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PREMATURE CHILDREN'S PSYCHOMOTOR DEVELOPMENT DURING NEONATAL PERIOD.

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Abstract: Preterm birth rates worldwide are typically around 8–10%; of these, 3% have gestation duration of fewer than 32 weeks, and 1% has one of 28 weeks or less. The introduction of the "safe motherhood" program and the switch to the international live birth criteria of 500 grams and 22 weeks of gestation in Uzbekistan resulted in significant changes in the way work was organized to safeguard the health of mothers and children as well as a steady decline in maternal, infant, and neonatal mortality.

Keywords: neonatal intensive, gestational, hypoxia, ischemia, intrauterine growth retardation, infections, unconditioned reflexes.

Many studies believe that the first year of a child's life is a unique time when perinatal lesions appear, particularly in premature babies who are behind their peers in corrected age. The survival of preterm infants has significantly improved over the past ten years as a result of advancements in neonatal intensive care and resuscitation. There are only a few recommendations that continuous monitoring should be carried out up until the age when a premature baby is compared with peers that were born at full term in terms of developmental parameters [1, 2].

Increased survival rates and adoption of the new live birth criteria recommended by the WHO (management of preterm birth at gestational age 22 weeks or more; intensive care and nursing of newborns with very low and extremely low body weight) have been made possible by the introduction of contemporary scientific advancements in the field of perinatal technologies [2].

Hypoxia, ischemia, intrauterine growth retardation, infections, and PVL, through which fibers of the descending pyramidal tract, which control the motor function of the lower extremities, pass, all increase the risk of brain injury in extremely preterm children.

International data show that cognitive development delays occur often in children with GV in the following percentages: 14–39% at 24 weeks, 10–30% at 25 weeks, 4–24% at less than 26 weeks, and 11–18% at less than 29 weeks [6, 7]. Early cognitive dysfunction, however, could not have a significant impact on future intellectual growth. The psychomotor, speech, and socioemotional development of the kid heavily influences their cognitive indicators. Approximately half of very premature children have delayed speech development, and when they reach school age, they have issues with reading and writing [8].

Support children born with VLBW and ELBW on the basis of outpatient follow-up centers, whose duties should include: evaluation of psychomotor development and dynamic monitoring of the health status of premature babies during the first three years of life; differentiation of diagnosis in premature infants of organic pathology and functional disorders; correction of the identified deviations, treatment,

and examination, taking into account the chart of the child's birth weight; and monitoring of the child's development over time. Since the reserve capacity of the central nervous system is largest in the first years of life, early discovery of a lag in a child's motor and neuropsychic development and early suitable intervention by specialists will produce the best outcomes.

Purpose of the study: to demonstrate the characteristics of PMR in preterm infants during the neonatal period.

Materials and methods. The study carried out a comparative assessment of psychomotor development (PMR) of full-term and premature newborns in two age periods: 1) the first week of life; 2) at the age of one month, born and nursing in the perinatal center of Tashkent in the period from 2015 to 2016 inclusive. The control group consisted of 30 full-term babies; the main group included 30 premature babies with an average gestational age of 31.70 ± 2.67 (from 25 to 35 weeks). Dynamic observation and assessment of VUR were carried out in a month of life in 22 premature babies.

The assessment of VUR was carried out according to the scale of quantitative assessment of the age development of the child [3], in the recommended first two age groups, in the main areas of development: motor, speech (pre-speech for newborns) and mental functions of the child, taking into account risk factors for CNS damage, for early detection of developmental delay. The exclusion criteria for newborns were congenital malformations, birth injuries of the central nervous system, and severe perinatal conditions.

When analyzing the data obtained, we took into account that the reliability of the results of assessing the VUR of newborns may depend not only on the true level of psychomotor development, but also on a number of factors, such as the degree of biological comfort, daily biorhythm, the mood of the child and the doctor, the environment in which the examination is carried out. And others. To reduce the defectiveness of the assessment, we repeated the assessment of the functions of the child both during one examination and during repeated examinations with a short interval.

Static data processing was carried out using application programs. The average value of the index and standard deviation ($M \pm m$) were calculated. The unpaired Student's t-test was used to compare means. Comparison of nonparametric data was performed using Fisher's exact test.

Results of own researches. An analysis of the quantitative assessment of VUR in 30 premature newborns in the first week of life was carried out in comparison with a group of full-term children (Table 1).

A comparative assessment was carried out in terms of indicators of the development of dynamic functions: unconditioned reflexes, muscle tone, asymmetric tonic neck reflex (ASTR) and symmetric chain reflex (CSR). The average score in terms of "unconditioned reflexes" in premature babies was 1.40 ± 0.10 , which was significantly 2 times less than the average score in full-term babies 2.83 ± 0.07 ($p < 0.001$). In terms of "muscle tone", preterm infants also had a significantly lower score relative to full-term ones, which amounted to 2.07 ± 0.11 , respectively, to 2.90 ± 0.06 points.

