

transition process. In endometriosis and endometrium E – cadherin, Vimentin, N – cadherin and Twist were expressed on protein level. Investigation of E – cadherin / Vimentin coexpression revealed a decrease in E – cadherin reactivity at the site of invasion of gastrointestinal endometriosis with an increase in reactivity to Vimentin together with the increase of the invasion pattern and the increase of the stage of the disease respectively. Twist transcription factor immunoexpression revealed a highly positive expression on the mesenchymal lineage, proving involvement of this transcriptional factor in the invasion process of endometriosis. N – cadherin was positive in the endometrial glands, showing their differentiation into a mesenchymal phenotype and their migratory potential.

Conclusions. The results of our study confirm involvement of the epithelial – mesenchymal transition process in the pathogenesis of extragenital endometriosis lesions, on the one hand, and they certify their invasive potential in these localizations, on the other hand.

Key words: endometriosis, extragenital, transition processes

269. STUDY OF MORPHOLOGICAL CHANGES THAT OCCUR IN THE KIDNEYS AND LIVER OF RATS UNDER THE INFLUENCE OF ACUTE STRESS WITH MEXIDOL CORRECTION

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Introduction. One of the major problems of medicine is the effective prevention and treatment of stress. Many organs and tissues of the body are adversely affected. However, the effects of stress and the correction of stress changes in the kidneys and liver were not given much attention by scientists.

Aim of the study. To establish at the morphological level the effectiveness of using Mexidol to correct changes that occur in the kidneys and liver of white rats under the influence of acute immobilization stress.

Materials and methods. Given the international principles of bioethics, 15 adult white male rats were selected for study. The I control group consisted of 5 intact animals, the II control group consisted of 5 animals that were exposed to acute immobilization stress and the III group consisted of 5 rats whose stress was corrected with Mexidol. A model of acute stress was reproduced by immobilizing animals for six hours. To correct stress changes Mexidol was injected once into the peritoneum weight 20 minutes before the fixation period. Animal euthanasia, macro- and microscopic examination of the kidneys and liver were performed. The staining of kidney and liver micropreparations with hematoxylin and eosin was performed according to the standard procedure.

Results. On examination of the kidneys and liver of rats II and III groups macroscopic changes were not detected. Microscopic examination of kidneys revealed widening of the lumen of the convoluted tubules and in some of them are homogeneous eosinophilic masses. In the cytoplasm of epitheliocytes are vacuoles with translucent fluid. Epithelial cell necrosis. In the peritubular vascular system are focal hemorrhages. Stress histologic changes of the liver are characterized by full-blood vessels and thrombosis of the interlobular veins. The central veins of the liver are full-blooded, the perisinusoid spaces are enlarged. The phenomenon of sledging

in most sinusoidal capillaries. In the perivascular and portal tracts is infiltration of immunocompetent cells. In some hepatocytes are karyopicosis and hydropic dystrophy. Under the capsule is focal collocation necrosis of hepatocytes. In group III rats with Mexidol correction revealed less pronounced stress changes in the kidneys and liver. The kidneys of rats of this group are characterized by focal changes of the sinuous tubules with swelling of epitheliocytes, in the lumen of individual tubules are homogeneous masses in a small amount. In some glomeruli is little plethora of capillaries and swelling of the mesangium. During the study of the liver is revealed that lobules and triads are preserved, the interlobular vessels are slightly full-blooded. Single hepatocytes around the central veins are characterized by hyaline-drip dystrophy, at the periphery of the lobules is hydropic dystrophy.

Conclusions. The results of the study directly indicate the appropriateness of using Mexidol as a nephro- and hepatoprotector in acute stress.

Key words: Mexidol, kidney, liver, stress, rat

DEPARTMENT OF HUMAN PHYSIOLOGY AND BIOPHYSICS

270. THE INFLUENCE OF LIGHT FROM GADGETS ON CIRCADIAN RHYTHM IN CHILDREN

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Introduction. Circadian rhythms are variations in physiology and behaviour that persist with a cycle length close to 24 hours. Such biological rhythms include the sleep and wake cycle, alertness, daily cycles of hormonal secretion (e.g., melatonin and cortisol, ghrelin and leptin), body temperature cycle and blood pressure regulation.

Circadian rhythms must be synchronized or entrained to the 24-hour day regularly. This process of entrainment occurs through regular exposure to daily exogenous environmental cues known as zeitgebers. The most potent zeitgeber is light that activates photoreceptors in the retina inhibiting pineal gland secretion of the sleep-promoting hormone, melatonin.

Polychromatic white light (white light enriched in blue) having a significant impact on this training.

Aim of the study. To explore the influence of screens light exposure on the circadian rhythm in schoolchildren, in particular on the quality and quantity of sleep.

Materials and methods. There were used “PubMed MEDLINE” database to select relevant articles published from 2010 to 2019, using the keywords: “technology use and biological rhythm (sleep)”, light exposure, electronic media and sleep/circadian rhythm.

Results. We identified 24 papers that have investigated the relationship between circadian rhythm/sleep and electronic media in school-aged children, including television viewing, use of computers, electronic gaming, and the internet, mobile telephones, and music. There have been identified behaviour and sleep-related problems because of internet and telephone overuse, as well as social network activities, game consoles and television viewing, the number of devices in the bedroom and turning-off time. The spectral profile of light emitted by screens impacts on circadian physiology, alertness, cognitive performance levels but also for weight gain, metabolic disorder, depression, mood disorders, cancer and heart disease.