THE OUTCOME OF CEREBRAL PATHOLOGY
BY THE END OF THE FIRST YEAR OF LIFE IN NEWBORN BABIES WITH CYTOMEGALOVIRUS INFECTION

L.V. Kravchenko
Rostov State Medical University, Rostov-on-Don, Russia

Objective: to study costimulatory molecules (CD28, CD40) on lymphocytes of the peripheral blood in newborn babies with CMVI and to determine prognostic indices of the cerebral pathology outcome by the end of the first year of life.

We examined 114 children at the age of three months, who had CMVI during neonatal period. In 37 children neurological symptoms remained by the end of the first year of life. Prior to that, 15 healthy newborns served as a control group. The content of lymphocytes, expressing CD28, CD40, CD3 + , CD4 + , CD28 + , CD20 + , was determined using laser flow cytofluorometer “Beckman Coulter” Epics XL II (USA) by means of monoclonal antibodies to the clusters of differentiation CD3 + , CD20 + , CD4 + , CD28 + , CD40 + of IMMUNOTECH Company (France). Analysis of multivariate nonlinear dependencies was performed using PolyAnalyst 3.5. Pro package. The formula of the forecast of preservation of neurologic symptomatology is calculated.

\[(CD3^–CD28^+ \times 0.074) + CD4^+ \times (–0.182) + (CD3^+CD28^– \times 0.035) + CD40 \times (–0.2862) + (CD3 \times 0.1062) + (CD28 \times 0.1952) – 0.4588.\]

If the result of the calculation according to the formula is > 0.39, than a child will have brain damages by the end of the first year of life. Sensitivity – 71.43%, specificity – 88.89%. The likelihood ratio of the positive result is 13.5.

The determination of CD3^+T-lymphocytes, lymphocytes, expressing CD28 in the total population, T-lymphocytes without the costimulatory marker CD28 (CD3^+CD28^–) and also B-lymphocytes, expressing CD40 on their surface, is significant for the prognosis of neurologic symptomatology preservation by the end of the first year of life.

Keywords: neonates; cytomegalovirus infection; lymphocytes.