The delay in sensorimotor development in premature infants relative to full-term ones is reliably confirmed, so the average score in terms of sensorimotor reactions was 2.20 ± 0.12 in premature infants, and 2.97 ± 0.03 in full-term infants. However, only 33.3% of preterm infants were rated as "normal" by sensory reactions, and 66.7% had a "poor" rating. In the full-term group, almost all children (96.6%) had sensorimotor reactions that corresponded to the norm. The study analyzes an important area of children's psychomotor development - pre-speech development and communication skills.

Communication skills according to the methodology [3] are assessed in terms of the ratio of sleep and wakefulness. It has been established that there is a pronounced developmental lag in this area in premature babies. The average score of the indicator was 1.43 ± 0.12 , which was significantly ($p < 0.001$) lower than in full-term 2.83 ± 0.10 . In total, 6.6% of preterm infants had age-appropriate communication skills, compared to 90% of full-term infants.

A comparative analysis showed a pronounced delay in pre-speech development in preterm infants ($p < 0.001$) relative to full-term ones. In 93.4% of premature babies, weak manifestations of voice reactions were noted, while in full-term babies, only 6.6% of children had a score of 2 points. Thus, in preterm infants, pre-speech development delay and sociability of moderate severity prevailed.

Risk factors (stigmas, the state of the cranial nerves and "pathological movements") are not indicators of the level of development, but they allow us to identify a group of children at risk of CNS damage in the prenatal period and childbirth. The study carried out a quantitative assessment of risk factors in newborns of 1 week of life.

Analysis of data on risk factors in a comparative aspect in full-term and premature babies in terms of "stigma" did not reveal deviations from the norm, which made it possible to exclude the genetic determinism of the identified delays in the development of premature babies. The condition of the cranial nerves (CN) indicates the risk of brain damage. In our study, this indicator was normal in 100% of full-term infants. However, 46.6% of premature infants were rated "weak" in terms of FMN. In terms of "pathological movements", often due to CNS damage, 100% of full-term infants had a norm, and in preterm infants, the "norm" variant was 56.6%, and 43.3% of children had mild pathological disorders. Thus, the analysis of risk factors made it possible to confirm that the developmental problems identified in preterm infants in all areas of VUR were not due to genetic causes and most likely was due directly to gestational immaturity of brain structures and the central nervous system in preterm infants at 1 week of life.

The total assessment for all areas of development of newborns allows you to determine the severity of the delay in their development.

An analysis of the data of the total assessment of VUR found that 93.3% of full-term newborns had normal psychomotor development at 1 week of life, while 43.3% of premature babies had a pronounced delay in psychomotor development. It should be noted that these delays were not due to genetic factors, but were directly related to the gestational immaturity of the brain and CNS, due to the peculiarities of their antenatal development. 90% of premature babies have lags in all areas of

psychomotor development, and $43.33 \pm 9.36\%$ of them had a pronounced degree of VMR delay, mainly due to the lag in sensorimotor and pre-speech development.

Quantitative assessment in dynamics makes it possible to draw up a "profile" of the development of VUR in a premature baby, to reveal the formation of age-related functions. In our studies, a comparative assessment of the dynamics of motor, sensorimotor and pre-speech and communicative development of children in two age groups was carried out, in accordance with the methodology [3].

Conclusion: Uniform violation of psychomotor development revealed in premature babies by areas of development; motor, sensorimotor, preverbal and sociability, was due directly to the immaturity of prematurity of children, their gestational immaturity. Evaluation of the dynamics of VUR was carried out based on the results of observation by the 1st month of life of premature babies in the study group. A pronounced degree of VMR delay of a specific nature, due to the immaturity of brain structures and their functions in premature babies, was observed in almost every second premature baby ($p < 0.001$). In children with an average gestational age of 31.70 ± 2.67 , the physiological norm of integral VUR was observed only in one of 10 children. Quantitative assessment at 1 month of life revealed a significant progressive nature of VUR development in the neonatal period. The number of children corresponding to their age norm has increased 3 times, the number of children with severe developmental delay for 1 week of life has decreased more than 3 times. The indicators of children in the category of "development risk" by the month increased to 59.09 ± 10.98 .

References:

1. Aronskid E.V., Kovtun O.P., Kabdrakhmanova O.T. Comparative results of follow-up observation of children who have undergone critical conditions of the neonatal period // Pediatrics. - 2010. - T. 89, No. 1. - P. 47-50.
2. Vinogradova I.V., Krasnov M.V. Postnatal adaptation of the cardiovascular system in neonates with extremely low body weight. Bulletin of the Chuvash University. - 2010. - No. 3. - S. 63-69.
3. Zhurba L.T., Timonina O.V. Method for quantitative assessment of motor, speech and mental functions of a child for early detection of developmental delay // Medical scientific and educational journal. - 2003. - №14. - p.15-43.
4. Sakharova E.S., Keshishyan E.S., Alyamovskaya G.A., Ziborova M.I. Prematurity as a medical and social problem of health care // Russian Bulletin of Perinatology and Pediatrics. - 2017. - No. 62 (4).
5. Fatykhova N.R., Prusakov V.F. Neurological problems of children born with extremely low body weight // Kazan: Practical Medicine. - 2010. - No. 7 (46). - S. 136.
6. Intrauterine, early neonatal, and postdischarge growth and neurodevelopmental outcome at 5.4 years in extremely preterm infants after intensive neonatal nutrition support / A.R. Franz, F. Pohlandt, H. Bode // Pediatrics. - 2009. - Vol. 123.-P.101-109.
7. Z. , Z. D. (2022). Rehabilitation and treatment algorithm for patients with ocular ischemic syndrome on the background of arterial hypertension. central

asian journal of medical and natural sciences,
<https://doi.org/10.17605/OSF.IO/SYA5K>

