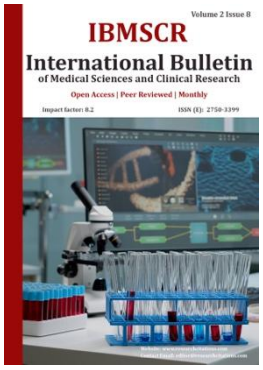

THE IMPORTANCE OF PENTAGLOBIN IN THE TREATMENT OF SEPSIS IN NEWBORNS

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Abstract: "Pentaglobin" is a highly effective agent in the pathogenetic therapy of neonatal sepsis. Its enrichment with IgM allows for a significant reduction in the clinical outcomes of the disease, particularly mortality, through its mechanisms of opsonization and limitation of the systemic inflammatory response. The drug can be used in infants and young children.

Keywords: pentaglobin, sepsis, newborn, IgM.

Sepsis is a severe disease with a high mortality rate in newborns, requiring early initiation of adequate therapy. Despite improvements in diagnostic, treatment, and care technologies, the mortality rate in neonatal sepsis remains high. An urgent task of modern neonatology is to optimize the diagnosis and treatment of infectious complications in the neonatal period. In the field of immunocorrection for neonatal sepsis, preparations of polyclonal antibodies - intravenous immunoglobulins - occupy a leading role.

Pentaglobin (IgG+IgA+IgM) is a normal human immunoglobulin administered intravenously. It contains high concentrations of immunoglobulins (IgG, IgM, IgA), which allows for the introduction of specific antibodies to combat infection and support the child's immune system. One of its main indications is use in severe bacterial infections, including as adjunctive therapy in combination with antibiotics, which enhances the effectiveness of treatment. The use of Pentaglobin reduces mortality and shortens hospital stays compared to standard immunoglobulins. According to the results of conducted research, Pentaglobin therapy reduced the mortality rate by 2.93 times (from 7.7% to 2.63%). In cases of septic shock, mortality decreased from 20% to 7.1%.

"Pentaglobin" is a preparation enriched with immunoglobulins of the IgM class (12% IgM). The concentration of IgM antibodies in it is almost 5 times higher than in human plasma, which is especially important for combating acute infections at an early stage. IgM is the first immunoglobulin formed in response to antigen stimulation and carries antibodies against endotoxins and capsular antigens of bacteria.

IgM antibodies fix complement more effectively and enhance opsonization, i.e., improve the preparation of bacteria for phagocytosis. The preparation significantly increases the opsonization of pathogens such as E. coli, K. pneumoniae, Ps. aeruginosa, S. pneumoniae, and H. influenzae.

The administration of Pentaglobin contributes to the rapid elimination of infection foci (often pneumonia, necrotizing enterocolitis) and signs of multiple organ failure.

During the neonatal period, the concentration of IgM and IgA is very low and begins to increase only from the 3rd week and 3rd month, respectively. This condition is called "physiological hypogammaglobulinemia of newborns." In premature infants, hypogammaglobulinemia is even more pronounced, which also affects the concentration of IgG, which is also reduced.

An increase in the level of IgM helps to limit the production of pro-inflammatory cytokines and mitigate the systemic inflammatory response. In children receiving Pentaglobulin, the duration of hospital stay is reduced.

Conclusion. Pentaglobin is an effective method for the complex treatment of children with early neonatal sepsis, reducing the mortality rate of the disease and the number of complications, while strengthening the child's immune defense. Special attention should be paid to administering the drug as early as possible after diagnosis and in sufficient quantities.