THE ROLE OF IMMUNOLOGICAL PARAMETERS IN PREDICTING CEREBRAL PALSY IN YOUNG CHILDREN

Saidmurodova Malika Usmonovna

Bukhara state medical institute

Abstract. *Current data indicate the involvement of immune mechanisms in the pathogenesis of many diseases. The importance of cellular and humoral factors of the immune system in patients with hypoxic-ischemic lesions of the central nervous system and their consequences, including cerebral palsy, is shown. At the same time, special attention is paid to individual cytokines as markers of neurodestructive and neuro-reparative processes, among which many researchers assign the main role to tumor necrosis factor-a (TNF-a). In recent years, researchers have been increasingly interested in studying the clinical and immunological mechanisms of the formation and progression of cerebral palsy. This review summarizes current data on clinical factors, immunological markers, and their prognostic significance in assessing the course of cerebral palsy in young children.*

Key words: *cerebral palsy, early age, prognosis, immunological markers, neuroinflammation, cytokines.*

Relevance. In recent years, more and more attention has been paid to studying the role of the immune system and neuroinflammatory processes in the formation of perinatal brain lesions. Current evidence suggests that damage to the nervous tissue in cerebral palsy is accompanied by activation of innate and adaptive immunity, which leads to the formation of a long-term inflammatory response.

The purpose of the study. To evaluate the clinical and immunological features and their prognostic significance in determining the course of cerebral palsy in young children.

Materials and methods. The study included 115 young children with an

established diagnosis of cerebral palsy, who were under observation in specialized neurological and rehabilitation departments. The age of the examined children at the time of inclusion in the study ranged from 6 months to 3 years.

Results. An analysis of clinical data showed that a more severe course of cerebral palsy was more often observed in children with a burdened perinatal history, severe prematurity and severe hypoxic-ischemic lesions of the central nervous system. The study of the anamnesis, peculiarities of the course of pregnancy and childbirth in the mothers of 113 (84%) of the examined children revealed the leading risk factor for cerebral palsy — hypoxic disorders. The number of premature babies was 77%. The majority of children born before 37 weeks of gestation suffered from double hemiplegia (88%) and spastic diplegia (97%), while among children born at term, the hemiplegic form of the disease dominated (66%). With spastic diplegia and double hemiplegia, the number of children born with a weight below 2500 g significantly prevailed (<0.05). Low body weight combined with spastic diplegia and especially double hemiplegia confirms that children suffering from these forms of cerebral palsy are mostly born immature. This, combined with intrauterine hypoxia, is a high risk factor for the formation of periventricular leukomalacia.

Conclusion. Thus, clinical and immunological assessment in young children with cerebral palsy is a promising direction in predicting the course of the disease. The use of immunological indicators in combination with clinical data makes it possible to increase the accuracy of the prognosis and justify individualized approaches to the treatment and rehabilitation of this category of patients.

References

1. Bertoncelli C. M. et al. Prediction model for identifying factors associated with epilepsy in children with cerebral palsy //Children. – 2022. – Т. 9. – №. 12. – С. 1918.

2. Bosanquet M. et al. A systematic review of tests to predict cerebral palsy in young children //Developmental Medicine & Child Neurology. – 2013. – Т. 55. – №. 5. – С. 418-426.

3. Djurabekova A. et al. Neuroimmunological aspects of pathogenesis in children's cerebral palsy //International Journal of Pharmaceutical Research (09752366). – 2020. – Т. 12. – №. 1.

4. Kaukola T. et al. Perinatal immunoproteins predict the risk of cerebral palsy in preterm children //Annals of medicine. – 2013. – Т. 45. – №. 1. – С. 57-65.

5. Rapuc S. et al. Uncovering early predictors of cerebral palsy through the application of machine learning: a case–control study //BMJ Paediatrics Open. – 2024. – Т. 8. – №. 1. – С. e002800.