8. D. Z, Z., Zh. B, E., & Z. Z, M. (2022). Changes visual systems at patients with essential arterial hypertension. central asian journal of medical and natural sciences,
<https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/851>

9. Mamadaliev A. M., Aliev M. A., Saidov K. D. The Research Of Different Methods Efficiency Of Posttraumatic Valve Defects Plasty //European Journal of Molecular & Clinical Medicine. – 2020.
https://ejmcm.com/article_4676_1feec211fea5848f81258ea221dae974.pdf

10. Babayev, S. A., Bekturdiyev, S. S., Rakhimov, N. M., Jalalova, d. z., yusupova, d. z., & shakhanova, s. s. (2021). assessment of the state of immunity in patients with tumors. central asian journal of medical and natural sciences,
<https://doi.org/10.47494/cajmns.v2i3.204>

11. Zukhriddinovna, Z. D. (2022). Development of classification criteria for neuroretinal ischemia in arterial hypertension. central asian journal of medical and natural sciences, <https://doi.org/10.17605/OSF.IO/K76ZT>

12. Zuxridinovna, J. D. (2022). Ultrasonic Dopplerography of Retinal Vessels in Acute Cerebral Ischemia against the background of arterial hypertension. central asian journal of medical and natural sciences, retrieved from <https://cajmns.centralasianstudies.org/index.php/CAJMNS/article/view/737>

13. Yuldashev S. S., Mamadaliev A. M., Aliev M. A. To Questions Of Surgical Tactics In Damages of The Thoracic And Lumbar Parts Of The Spine //European Journal of Molecular & Clinical Medicine. – 2020.
https://www.ejmcm.com/article_3419_20727dc3df7f4324cbcb048aa2f37c88.pdf

14. Mamadaliev A. M., Aliev M. A., Saidov K. D. The Research Of Different Methods Efficiency Of Posttraumatic Valve Defects Plasty //European Journal of Molecular & Clinical Medicine. – 2020. – https://ejmcm.com/article_4676_1feec211fea5848f81258ea221dae974.pdf

15. Bakhritdinov B.R, Aliev M.A, & Mardieva G.M. (2022). multivoxel magnetic resonance spectroscopy in the diagnosis of brain tumors. World Bulletin of Public Health, . Retrieved from <https://scholarexpress.net/index.php/wbph/article/view/738>

16. Zuhridinovna Z. D., Kamaljanovna M. D. development of classification criteria for neuroretinal ischemia in hypertension //Web of Scientist: International Scientific Research Journal. – 2022.
<https://wos.academiascience.org/index.php/wos/article/view/951/882>

17. Dilmuradova K.R., Mamatkulov T.A., Ahmedova M.M. Dysfunctions of the Cardiovascular System in hemorrhagic Stroke in newborns. Turkish Journal of Physiotherapy and Rehabilitation. 2021, No. 32(2).-p. 4245-4249.
<http://www.turkjphysiotherrehabil.org/index.html>

18. Dilmuradova K.R., Akhmedova M.M., Akhmedov A.S. Hemorrhagic stroke in pediatric practice. International Journal for Innovative Engineering and Management Research. Jan 2021, vol 10, Issue 01, p.308-314.
<http://www.ijiemr.org/downloads.php?vol=Volume-10&issu=ISSUE-01>

19. Dilmuradova K.R., Muminov A.A., Matlubov M.M. Influence of anesthesia on the condition of newborns extracted by caesarean section in mothers with severe mitral stenosis. //Pediatrics. 2021, No. 2, b.103-107. <https://tashpmi.uz/nauka/nauchnye-zhurnaly/zhurnal-pediatrica/>
20. Dilmuradova K.R. Outcomes of surgical treatment of stroke in newborns. Journal of Reproductive Health and Urological Research. 2021, No. 2.1. b.37-41. https://www.sammi.uz/ru/pages/journal_reproductive_health
21. Dilmuradova K.R., Berdieva E.V., Khudoyberdieva Sh. Journal of Hepato-Gastroenterological Research. 2021, No. 3.2 (vol. II), pp. 88-91. https://www.sammi.uz/ru/pages/journal_gastroenterological_research
22. Dilmuradova K.R. Characterization of correlation relationships of structural changes in the brain in pneumonia in infants. Medical advice. 2022. V.16. No. 1. pp.274-281. <https://doi.org/10.21518/2079-701X-2022-16-1-274-280>