

**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**

**Volosivska Y.**

## **THE ROLE OF CELLULAR ENERGY METABOLISM IN FULL-TERM NEWBORN WITH MANIFESTATIONS OF JAUNDICE IN THE EARLY NEONATAL PERIOD**

*Department of Pediatrics, Neonatology and Perinatal Medicine  
Bukovyna State Medical University*

**Introduction.** One of the unconditional features of a newborn child body functioning is the high intensity of all metabolic processes to ensure homeostasis, which is accordingly accompanied by an increased need for energy (ATP) To provide tissues with energy, a baby needs three times more ATP compared to an adult and 2.5 times more ATP compared to children of the second half of life.

**The aim of the study.** To study the indicators of energy metabolism in full-term newborns with jaundice in the complex of adaptation disorders in the early neonatal period compared to the indicators of healthy newborns.

**Materials and methods.** A total of 60 full-term newborns were examined, of which 30 children with manifestations of jaundice against the background of concomitant perinatal pathology made up the main (I) research group and 30 healthy newborns without signs of clinical maladjustment during the first week of life - made up the control (II) group. The state of intracellular energy exchange was assessed by determining the following indicators: the activity of succinate dehydrogenase (SDH), glycerol-3-phosphate dehydrogenase (GFDH), and NADH dehydrogenase (NADH) and determination of lactate concentration. Using indicators of SDH, HFDG and NADPH, the coefficient of aerobic respiration (AR)=(SDH-HFDH+NADPH)/GFDH, coefficient of the electron transport chain (ETC) = SDH-HFDH+NADPH was calculated. For a reliable analysis of the detected changes, the obtained data were evaluated using the Statistica, 2010, Excel program.

**Results and their discussion.** Since newborns are characterized by a change in energy substrates and the predominance of anaerobic glycolysis during the first weeks of life, a sufficiently high energy reserve accumulated in utero is necessary to ensure the stability of energy metabolism. The features of the course of early postnatal adaptation, determined by the degree of severity of perinatal pathology, have a significant influence on the speed of use of such reserves. The analysis of the indicators of energy metabolism in newborns of the 1st group showed an increased level of HFDH -  $2.7 \pm 0.12 \mu\text{m}^2$  compared to the control  $2.2 \pm 0.11 \mu\text{m}^2$  ( $p < 0.05$ ). The lactate level was also increased by  $7.7 \pm 0.39$  (mmol/l) against  $6.2 \pm 0.31$  in the control group, which indicates a high level of anaerobic glycolysis in this group of children.

There was a decrease in the level of SDH and NADPH,  $4.7 \pm 0.25 \mu\text{m}^2$ ;  $8.6 \pm 0.43 \mu\text{m}^2$  compared to  $9.1 \pm 0.46 \mu\text{m}^2$  and  $14.8 \pm 0.74 \mu\text{m}^2$ , respectively, in the control group ( $p < 0.05$ ). It was diagnosed that the aerobic respiration in the children of the main group was  $7.8 \pm 0.39$  units. against  $6.3 \pm 0.32$  u.o. among indicators in the control group ( $p < 0.05$ ). The ETL coefficient was significantly reduced compared to the control by  $10.4 \pm 0.52$  u.o. against  $21.3 \pm 0.07$  u.o. ( $p < 0.05$ ).

**Conclusions.** The obtained results indicate the presence of significant deviations of energy metabolism indicators in newborns with clinical manifestations of jaundice under conditions of perinatal pathology compared to healthy newborns. In our opinion, bilirubin as a chemical substance can have an effect on the chain of tissue respiration and the processes of oxidative phosphorylation, contributes to a deep energy deficit of tissues in newborns with perinatal pathology.

**Yakovets K.I.**

## **PERSISTENCE OF PATHOGEN GROUPS OF MICROORGANISMS IN CHRONIC RHINOSINUSITIS IN PATIENTS WITH TYPE 1 DIABETES**

*Department of Pediatric Surgery and Otolaryngology  
Bukovynian State Medical University*

**Introduction.** The aim of the study was to determine the species and population composition of the microbiota of chronic purulent maxillary rhinosinusitis in patients with type 1