothalamic supraoptic nuclei at night, which causes their dependence on the period of day.

Keeping animals under light conditions led to a decrease in the volume of nuclei in neurocytes (195 ± 1.0 and 191 ± 0.9, p = 0.008) and the volumes of neurons in the supraoptic nuclei of the hypothalamus (944 ± 10.9 and 898 ± 11 3, p = 0.009) at 2 p.m. compared to the nightly rate. At 2 a.m., the indicator of the standard deviation in the color intensity of the nucleus of the neurons of the hypothalamic supraoptic nuclei significantly increased compared with the indicator in the daytime (8.5 ± 0.13 IO and 8.0 ± 0.11 IO, p = 0.009) An increase in the nuclear cytoplasmic coefficient (0.213 ± 0.0021 and 0.206 ± 0.0024, p = 0.042) and the optical density of cytoplasm staining (0.326 ± 0.0025 and 0.308 ± 0.0028, p = 0.003) were also revealed at 2 p.m. compared to a night indicator.

Comparing the studied parameters in animals under constant light conditions and in animals of the control group, we observed statistically significant changes in all the estimated cytometric parameters of the neurons of the supraoptic nuclei of the hypothalamus, each of which indicated a significant decrease in the functional activity of the nuclei, which under conditions of chronic stress can lead to irreversible disruption of their functioning.

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AGE CHARACTERISTICS OF THE DENSITY OF MELATONIN RECEPTORS IN THE NEURONS OF THE VENTROLATERAL PREOPTIC NUCLEUS OF THE HYPOTHALAMUS UNDER THE LIGHT STIMULATION

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The most significant and noticeable biological rhythm observed in the human body is the sleep-activity rhythm and related changes in physical and mental processes. Sleep is not just a lack of consciousness; it is an active process that involves the activities of the special centers that generate and support it. One of these centers is the ventrolateral preoptic nucleus (VLPO) of the hypothalamus. A key role in studying the relationship between sleep and circadian rhythms is the presence of melatonin receptors in VLPO neurons.

The aim of the study was to investigate the quantitative characteristics of the density of melatonin receptors 1A in VLPO neurons of the hypothalamus of mature and old rats at different time of the day under light stimulation.

The experiments were performed on 48 white nonlinear male rats with light conditions consistent with the simulated photoperiod. Density of melatonin's receptors was studied by immune histological analysis.

Under light stimulation (light 24 hours a day), the number of positively stained melatonin receptors of type 1A VLPO neurons in mature rats at 2 AM was 0.182 ± 0.0017 optical density units. At 2 PM there was no significant difference, in this period of time the indicator reached 0,180 ± 0,0018 optical density units. The indicators in the control group were in the range: 2 AM - 0.264 ± 0.0016 optical density units, at 2 PM - 0.248 ± 0.0018 optical density units.

The optical density of melatonin receptors 1A in VLPO neurons of old rats, which were under round-the-clock illumination, at 2 AM was 0.132 ± 0.0012 optical density units, while at 2 PM it was 0.148 ± 0.0013 optical density units. The data of the control group were: 2 AM - 0.216 ± 0.0013 optical density units, at 2 PM - 0.211 ± 0.0014 optical density units.

Thus, the highest receptor density for melatonin 1A is noted at 2 AM, whereas at 2 PM it decreases, it indicates a clear circadian organization. Light stimulation led to a marked violation of the quantitative characteristics of the density of melatonin receptors 1A in VLPO neurons of the hypothalamus. In older rats, melatonin receptor density is lower than in mature rats; it is explained by age-related changes in the pineal gland and a decrease in melatonin synthesis.