МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
БУКОВИНСЬКИЙ ДЕРЖАВНИЙ МЕДИЧНИЙ УНІВЕРСИТЕТ»

М А Т Е Р І А Л И

105-ї підсумкової науково-практичної конференції
з міжнародною участю
професорсько-викладацького персоналу
БУКОВИНСЬКОГО ДЕРЖАВНОГО МЕДИЧНОГО УНІВЕРСИТЕТУ
присвяченої 80-річчю БДМУ
05, 07, 12 лютого 2024 року

Конференція внесена до Реєстру заходів безперервного професійного розвитку, які проводитимуться у 2024 році № 3700679

Чернівці – 2024

УДК 001:378.12(477.85)
ББК 72:74.58
М 34

Матеріали підсумкової 105-ї науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) – Чернівці: Медуніверситет, 2024. – 477 с. іл.

ББК 72:74.58

У збірнику представлені матеріали 105-ї підсумкової науково-практичної конференції з міжнародною участю професорсько-викладацького персоналу Буковинського державного медичного університету, присвяченої 80-річчю БДМУ (м. Чернівці, 05, 07, 12 лютого 2024 р.) із стилістикою та орфографією у авторській редакції. Публікації присвячені актуальним проблемам фундаментальної, теоретичної та клінічної медицини.

ISBN 978-617-519-077-7

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PROSPECTS OF LABORATORY DIAGNOSTICS OF FUNCTIONAL INTESTINAL DISORDERS IN PREMATURE INFANTS

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Introduction. Preterm birth is the main cause of neonatal mortality and morbidity worldwide. Preterm infants have an immature digestive system, which causes short- and long-term complications, including feeding intolerance, digestive disorders, risk of delayed psychophysical development associated with the formation of cumulative nutrient deficiencies, and negative long-term neurological consequences [Rodríguez-Benítez MV, 2021; Arévalo Sureda E, 2021].

Aim of the study. To improve the diagnosis of gastrointestinal dysfunction through the study of indicators characterizing the processes of malnutrition, malabsorption and mechanisms of inflammation of the intestinal mucosa in premature infants with perinatal pathology.

Materials and methods. A total of 148 premature infants were studied. Group I consisted of 91 children born at the gestational age of 29 (0/7) - 36 (6/7) weeks with manifestations of severe neonatal pathology with signs of disorders of the functional state of the gastrointestinal tract, group II - 57 conditionally healthy children, at the gestational age of 35 (0/7) - 36 (6/7) weeks.

Results. According to the research data, in preterm infants of group I, compared with group II, an increase in the level of fecal calprotectin in meconium (384.88±0.60 μg/g and 43.20±1.40 μg/g, $p<0.0001$) was found, indicating acute neutrophilic inflammation of the intestine, which corresponds to increased migration of granulocytes through the mucous membrane, infiltration of neutrophils and leakage into the lumen due to increased permeability of the intestinal wall, immaturity of the immune system, which is especially aggravated in premature infants with perinatal pathology. In the children of the first observation group, a significant increase in the level of alpha-1-antitrypsin (464.61±24.50 μg/g and 196.80±10.20 μg/g, $p<0.0001$) was noted in comparison with the control group, which is a marker of interstitial protein loss and indicates a significant increase in the permeability of the intestinal mucosa due to inflammation. The level of fecal elastase-1 tended to decrease compared to the control group (100.96±4.18 μg/g and 207.50±7.43 μg/g, $p<0.0001$), indicating exocrine pancreatic insufficiency, which, in the presence of elevated alpha-1-antitrypsin levels, may explain the causes of decreased food tolerance in preterm infants.

Conclusions. Increased concentrations of alpha-1-antitrypsin and fecal calprotectin in meconium are related. These indicators are biomarkers that assess the intrauterine environment of the intestine and act as markers of inflammation and interstitial protein loss, which confirms the increased permeability of the intestinal mucosa. Inflammation of the intestinal mucosa in severe forms of perinatal pathology against the background of morphological and functional immaturity of the pancreas, as evidenced by a reduced level of fecal elastase-1, causes impaired digestion and absorption of nutrients. These laboratory parameters can serve as additional laboratory criteria to explain the causes of food intolerance in premature infants.

