FEATURES OF CLINICAL AND IMMUNOLOGICAL COURSE OF CYTOMEGALOVIRUS INFECTION

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This article is devoted to an actual problem of modern medicine - cytomegalovirus infection. Was examined a group of children (n = 20) aged 5 to 10 years of often ill SARS with low-grade fever of unknown positive ELISA Cytomegalovirus (Anti - CMV - IgM and Anti-CMV IgG) and positive PCR for CMV. It was found that when the children are often suffering from SARS with reduced immune status indicators.

Key words: immunity, virus, antibody, immunoglobulin, herpes, disease

Introduction:Cytomegalovirus infection - a disease caused by a cytomegalovirus - a virus of the subfamily of herpes viruses. The prevalence of cytomegalovirus infection is extremely high. Once penetrated into the body, CMV infection does not leave it - often it exists in a latent form and occurs only at lower immunity.

However, the primary infection may be an acute infectious disease. Often infection occurs even in the neonatal period and early childhood. Most often it occurs in developing countries, where the prevalence of cytomegalovirus infection among young people is much higher than in developed countries.

The most dangerous form of cytomegalovirus infection is an antenatal form, which is common for children, whose mothers suffered a primary CMV infection during pregnancy. Congenital cytomegalovirus infection often leads to developmental delay and to the many adverse consequences, including mental retardation and deafness.

The virus enters the blood of healthy people and causes a pronounced immune response that relies in the formation of antibodies - specific protective proteins - immunoglobulin M (Anti - CMV - IgM), and the main protective response against virus – T-cell.

The lymphocytes CD 4 and CD 8 have potent activity against cytomegalovirus. Cytomegalovirus infection actively develops and leads to reactivation of earlier latent infection when cellular immune response is inhibited, like formation violation CD 4 lymphocytes in AIDS, for example.

Anti-CMV-IgM are forming after about 4-7 weeks after infection, and can be found in the blood for 16-20 weeks. Finding them in the blood in these terms may be evidence of primary CMV infection. Then immunoglobulins M are replaced by immunoglobulins G1 (Anti - CMV - IgG), which are present in the blood throughout the entire life.

In most of cases, when immune status is normal, cytomegalovirus infection is asymptomatic, although it remains in the body for a long time in the form of latent infection. It is unknown where is exactly virus is contained in body, however, its presence is expected in many organs and tissues.

Objective of research: Studying the characteristics of immunity in children with cytomegalovirus infection.

Materials and Methods: Examination of the group of children (n = 20) aged 5 to 10 years with low-grade fever of unknown origin and manifestations of herpes on the lips with a positive ELISA CMV (Anti - CMV - IgG and Anti - CMV - IgM) and a positive PCR CMV (Table 1). Also, a group of healthy children (n = 10) matched by age was examined.

The immune status of all children was examined (CD3 +, CD4 +, CD8 +, CD16 +, CD22 +, IgA, IgG, IgM, IgE) on the basis of the National Medical Center of the Republic of Sakha (Yakutia). Comparing averages ANOVA was performed using Student's t-test for assessing equality medium Fischer F-test for equality of dispersion evaluation. The relationship between the parameters assessed by the coefficients of the linear and rank correlation.

Survey Results: All children with CMV had a low-grade fever, headache, recurrent acute respiratory viral infections, tonsillitis, pharyngitis, increased sweating, fatigue, irritability.

PCR is an important method of diagnosis of CMV infection.

Table1

Indicators of immune status of children with cytomegalovirus and healthy children in Republic of Sakha

Indicators	Children with CMV-infection (n = 4) M ± m	Healthy children(n = 16) M ± m
CD3+	21,2 ± 1,03	27,2±1,04

CD4+	18,9 ± 0,5*	28,3±0,6
CD8+	16,9 ± 0,8*	24,1±2.5
CD16+	11,1 ± 1,2*	22,0±1,01
IRI	0,7 ± 0,6	1,08±0,02
IgA	1,6 ± 0,1*	2,9±0,6
IgG	18,2 ± 0,7	17,1±0,09
IgM	5,2 ± 0,08*	2,2±0,09
CD25+	13,9 ± 1,2*	24,6±0,7
CIK	186,2 ± 1,5<0,05*	70±0,07

The materials for the study was the saliva or the oral- and the nasal-pharyngeal mucus, scraps of the epithelial cells of the urogenital tract, blood, cerebrospinal fluid, prostatic fluid, urine. Determination of immune status is necessary in addition to serological survey methods, PCR and clinical symptoms of CMV infection.

Elevated levels of IgA, IgM and CIK has been detected in 4 children from an examined group.

The decreased CD4 + lymphocytes content, reduced the number of natural killer cells (CD16 +), T-helpers (CD4 +), cytotoxic T-lymphocytes (CD8 +), increase of IgM (Table 1) has been detected.

Conclusion:

1) The study of immune status and DNA analysis of a various materials in dynamics, serology (ELISA) are necessary in diagnostics of CMV infection.
2) The immune status changes, that revealed during diagnostics of CMV:
   -Increasing activity of the immune system (increased levels of immunoglobulin IgM in serum, increased CIC,
   -Reduced level CD16 + - natural killer cells, decreased T-helper CD4 level

Literature

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