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HEMATOLOGICAL CHANGES IN NEWBORNS AND CHILDREN OF THE FIRST MONTHS OF LIFE WITH CONGENITAL INFECTIONS

Abstract:A total of 421 case histories of children with suspected congenital infection (CI) were analyzed. Of the 249 children with a confirmed diagnosis of CI, case histories of patients with hematological changes were analyzed. Two age groups were identified: children under 1 month and over 1 month. Within the first group, three subgroups were identified: children with bacterial infection, opportunistic infections, and infection of unspecified etiology. In the structure of hematological changes identified in these children, we did not find any fundamental differences between the two age groups.

Keywords: method, diagnosis, children, group, treatment.

INTRODUCTION

Despite the fact that in recent years certain successes have been achieved in the diagnosis and treatment of congenital infectious and inflammatory diseases, a significant increase in the proportion of patients with this pathology is noted in the structure of morbidity and mortality in children of the first year of life. This may be due to both the improvement of diagnostic methods and the true spread of various infectious agents. Among the causative agents of intrauterine infections, 27 species of bacteria, viruses, parasites, 6 species of fungi, 4 species of protozoa and rickettsia are known.

MATERIALS AND METHODS

The most significant bacterial disease occurring antenatally is listeriosis. Development of intrauterine syphilis and tuberculosis, usually referred to as "congenital", is also possible. Fetal infection with other bacteria in the antenatal period occurs extremely rarely, only after previous infection of the placenta with viruses that disrupt the placental barrier [1]. In contrast, intranatal infection with bacteria as a result of aspiration of the contents of the birth canal is quite possible. The rarity of intrauterine bacterial infections leads to the erroneous idea that the fetus does not have purulent inflammation.

We analyzed 421 medical histories of children with suspected HIV. The diagnosis of HIV was confirmed in 249 cases. To confirm HIV, studies were conducted using PCR and ELISA methods, the materials for which were peripheral blood serum and urine sediment.

RESULTS AND DISCUSSION

We analyzed the case histories of only those children who had changes in the peripheral blood: 26 children in group 1a, 9 in group 1b, and 7 in group 1c. We conducted a detailed analysis of the gynecological and obstetric history of the mothers of these children. The data obtained showed that 12 (17.9%) mothers received treatment during pregnancy due to the detection of such infections as mycoplasma, chlamydia, ureaplasma, and herpes. The threat of termination was noted in 19 (28.3%) women, toxicosis of the first half - in 14 (20.8%), nephropathy - in 8 (11.9%). Anemia of pregnant women was detected in 12 (17.9%) women. Less common were complications such as oligohydramnios and polyhydramnios. The births occurred at 36 to 41 weeks; 11 (16.4%) children were born by caesarean section. 24 (35.8%) mothers had complicated labor: premature and early rupture of membranes, amniocentesis, weak labor activity, prolonged anhydrous period. Thus, 88.1% of mothers had complicated pregnancy and childbirth, and only 11.9% did not have any pathology.

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Thus, fetal development in most cases occurred under the influence of various damaging factors, which led to a state of chronic hypoxia, infection and implementation of the infectious process. Among 166 children with intranatal bacterial infection (subgroup 1a), hematological changes were detected only in 26 (15.5%) children. Most often, significant growth of staphylococcus and streptococcus was detected in blood cultures. At the same time, absolute neutropenia was detected in 34% of cases, the number of neutrophils did not exceed 500 / μl. In 26.9% of cases, changes in the peripheral blood were represented by a leukemoid reaction of the myeloid type. Anemia (15%) and thrombocytopenia (8%) were detected less often. In one child, a combination of anemia and thrombocytopenia was noted, and in one patient, anemia and neutropenia.

In subgroup 1b, cytomegalovirus and herpes infections were detected more often (3 cases each). Congenital rubella was detected in 2 children, and mycoplasma infection in one.

From the peripheral blood side, changes were detected in 9 cases (34.6%). Absolute neutropenia was detected in 6 of them (66.6%). Cytomegalovirus infection was detected in 3 children (50%), herpes infection in 2, and mycoplasma infection in one. Anemia, most often normochromic, was detected in 3 cases (33.3%), while the hemoglobin level did not exceed 100 g / l.

In subgroup 1, in all cases, the results of serological tests were questionable or negative, but the clinical picture was so characteristic that it did not allow excluding viral infection. Negative results of serological examination in the presence of clinical signs of viral infection do not allow excluding it, but require a more in-depth examination. The cause of negative results of serological tests may be physiological failure of the immune response in early childhood. In this subgroup, changes in the peripheral blood were detected in 7 (31.8%) cases. Moreover, in most children (5 patients - 71.4%), changes in the blood were represented by normochromic anemia. In 3 (42.8%) cases, thrombocytopenia was detected, the platelet level did not exceed 50 thousand / μl. In one case, thrombocytopenia was combined with anemia, in another - with leukocytosis. The nature of the hematological changes in combination with the clinical picture (multiple malformations, CNS damage, delayed psychomotor development) corresponded to the changes described above in cytomegalovirus and herpes infections.

CONCLUSION

The most pronounced hematological changes are detected in children with intrauterine viral infection, which is apparently associated with the direct effect of the virus on hematopoietic cells. At present, the possibility of direct damage to the bone marrow, spleen and thymus by the herpes virus has been proven. Immunological studies have also shown the immunosuppressive activity of the virus, primarily in relation to T-lymphocytes and neutrophilic granulocytes.

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