

PERSISTENT INFECTIONS IN PEDIATRICS: A MODERN VIEW OF THE PROBLEM

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Abstract: The clinical and social significance of persistent infections remains relevant. The main aspects of this pediatric problem are: epidemiology and pathogenesis of persistent infections, clinical manifestations, treatment and prevention options, predictions of active reproduction of infectious agents. The issues of interaction in the human body of persistent viruses and viruses causing acute infectious diseases remain insufficiently studied. There is no answer to the question of the nature of this interaction (synergistic, competitive) or the absence of such. It is unclear what the interaction of persistent viruses with the host genome is. Familial and interfamilial variants of persistent infections have not been sufficiently studied, which is of key importance for preventing contamination of not only the child, but also the fetus.

Keywords: children, persistent infections, cytomegalovirus, herpes simplex virus, human immunodeficiency virus, hepatitis B virus.

INTRODUCTION

The problem of persistent infections is still of scientific and practical interest for modern pediatrics. Persistent infectious agents (viruses, chlamydia, mycoplasma, etc.) can remain in the human body for a long time in a latent state, without clinical manifestation. Their intracellular reproduction can be induced by changes in exogenous and/or endogenous conditions (climate change, immune system deficiency, stress, endocrine disorders, etc.), which can result in damage to many organs and tissues of the child, and often the development of a severe chronic disease [1].

MATERIALS AND METHODS

Important issues of this medical, in particular pediatric, problem are the epidemiology and pathogenesis of persistent infections, their clinical manifestations, diagnostic possibilities and features, therapeutic tactics and prevention of diseases caused by them. The risk of infection contamination is determined by various factors, including the nature of the pathogen, age, the state of immunity of the child and his mother, and the social environment. Thus, a child can be infected with herpes viruses in utero or during the first years of life [2, 3]. Children in puberty and adolescents are a high-risk group for infection with intracellular parasites, which is due not only to the biological and physiological characteristics of the body at this age, but also to the nature of social contacts. Infections that are transmitted primarily by aerosols, such as *Mycoplasma pneumonia*, can be dangerous at any age [4].

RESULTS AND DISCUSSION

Currently, the etiological role of persistent infections in the development of a wide range of chronic diseases has been proven, the exacerbation of which coincides with the period of active reproduction of microorganisms or immediately follows it. Almost each of the persistent infections can, under certain conditions, cause one or several serious diseases. In children, especially at an early age, diseases can occur in an acute form, which is more often observed during primary infection [3]. Clinical manifestations caused by persistent infections can be considered a marker of immune dysfunction. Thus, due to the imperfection of the immune system in infancy, children more often develop diseases associated with persistent viruses and intracellular parasites. The clinical picture typical of a particular pathogen does not always develop to the full extent, but it is possible to identify signs (usually laboratory ones) that indicate its presence. Thus, with the persistence of cytomegalovirus in individuals without immune deficiency, as a rule, no clinical manifestations are

observed. In the majority of immunocompromised individuals, including HIV-infected individuals, as well as in patients receiving immunosuppressive therapy, cytomegalovirus can cause serious illness, even death [2].

A persistent infectious process with an unverified pathogen often occurs with vague symptoms: adenopathy, bronchopulmonary pathology with minimal signs (tracheitis, bronchitis), mild neurological manifestations, sluggish diseases of the digestive system, chronic abdominal pain and/or discomfort of unclear genesis, sluggish inflammatory diseases of the kidneys and urinary system, etc. The vagueness of the clinical picture or the diversity of clinical manifestations of diseases caused by persistent infections often prevents early diagnosis and timely administration of adequate specific treatment. Just a little over 20 years ago, identifying persistent infections caused significant difficulties. The result was an incorrect assessment of the frequency of infection: in the absence of an adequate methodological arsenal for conducting research, hypodiagnosis was allowed, while hyperdiagnosis was allowed when using immunofluorescence methods. With the introduction of polymerase chain reaction methods into laboratory practice, the diagnosis of persistent infections has moved to a new qualitative level. Currently, a comprehensive examination of a child and his family members allows not only to establish the presence of a specific infection, but also to determine the strain of the pathogen, immunogenicity, degree of pathogenicity, stage of the biological cycle, degree of vegetation activity and often the exact localization of the area of active reproduction. Thanks to the modern high level of diagnostics, it has become possible to detect infections already in the latent period of the biological cycle. In essence, this is preclinical diagnostics, which opens up prospects for prognosticating a disease caused by a persistent infection [1]. Indirect signs of the condition that provide grounds for preclinical examination of the child are:

- the presence in the child's immediate environment of people with latent or clinical forms of intracellular persistent infection;
- unmotivated transient fever;
- lymphadenopathy;
- the presence in the child of sluggish diseases of the digestive organs, respiratory system, nervous system, chronic abdominal pain, inflammatory diseases of the urinary system, genitals, joints of unknown genesis;
- the presence of chronic inflammatory diseases and their frequent exacerbations.

CONCLUSION

In conclusion, it should be emphasized that, despite the extremely close, lifelong contacts of humans with persistent infections, many important phenomena for medicine and pediatrics, in particular those related to their vital activity, still remain a mystery to us. The volume of knowledge accumulated over the past two decades is extremely large, but there is still no unanimous opinion on a long list of questions. The team of authors hopes that, thanks to the continuing interest in the problem of persistent infections and the continuation of research by employees of a number of research institutions, answers will be found to some of them.

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