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THE ROLE OF URINARY A1-MICROGLOBULIN IN PREDICTING OF RENAL DYSFUNCTION IN PRETERM NEWBORNS

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Introduction. Preterm newborns (PN) form the most complex pediatric cohort, despite significant advances in the field of perinatal care (Kandasamy Y., 2018). Exposure to various, potentially aggressive factors during the period of incomplete nephrogenesis can have long-term adverse consequences for the development of severe kidney dysfunction in the neonatal period (Correa L.P., 2021). In recent years, numerous scientific discussions have been ongoing regarding the study of the true role of serum creatinine as a classic biomarker of impaired glomerular filtration, taking into account the fact that the clinical increase of this indicator occurs only when

more than 50% of nephrons are damaged. The latest research is focused on the study of highly specific markers of tubulo-glomerular damage, including cystatin C, α1-microglobulin (α1-MG), ß2-microglobulin, microalbumin, etc.

The aim of the study. To determine the role of urinary α1-MG in predicting of renal dysfunction in premature newborns with severe perinatal pathology at 25-36 weeks of gestation.

Materials and methods. The fragment of this study included 91 PN, who were treated in the neonatal intensive care unit of the CNPE "City Clinical Maternity Hospital №2" in Chernivtsi during the period 2018-2021. The I group group consisted of 30 PN with a gestational age (GA) of 25- 31 weeks that had severe perinatal pathology, II group - 30 PN with gestational age of 34-36 weeks and severe perinatal pathology. The comparison group was formed by 31 "conditionally" healthy PN with gestational age of 34-36 weeks.Criteria for inclusion in the study: birth weight >500 g, but <2500 g, presence of informed consent signed by the child's parents? gestational age >25 weeks, but less than 37 weeks (36/6 days). The level of α1-MG was determined using an ACCENT-200 automatic analyzer and Cormay reagents (Poland). Quantitative indicators in the samples were evaluated using the Student's test, MedCalc software with the calculation of the 95% confidence interval (95% CI) and the level of significance (p-value). Statistically significant differences between groups were considered at a value of $p<0.05$.

Results. α1-microglobulin is a low-molecular-weight protein whose metabolic pathway ends in the kidneys, where it is normally completely reabsorbed by the proximal renal tubules. If tubules are intact, only trace concentrations of this protein can be determined. The results of the study showed statistically significantly higher values of this indicator in the I group (95% CI 36.06-34.99, $p<0.0001$) and the II group (95% CI 25.09-24.04, $p<0.0001$) compared to the control, when comparing the groups among themselves according to GA (I and II group, 95% 11.71-10.20, $p<0.0001$). An inverse correlation was found to GA, which can be explained as the immaturity of renal structures with violations of reabsorption and secretion mechanisms, but also possible hypoxic damage against the background of severe perinatal pathology.

Table

Indicator	I group (n=30)	II group (n=30)	III group (n=31)
α1-microglobulin, mg/l	40,49 (±1,48)*	29,53 (±1,43)*''	4,96 (±0,25)

*- statistically significant differences compared to the comparison group, $p<0.05$

''-statistically significant differences when comparing between groups, $p<0.05$

Conclusions. The results demonstrated that determining the level of urinary α1-microglobulin can be used to predict kidney dysfunction in premature newborns, with the aim of forming risk groups at the preclinical stage and improving treatment and diagnostic approaches. The variability of current scientific data determines the need for in-depth study of this area, including multicenter studies and unification of early diagnosis strategies.

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MAXILLARY SINGLE CENTRAL INCISOR SYNDROME: A CASE REPORT

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Introduction. Maxillary single central incisor syndrome (MSCI) (OMIM: 147250) is a disorder characterized by multiple congenital malformations involving the midline structures of the head with other midline structures of the body.It is formed as a result of series of unknown events during the 35-38 days of intrauterine development. First described by Scott in 1958 as an isolated find. It is also found in holoprosencephaly, such syndromes as CHARGE, VACTERL, DiGeorge, Velocardiofacial and in chromosomal diseases (del(18p); del(7q); r(18); del(22q); 47,XXX; 47,XXY, etc.). MSCI can be caused by mutations in various genes (SHH, SIX3, TGIF1, GLI2, PTCH1, SALL4, FGF8, etc.).The prevalence of MSCI is 1:50,000 babies; in girls more often than in boys. The diagnosis can be established prenatally and postnatally (during the childhood). A characteristic feature is one central incisor of the upper jaw, located along the middle line. A