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DEVELOPMENT OF PROGNOSTIC CRITERIA FOR THE SEVERITY OF SYSTEMIC INFLAMMATORY RESPONSE SYNDROME IN NEWBORNS

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Annotation: The author of the work conducted a study on the cytokine status of newborns with perinatal infections during the neonatal adaptation period. IL-8 acts as one of the criteria for the severity of the systemic inflammatory response in newborns. The author claims that, according to the level of IL-8 in urine, it is possible to predict the outcome of both the early and late neonatal period in newborns with infections. The criterion for the severity of both the early and late neonatal period in newborns with infections is the concentration of IL-8 in the urine.

Key words: newborns, perinatal pathology, cytokines, infection, IL-8.

In recent years, the detection of intrauterine infections, in particular viral etiology, has increased. The incidence of intrauterine infections ranges from 6 to 53% and about 70% among premature infants [4]. Microbial invasion of the fetus due to intraamniotic infection can lead to a systemic inflammatory response characterized by increased concentrations of cytokines in the umbilical cord plasma/serum [3].

Currently, it is assumed that every highly aggressive pathogenic agent, such as bacteria, viruses, toxins, injuries, burns, severe asphyxia, allergic agents, etc., can cause a serious and uncontrolled inflammatory reaction. This is due to an overreaction of the subject's immune system through a violation of the regulation of the release of proinflammatory cytokines. The initial physiopathological event of the inflammatory response is the production of "primary cytokines", TNF-alpha, IL-1 and IL-6 by macrophages. These and other cytokines trigger the development and intensification of inflammation

Material and methods.

A clinical and immunological examination of 60 children with infections was conducted. The control group consisted of 30 healthy newborns with a physiological course of the early adaptation period. All children were born full-term at 38-40 weeks gestation. In total, there were 2 cases of the birth of twins, which are assigned to the 1st group. During the period of early and late adaptation, blood and urine tests for cytokines were performed. Immunological studies of the blood of sick children were conducted in the laboratory of Immunomorphology of the Institute of Human Immunology and Genomics of the Academy of Sciences of the Republic of Uzbekistan. The indicators of cytokine (IL-6, IL-8, TNF-2, INFu) status in blood and urine were studied. Blood and urine tests were taken in the early (up to 7 days of life) and late (from the 8th to the 28th day of life) neonatal adaptation period. The level of cytokines (IL-6, IL-8, TNF-2, INFu) in blood serum and urine was determined by the ELISA method according to the attached instructions. The test kits "Cytokine" (St. Petersburg, Russia) were used.

In the early neonatal period in newborns with non-communicable diseases, in the genesis of Systemic inflammatory response syndrome , the linear correlation coefficient showed a moderate positive relationship

between the concentrations of INF-γ and TNF-α in urine (r=0.46), as well as between IL-8 and INF-γ in urine (r=0.30). The established relationship predicts a simultaneous increase in INF-γ and IL-8 in urine with an increase in TNF-α a in urine. This phenomenon indicates the compensatory mechanisms of the body's defense system in response to non-infectious damaging factors in the early neonatal period of life.

Of all the cytokines in blood and urine, all the studied ones are interconnected: TNF-α of blood and urine, IL-6 of blood and urine, INF-γ of blood and urine, IL-8 of blood and urine. The parametric parameters studied by the selective method show a relationship thus, an increase in the concentration of TNF-α in urine is accompanied by an increase in INF-γ in urine, the latter contributes to an increase in IL-8 in urine and blood, INF-γ and TNF-α in blood and a decrease in IL-6 in blood.

Thus, in the early neonatal period of adaptation of newborns with non-communicable diseases, the prognostic criteria for the severity of Systemic inflammatory response syndrome is an increase in TNF-α and INF-γ in urine.

In the late neonatal period of adaptation of newborns with non-infectious pathologies in the genesis of Systemic inflammatory response syndrome , a noticeable positive association of TNF-α in blood with IL-8 in blood (r=0.63) and its moderate association with IL-8 in urine (r=0.35) was established.

In turn, IL-8 in blood has a weak positive association with IL-8 urine (r=0.22) and urine INF-γ(r=0.23), therefore, in newborns with non-infectious pathological conditions in the late period of adaptation, the level of IL-8 in urine can predict the level of IL-8 in the blood and TNF-α in the blood. An increase in the level of IL-8 in the blood leads to an increase in the level of IL-8 and INF-γ in the urine.

Blood IL-6 had a moderate negative association with blood INF-γ (r=-0.38), which determines the body's response to a banal non-infectious process, its increase predicts the severity of the condition.

At the same time, INF-γ of blood has a weak positive relationship with TNF-α of urine (r=0.26), according to the level of TNF-α of urine, the content and dynamics of INF-γ of blood can be predicted, which has a moderate negative relationship with IL-6 of blood. It follows that an indicator of the severity of the pathological process in newborns with non-communicable diseases in the late period of adaptation is an increase in IL-6 and TNF-a in the blood.

The correlation analysis made it possible to predict the possible values of IL-8 in blood and TNF-α in blood by the level of IL-8 in urine, which is very important when introducing and conducting non-invasive diagnostic manipulations with high accuracy and significance for newborns with non-communicable diseases in the late adaptation period.

Thus, for the early diagnosis and prediction of the course of Systemic inflammatory response syndrome in patients with

Prognostic criteria for the severity of Systemic inflammatory response syndrome in newborns with non-communicable diseases are:

In the early neonatal period: - TNF-α >20.3pg/ml in urine; - INF-γ> 9.2 pg/ml in urine.

In the late neonatal period: -IL-6 > 56.9 pg/ml of blood; - TNF-α >39.0pg/ml of blood; - IL-8 >1.1 pg/ml in urine.

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