

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ  
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»**



## **МАТЕРІАЛИ**

**104-ї підсумкової науково-практичної конференції  
з міжнародною участю  
професорсько-викладацького персоналу  
БУКОВИНСЬКОГО ДЕРЖАВНОГО МЕДИЧНОГО УНІВЕРСИТЕТУ  
06, 08, 13 лютого 2023 року**

Конференція внесена до Реєстру заходів безперервного професійного розвитку,  
які проводитимуться у 2023 році №5500074

**Чернівці – 2023**

mellitus, severe systemic atherosclerosis, renal and hepatic damages. Therefore, recently the issue of inhalation administration of AB as an alternative to their systemic use has been very actively studied.

**The aim of the study.** To examine the possibility of usage of the inhaled AB for the treatment of patients with CAP based on the analysis of literature data.

**Material and methods.** A large amount of scientific data in monographic, scientific databases and other printed and electronic publications.

**Results.** Attempts at the inhalation use of AB have been practiced in clinical medicine since the 40s of the 20th century, that is, from the very beginning of the discovery of this class of medications. However, the researchers immediately encountered many problems, in particular, irritation of the bronchial mucosa and pronounced cough syndrome, deposition of particles of the active substance in the upper respiratory tract, development of secondary local immunodeficiency, etc.

A major therapeutic advance took place in 1997, when tobramycin designed for inhalation was approved by the U.S. Food and Drug Administration for use in patients with cystic fibrosis with chronic *Pseudomonas aeruginosa* infection. Attracted by the clinical benefits observed in cystic fibrosis and the availability of dry powder AB formulations, there has been a growing interest in the use of inhaled AB in other lower respiratory tract infections, such as non-cystic fibrosis bronchiectasis, ventilator-associated pneumonia, chronic obstructive pulmonary disease, mycobacterial disease, and in the post-lung transplant setting over the past decade. ABs currently marketed for inhalation include nebulized and dry powder forms of tobramycin and colistin and nebulized aztreonam (Quon B.S., Goss C.H., Ramsey B.W., 2014).

The appeal to aminoglycosides was based on their high nephrotoxicity when administered systemically and the achievement of a sufficient minimum inhibitory concentration when administered by inhalation. Unlike aminoglycosides, respiratory fluoroquinolones have a significant ability to penetrate lung tissue and create a significant concentration even with intravenous administration.

These and other reasons determine the strict selection of AB for inhalation administration in patients with CAP. The authors emphasize the unconditional advantages of inhalation administration of AB. First, it is the possibility of achieving a low systemic concentration of AB. Undoubtedly, this can contribute to reducing the frequency of development of side effects of this group of drugs. The opportunity to reduce the need for the use of systemic AB is considered promising. This should lead to a decrease in antibiotic resistance of such clinically important microorganisms as *K. pneumonia*, *P. aeruginosa*.

In the scientific literature, the main requirements for inhalation AB have already been formed: sterility of the solution, non-pyrogenicity, absence of preservatives, proper pH of the solution (4.0-8.0) and osmolality (150-200 mOsm/L).

**Conclusions.** Inhaled use of AB in the treatment of patients with CAP requires more in-depth approval. The first step of such work should be the combined use of systemic and local ways of AB administration.

**Mykytyuk O.P.**

## **LIGHT POLLUTION AND CHANGED LIFESTYLE AS IMPORTANT FACTORS OF MORBIDITY IN MODERN SOCIETY**

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**Introduction.** For billion years, life on Earth was synchronized by a rhythm of light and darkness that was created solely by the illumination of the Sun, Moon and stars. Modern achievements of science and technologies within last 150 years changed our lives dramatically: artificial lights overpower the darkness and our cities glow at night, disrupting the natural day-night pattern and shifting the delicate balance of our environment. "Light pollution" term was introduced recently, and that is the presence of unwanted, inappropriate, or excessive artificial lighting. Even

more, modern trend to 24/7 activities contributed to modification of work schedule and leisure events of the population in highly and moderately developed countries.

**The aim of the study.** To investigate the impact of the modified lighting regimen and the related lifestyle of the population in modern conditions on the state of morbidity.

**Material and methods.** A large amount of scientific data in monographic, scientific databases, other printed and electronic publications.

**Results.** The negative effects of the loss of natural resource of rhythmicity might seem invisible. But a growing body of evidence links the brightening night sky and overnight activities directly to measurable negative impacts including circadian desynchrony. Light is the primary environmental signal that entrains the main circadian clock in the SCN, discriminating day from night and synchronizing the transcription-translation feedback loop of genes involved in the internal clock functioning. Subsequently, their products are included in the metabolism at all levels regulating almost all biochemical and molecular reactions and adjusting them to environment.

Great attention has been given by western researchers to this problem for last 2 decades. In 2007, "shift work that involves circadian disruption" was listed as a probable carcinogen by the World Health Organization's International Agency for Research on Cancer, later multiple studies have documented a correlation between night shift work and the increased incidence of breast and prostate cancer. Disruptions of daily rhythms are already associated to type 2 diabetes mellitus (T2DM), obesity, cardiometabolic diseases (CMD), depression and anxiety, all of which impose major public health and economic burden on societies. The new term - Circadian Syndrome – was introduced in 2019 by Zimmet et al., that is the comorbid relationship between circadian rhythms disruption and the major components constituting the Metabolic. The concept of the Circadian Syndrome is built on the fact that a number of chronic disorders including obesity, hypertension, CMD, dyslipidemia, T2DM, depression, sleep disorders, nonalcoholic fatty liver disease have a strong link with circadian rhythms.

**Conclusions.** Despite a great number of investigations and publications in abroad press, less attention is given to the problem by Ukrainian researchers. The information about potential harmful effects of prolonged illumination period and light pollution in open sources are limited to statement about possible hormonal disruption and the consequences – fatigue and poor sleep. Definitely, the problem of health impact under changing modern environment needs to be not ignored and studied extensively.

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## **ANALYSIS OF RISK FACTORS FOR THE OCCURRENCE OF DISORDERS OF THE FUNCTIONAL STATUS OF CARDIOVASCULAR PATHOLOGY OF NEWBORNS**

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**Introduction.** According to the literature, the frequency of cases of hypoxic myocardial damage in newborns ranges from 29 to 78%.

**Objectives.** In order to determine the risk factors for the development of disorders of the functional state of the cardiovascular system (CVS) during the early neonatal period, an analysis of somatic pathology and the course of pregnancy and childbirth in mothers who gave birth to children with disorders of the functional state of the cardiovascular system was conducted.

**Material and methods.** Group I included 65 newborns who had clinical manifestations of perinatal pathology, including changes in the functional state of the cardiovascular system; Group II - 57 children who were noted to have more significant cardiovascular disorders. Control group III consisted of 60 newborns with a satisfactory general condition.

**Results.** An analysis of the somatic anamnesis of the mothers of the children of the observation groups was carried out. It showed that in the cases of the birth of children who had clinical signs of disorders of the functional state of the CVS during perinatal pathology, a significant percentage of cardiac diseases was noted, probably higher in women of group II (47,37%), compared to group I (26,15%) and group III (21,67%). The pathology was presented: