

REVIEW ARTICLE

MODERN ASPECTS OF INTRAUTERINE INFECTION

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The aim: To analyze the main types of intrauterine infections(IUI), their routes of transmission and features of the clinical picture, as well as the influence of pathogens on the course of pregnancy.

Materials and methods: Data review of native and foreign literature published over the past 5 years.

Conclusions: Summing up, it should be noted the role of infections in the pathogenesis of pathological conditions that form in the perinatal period. This is evidenced by numerous works on the problem of CBS. The most significant perinatal risk factors for fetal infection have been identified. It is proved that in the development of infectious lesions of the fetus, the severity of the disease, the localization of the pathological process, the rate of implementation, and manifestations of the pathology are an important type of pathogen, the path of penetration of microorganisms from mother to fetus to the immune response. Unfortunately, today the problem of preventing CBS is still far from being solved. However, knowledge of the pathogenesis, quality diagnostic methods, effective prevention, and treatment measures can significantly reduce the frequency of VUI and the severity of their consequences for the child.

KEY WORDS: congenital infections, pregnancy outcomes, newborn

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INTRODUCTION

Infectious pathology remains one of the most important and urgent issues of perinatology due to the high mortality and morbidity of the middle of newborns. But before delving into this issue, you need to understand the terms “infection” and “infectious process”, as well as intrauterine infection and “congenital infection”.

THE AIM

To analyze the main types of intrauterine infections(IUI), their routes of transmission and features of the clinical picture, as well as the influence of pathogens on the course of pregnancy.

MATERIALS AND METHODS

Data review of native and foreign literature published over the past 5 years.

REVIEW AND DISCUSSION

“Infection” is the entry of a microorganism into a macroorganism. This hit did not mean those that allowed detecting the reproduction of the microorganism with the subsequent development of the pathological process. Whereas “infectious process” or “infection” is this dynamic process that is revealed in a macroorganism as a result of

penetration into it a microorganism. Therefore, these concepts are not evaluations. Practitioners need to remember that the term “infection” is more epidemic, and “infectious process” is a cyno-epidemiological term.

Another issue that needs to be addressed is the difference between an intrauterine and a congenital infection, which is also often identified in the publication. Intrauterine infection is an infection of the disease for which any infectious fetus occurs in the ante-chi international period. And congenital infection is manifested in utero.

Clinical symptoms of congenital infections, regardless of etiology, are most often intrauterine growth retardation, jaundice, hepatosplenomegaly, exanthema, impaired blood function, and organ. Inclusion in the new technology of combining with certain symptoms the required results of the analysis, assessment, the presence of certain characteristics of diseases that do not allow to decipher clinically. In such cases, you can use the term “TORCH” - syndrome.

What is the history of this syndrome? In 1971, Andre Namias, from a large number of diseases, isolated viral, bacterial and other infections, which with a wide variety of structural and biological properties of the pathogen cause similar clinical manifestations in children. systems.

Under the term “TORCH” - infections refer to congenital infectious diseases, the etiology of which still remains undeciphered. The abbreviation of this term consists of the first letters of the diseases that most often cause intrauterine infection.

T (toxoplasmosis) - Toxoplasmosis
 O (Other diseases) - other diseases
 R (rubella) - rubella
 C (Cytomegalovirus) - cytomegalovirus infection
 H (herpes simplex virus) is a herpes simplex virus

According to statistics from the Ministry of Health, infant mortality due to generalized intrauterine infections is 18-20%, about 70 out of 350 cases per year. Published statistics show that 27 to 36% of live births, including more than 2/3 of premature babies, are infected in utero. Thus, it is proved that in the structure of infant mortality infectious pathology is up to 65-70%, ie is one of the leading causes of death in children in the first month of life. The high mortality rate of newborns determines the importance of timely diagnosis and adequate treatment of perinatal infections. Among the surviving children, disability occurs in almost 50% of cases. The share of mortality from congenital malformations is 30-35%, 1850 infants die before the age of one year, and in general, in Ukraine, more than 35,000 registered children with congenital malformations. [6] The severity of the infectious process in the mother and fetus does not always correlate with each other. Mild, asymptomatic, or asymptomatic infection of the mother, caused by various infectious agents, may be accompanied by severe damage to organs and systems of the fetus or its death. At the same time, acute and severe infection in the mother is not necessarily fatal to the fetus. Difficulties in ante- and postnatal diagnosis of intrauterine infection (IUI) are associated with the widespread prevalence of persistent infections and opportunistic agents in the human population, the ambiguity of the possible implementation of the infectious process, and non-specific manifestations. [7.] The process in the study of fetal infection (FI) is associated with the development and widespread implementation in health care practice of fundamentally new diagnostic technologies - highly sensitive and specific methods of enzyme-linked immunosorbent assay and genodiagnostics. In this regard, the assessment of the effectiveness of modern specific diagnostics of FI becomes especially relevant. [8] Invasive methods of prenatal diagnosis (cordocentesis, amniocentesis, chorionic villus sampling) for the detection of FI markers are rarely used due to a large number of contraindications and the possibility of pregnancy complications. Indirect methods are more often used: detection of the pathogen, its nucleic acids, and antigens in clinical material in pregnant women, specific antibodies in serum. Of particular interest in improving the prenatal diagnosis of FI is the determination of the diagnostic and prognostic significance of marker-producing herpesvirus (HSV) and cytomegalovirus (CMV) infection. After primary infection, viruses of the Herpesviridae family in the form of a nucleotide can be present for life in the cell of nerve ganglia, secretory glands, lymphoreticular cells of the kidneys, lymphoblasts of B-lymphocytes. With primary infection and reactivation of latent infection, the virus actively reproduces and is excreted, specific class M immunoglobulins appear, and low-avidity antibodies to premature proteins are markers of productive infection.

Activation of the infection in pregnant women can be both clinical and asymptomatic, and the virus can enter the placenta and cause destructive processes. The risk of infection and fetal disease in the detection of markers of productive herpes infection in pregnant women has not been studied. [9] Determining the role of asymptomatic, persistent, chronic, and recurrent maternal infections in the formation of perinatal losses and congenital malformations remains an unresolved and controversial issue. Viruses have unique properties that contribute to the development of intrauterine infection, damage to embryonic and fetal cells. The key pathogenetic mechanism of viral infection is the incorporation of foreign genetic material into the cell. An important component of the pathogenetic action of the virus on the cells of the embryo or fetus is a violation of the mitosis of infected cells, their cytolysis, chromosomal aberrations, ie direct cytopathic, teratogenic, and mutagenic effects. Indirect exposure to viruses is associated with the development of placentitis, endometritis, pathology of the amniotic membranes.

New perspectives in the study of the prevalence, pathogenesis, etiology of FI opens the use of a highly sensitive molecular biological method of PCR, based on the detection of a specific nucleotide sequence inherent in the DNA or RNA of the agent. The method allows assessing the role of FI in the development of perinatal losses, congenital anomalies at a qualitatively new level.

Morphofunctional condition of the placenta in various pathological conditions, including infection, can affect the prognosis of the fetus in different directions. First, it is a decrease in energy, respiratory and other biochemical processes, violation of the hormonal status of the placenta, which is reflected in the levels of hormones of the mother and fetus, changes in tolerant immunological relations in the system "mother - fetus". Secondly, it is a lesion that facilitates the entry of an infectious agent into the fetus and the development of pathological changes in its organs. They are closely intertwined, creating a cascade of pathological reactions that cause the existence of the fetus in extreme conditions, and in some cases - and before his death. [9-11]

Ways of intrauterine infection

- Ascending - from the ancestral ways. Intensive reproduction of microorganisms in the vagina and cervical canal, including opportunistic pathogens, leads to their penetration into the uterine cavity. Next, they colonize the basal layer of the decidual membrane. From here the pathogen can get into blood vessels of a fruit and further cause a choriovasculitis, or, more often - in an amnion cavity with the development of bacterial amnionitis. Clinical and experimental microbiological studies have shown that amniotic fluid is the main pathogenetic link in the mechanism of infection of the fetus.

Women's amniotic fluid has antimicrobial activity, however, it is not expressed concerning clinical strains of opportunistic pathogens, which is manifested by delayed rather than inhibited growth of flora. The bacteriostatic effect is short-lived, and amniotic fluid becomes an environment for the accumulation of opportunistic pathogens.

The fetus is in an infected environment, and infection can occur by swallowing, during intrauterine respiratory movements, or aspiration of infected amniotic fluid during childbirth. The ascending path of infection is more often caused by opportunistic bacteria (*Escherichia coli*, enterococci, etc.), as well as mycoplasmas, chlamydia, fungi of the genus *Candida* and only certain viruses, in particular - herpes simplex. [9]

- Hematogenous (transplacental) - from foci of infection located in the mother's body extragenital or in the myometrium (all congenital viral infections, as well as syphilis, toxoplasmosis).

The presence of the pathogen in the mother's blood may be accompanied by certain symptoms or signs (Influenza, pyelonephritis, etc.), but can be asymptomatic or manifest itself in the form of nonspecific signs (rash, lymphadenopathy, etc.). The pathogen, breaking the placental barrier, enters the bloodstream of the fetus. Often there is a generalized lesion of the fetus - intrauterine sepsis.

Hematogenous infection is more characteristic of viruses, mycoplasmas, chlamydia, treponemes, listeria, toxoplasma, *Mycobacterium tuberculosis*. This route of infection has a characteristic pathomorphological picture of inflammatory changes in the manure and fetal organs.

- Transdecidual (transmural) - the source of infection is under the endometrium. this route of infection of the fetus is more often associated with purulent-inflammatory diseases of the mother's genitals in the past. Infection of the fetus can threaten endometritis and the presence of contraceptives in the uterus.

- Descending - through the fallopian tubes. The descending route of infection begins with chronic foci of inflammation in the ovaries and fallopian tubes due to gonorrhea, mycoplasma, and chlamydial infections. The descending way of defeat is often observed in patients with acute pathology of abdominal organs. A classic example is an acute appendicitis.

- Iatrogenic route of infection. Currently, there is another way of infection, which can occur when taking chorionic villi for examination, especially if it is performed transcervical during amniocentesis, fetoscopy, fence for examination of fetal blood, an intrauterine blood transfusion.

- The contact path is realized during childbirth more often when the fetus passes through the infected birth canal.

- Mixed. In this case, there are two or more possible ways of infection.

CLINICAL SYNDROMES OF INTRAUTERINE INFECTION

Unfortunately, many IUIs in the neonatal period do not have a specific clinical picture. Indications for examination at IUI are nonspecific symptoms of the infectious process. In newborns, the clinical manifestations of the infectious process may be:

- general symptoms - loss of appetite, large initial weight loss (10% or more) and its slow recovery, repeated weight loss, flat weight curve, malnutrition, lethargy, sclera, pale

skin with a grayish tinge, jaundice, hemorrhagic syndrome, edema ;

- respiratory disorders - tachypnea or shortness of breath, apnea, cyanosis, the participation of accessory muscles in the act of breathing;

- gastrointestinal symptoms - belching, vomiting, enlarged abdomen, diarrhea, the plasticity of the anterior abdominal wall, hepatosplenomegaly;

- cardiovascular disorders - tachycardia, muffled heart sounds, dilated heart, pale and marbled skin, cold extremities, decreased subcutaneous tissue turgor, edema, pasty, hypotension;

- signs of CNS damage - decreased muscle tone and reflexes, as well as motor activity and sucking reflex, convulsions, hyperexcitability;

- hematological abnormalities - anemia, thrombocytopenia, changes in white blood cell count, hypocoagulation, etc.

Signs of the disease due to intrauterine infection of the fetus appear during the first 3 days of life. It should be borne in mind that intranatal infection may have a longer incubation period of the disease. Great difficulties in the differential diagnosis arise due to the similarity of the symptoms of infectious toxicosis with the syndromes of maladaptation caused by perinatal hypoxia, especially in premature infants. [13,14]

It should be noted that a comprehensive examination of women to detect infection with pathogens of prenatal infections, especially the TORCH group, should be performed before pregnancy. Treatment of these infections is one of the main tasks of pre-pregnancy training. However, most of these infections are not treated effectively or at all. All women of childbearing potential planning a pregnancy should be tested for antibodies to the rubella virus. Seronegative women are recommended to be vaccinated, followed by contraception for three months. It is also advisable to vaccinate against hepatitis B before pregnancy. This is the only and best method of preventing intrauterine infection during pregnancy to date. [15-17]

TOXOPLASMOSIS

Toxoplasmosis - protozoonosis, characterized by a variety of variants and polymorphism of clinical manifestations, is currently primarily considered as an opportunistic infection and is an urgent medical and social problem.

Toxoplasmosis invasion is widespread, almost worldwide. Affected populations in different countries depend on sanitary and hygienic conditions, the peculiarities of the population's diet, the influence of environmental factors, and the frequency of immunodeficiency conditions.

The causative agent of toxoplasmosis is the obligate intracellular parasite *Toxoplasma gondii*. The name of the genus *Toxoplasma* (Greek *Toxon* - arc, *plasma* - decorated) is determined by the shape of the parasite in the form of a crescent or a slice of orange at the stage of rapid reproduction in the cells of the intermediate host. *Toxoplasma* - a representative of the type Sporophytes, class Coccidia. It was first described

in 1909 by S. Nicollen and L. Manso, who discovered it in Tunisia in rodents (*Ctenodactylus gundi*).

The sexual cycle of toxoplasma development occurs in the intestinal epithelium of members of the feline family, including domestic cats. Excreted with the feces of animals, parasites in the form of oocysts for a long time retain their viability in the environment (1.5-2 years). The asexual cycle of toxoplasma development is realized in the human body or various mammals.

The main routes of transmission include: 1) food; 2) contact; 3) transplacental; 4) parenteral.

The vast majority of people are resistant to toxoplasmosis, as the human body with full immunity easily copes with toxoplasmosis. Thus, in adults, screening antibodies to *Toxoplasma* are detected in 40-90% of cases. *Toxoplasma* elicits an intense cell-mediated immune response.

Toxoplasmosis infestation in humans is found everywhere, on all continents, and in all climatic zones. The prevalence of toxoplasmosis is higher in areas with hot and humid climates, as well as among the rural population.

There are natural and synanthropic foci of acquired toxoplasmosis. In natural foci, the circulation of the pathogen occurs mainly in the chain of prey - a predator, in which the final host is a member of the feline family, and the intermediate - numerous mammals, animals, and birds. In natural foci, people are rarely infected. In synanthropic foci, the pathogen of toxoplasmosis circulates with the participation of cats as the final hosts in which the parasite reproduces sexually. Among the intermediate hosts, the most affected are pigs, sheep, rabbits, chickens, mice, and wild birds - sparrows. Domestic mammals and synanthropic birds are infected with *Toxoplasma* much more often than wild ones. Man for *Toxoplasma* is an intermediate host; in its cells, *Toxoplasma* reproduces asexually.

The main sources of toxoplasmosis infection in humans are pets. Of the domestic carnivores, the leading role is played by the cat, which spreads toxoplasma oocysts in the environment. An important epidemiological role in human infection with toxoplasmosis is played by farm animals, whose meat may contain toxoplasmosis cysts, as well as the selection of sick animals at birth.

Women are usually infected slightly more often than men, due to the habit of many of them tasting raw minced meat.

In an organism with good immunoresistance, toxoplasmosis rarely gives typical manifest forms: in 95-99% this disease is asymptomatic and remains undiagnosed due to the absence of pathognomonic signs [8, 34].

Clinical manifestations are multifaceted and depend on the initial state of the body's immune system. According to the classification of Siim (Siim, 1971), taking into account the predominant organ pathology, there are 5 clinical forms: lymphonodular, generalized (exanthemous), myocardial, encephalitic, ocular. Other classifications also distinguish between intestinal (abdominal) and pulmonary forms of acute toxoplasmosis.

There are alternative classifications of toxoplasmosis by the method of infection: 1) acquired toxoplasmosis, 2) congenital toxoplasmosis; by clinical manifestations: 1) prima-

ry latent form; 2) acute toxoplasmosis; 3) primary-chronic form (expressed and erased); 4) secondary-chronic form (expressed and erased); 5) secondary-latent form (with or without residual phenomena).

The incubation period lasts from 3 to 21 days but can last up to several months. [35-38]

The duration of the incubation period depends on the virulence of *Toxoplasma*, the mass of infection, and the state of the premorbid background (the presence of congenital or acquired immunodeficiency and its severity).

Acute toxoplasmosis, which developed as a result of primary infection, begins acutely and proceeds with severe intoxication, fever, and CNS lesions such as meningitis. Subjectively, the patient will be disturbed by chills with fever, arthralgia, myalgia, cardialgia, impaired vision, itchy skin, sleep disturbances, headaches. objectively, you can detect micropolyadenitis, hepatosplenomegaly, hyperhidrosis, ecchymoses, petechiae, chorioretinitis, iridocyclitis.

In the presence of pregnancy, toxoplasmosis causes its termination at an early stage, stillbirth, birth of children with developmental abnormalities, and damage to the CNS and other organs.

Approximately 5-7% of women become infected for the first time during pregnancy. There is a consensus on the threatening effects of acute toxoplasmosis on pregnancy. When a woman is infected in the third trimester of pregnancy, latent or primary chronic toxoplasmosis is most often formed, which does not endanger the life of the child and does not cause a delay in neuropsychological development in children. [18, 19-24]

RUBELLA

Rubella - a highly contagious anthroponotic viral infection, almost harmless to adults, but extremely dangerous for women of childbearing age, due to the high probability of intrauterine infection of the fetus during pregnancy. The causative agent of this infection is the rubella virus, which belongs to the family *Togaviride* genus *Rubivirus*. The incubation period of the disease can last from 16 to 21 days, the main symptoms are enlargement and soreness of the lymph nodes and spotted or maculopapular rash, which begins on the patient's face, then passes to the body and limbs.

In children, the disease is usually mild, with symptoms including rash, fever (<39 ° C), vomiting, and mild conjunctivitis. The rash, which appears in 50-80% of cases, usually first appears on the face and neck, then falls below the body and lasts 1-3 days. Swollen lymph nodes behind the ears and on the neck are the most characteristic clinical sign. Infected adults, more often in women, may develop arthritis with joint pain, which usually lasts 3-10 days.

After infection, the virus spreads in the human body for 5-7 days. Symptoms usually appear 2-3 weeks after exposure. The most infectious period usually occurs 1-5 days after the rash.

If a woman is infected with the rubella virus in early pregnancy, the probability that she will transmit the virus to the fetus is 90%. This can cause fetal death or congenital

rubella syndrome (CNS). Infants with IBD can shed the virus for a year or more after birth. Babies with IBD can shed the virus for a year or more after birth. Children with IBD may suffer from hearing impairments, eye defects, heart defects, and other lifelong forms of disability, including autism, diabetes, and thyroid dysfunction. Many of these disorders require expensive therapy, surgery, and other expensive medical care.

The highest risk of SVC exists in countries where women of childbearing age are not immune to the disease (which is produced either as a result of vaccination or after previous rubella). Before the introduction of the vaccine, up to 4 children per 1,000 live births were born with SVC. [18, 25-27]

CYTOMEGALOVIRUS INFECTION

Diseases caused by cytomegalovirus (CMV) are anthropotic viral infections and differ in a variety of clinical manifestations: from latent to generalized forms with damage to the nervous system and internal organs. The essence of the problem of CMVI is that it refers to the so-called opportunistic infections, the clinical manifestation of which is possible only in conditions of primary or secondary immunodeficiency. In people with a normally functioning immune system in the vast majority of cases, the infection is of the type of virus. On average, 90-95% of the adult population show antibodies to CMV [1].

The number of seropositive patients in different countries ranges on average from 44 to 85%, with patients from 0.2 to 3%. The prevalence of cytomegalovirus infection, the possibility of long-term persistence of the pathogen in the human body with damage to various organs and systems, the difficulty of laboratory diagnosis, lack of reliable therapeutic and prophylactic agents convincingly emphasize the relevance of this infection.

The causative agent of cytomegalovirus infection is cytomegalovirus (*Cytomegalovirus hominis*) - an opportunistic pathogen belonging to the family of beta-herpesviruses of the fifth type. The human CMV genome is the largest of all the genomes of the herpesvirus family. The source of infection is a sick person with one or another form of the disease or a chronic virus carrier, which is most dangerous in the active phase of the primary infection or during the exacerbation of the infection.

The ways of CMVI transmission are vertical, sexual, parenteral, aspiration, oral. Transmission factors are blood, cervical and vaginal secretions, semen, breast milk. Infection can also occur through donor organs and tissues transplanted to recipients. CMV is stored for a long time in leukocytes, which leads to the risk of developing this infection in recipients of blood and its components.

Primary infection of immunocompetent adults usually occurs asymptotically and only in 5% of cases in the form of the mononucleosis-like syndrome, characterized by fever, asthenia, in the blood - lymphomonocytosis, atypical mononuclear cells, although not always characteristic of angina and lymphadenopathy.

Hepatomegaly is observed in 100% of cases, is described as an initial manifestation of CMVI or as a concomitant mononucleosis-129-like syndrome of granulomatous hepatitis. In the absence of pathology of the immune system, acute CMVI becomes latent with the lifelong presence of the virus in the human body. Detection of specific IgM in people with normal immunity indicates that they have an active infection and provides an earlier diagnosis of CMVI.

Seroconversion is a reliable sign of primary CMVI. A high titer of CMV IgM indicates a primary infection because recurrence of CMVI rarely gives high titers of IgM. However, not all individuals can produce IgM antibodies.

In immunocompromised individuals, IgM to CMV does not form even in the case of clinically severe infection. Determination of anti-CMV IgG in the dynamics by ELISA with a fourfold increase in antibody titers with confidence indicates an acute infectious process. [18, 28,29]

HERPES SIMPLEX VIRUS

According to the WHO, this is currently a pandemic: from 60% to 90% of adults and children in the world are infected with herpes viruses. In 2016, an estimated 3.7 billion people under the age of 50, or 67% of the population, had HSV-1 infection (oral or genital). Estimated prevalence of the infection was highest in Africa (88%) and lowest in the Americas (45%).

With respect to genital HSV-1 infection, between 122 million to 192 million people aged 15-49-years were estimated to have genital HSV-1 infection worldwide in 2016, but prevalence varied substantially by region. Most genital HSV-1 infections are estimated to occur in the Americas, Europe and Western Pacific, where HSV-1 continues to be acquired well into adulthood.[30-39]

Genital herpes (GH), a common cause of HSV infection, is one of the most common sexually transmitted diseases and differs from other diseases in this group by a lifelong carrier of the pathogen in the human body, which determines a high percentage of recurrent forms of the disease.

The prevalence of GH in the population is judged by the frequency of detection of antibodies to this serotype of the virus. Antibodies to HSV-2 are found in all population groups.

The frequency of detection of GG is determined by the studied citizens and socio-economic conditions, it increases with age and correlates with the number of sexual partners.

Seroepidemiological studies have shown a significant difference between the prevalence of seropositivity and the actual incidence of GH, which in Western Europe exceeds 80 cases per 100 thousand population, and in the United States is approaching 200 cases per 100 thousand inhabitants. According to US researchers, about 30 million adults in the United States suffer from recurrent genital herpes (RGH). And every year about 500 thousand new cases are registered. It is estimated that in developed countries, 10-20% of the adult population may suffer.

Herpes infection, along with cytomegalovirus is one of the main factors of the fetus and newborn, causes an increase in the number of miscarriages, premature births,

the birth of children with the pathology of the CNS and internal organs. Infection of the child occurs during vertical, hematogenous, transplacental, as well as intra- and postnatal transmission. This is especially common in the presence of active manifestations of herpes on the skin and mucous membranes in the mother.

Usually, in GH the infectious agent is HSV-2, but in 10-6% of cases, the cause of the disease may be HSV-1, which is due to household and oral-genital routes of infection. The entrance gates are the skin and mucous membranes of the external genitalia and vagina.

At primary infection, the virus rises from the site of introduction through the peripheral nerves to the spinal and cerebral ganglia and sometimes reaches them due to viremia. Here he remains "asleep" and often invulnerable to anti-virus attacks. Upon reactivation, the GH virus migrates for a long time along the peripheral nerves, causing irritation of the nerve endings and very characteristic and unpleasant sensations of itching and burning. These phenomena usually precede the appearance of the vesicular rash.

Even with high levels of circulating virus-neutralizing antibodies, recurrences of herpes infection are possible, as the herpes virus spreads inside the nervous tissue, passing from one cell to another, avoiding contact with antibodies. Thus, functioning virus-neutralizing antibodies do not prevent a recurrence, although they prevent the spread of infection. According to IS Markov (2001), HSV has a "strange pantropism." It is known for its high tropism to tissues of ectodermal origin, in connection with which the most common lesions of the skin, mucous membranes, central and peripheral nervous systems. Lesions of vital internal organs, primarily the liver, are caused by the tropism of the virus also to tissues of endodermal origin.

Such almost universal tropism has led to a significant polymorphism of clinical manifestations, in connection with which patients often come into the field of view of doctors of different specialties.

Even though the mechanism of recurrence of herpes infection is not completely clear, clinically significant are many factors and their combinations that cause exacerbation of latent viral infection: premenstrual and menstrual periods, fatigue, stress (emotional and physiological imbalance), excessive ultrasound, sun, drafts, excessive cooling, immunodeficiency states of both genital and extragenital genesis, sexual contact or other irritating mechanical or chemical exposure to the external genitalia, intercurrent infection, etc.

The most realistic option to join the host of GG owners is direct contact with secretions from an infected patient. And it is not necessary that he currently has any painful symptoms.

The incubation period of primary HH varies from 2 to 12 days (according to some data from 1 to 26 days), on average 6-7 days. A typical picture of the manifestation of GG - the appearance on the mucous membranes of the genitals and adjacent areas of the skin of single or multiple vesicular (vesicular) elements that occur on an erythematous

background. After 1-2 days, these bubbles open, forming moist painful erosions, rarely ulcers, heal under the crust or without it. In women, there is often the so-called acute edematous vulvovaginitis (Boralevi F., Geniaux M., 1996). Usually, the primary attack of GG is quite difficult - pronounced general intoxication: fever, weakness, headache and muscle pain, dysuric phenomena. Often in primary infection, there is multiple localization of lesions, as well as enlargement and soreness of the inguinal lymph nodes.

The period of predictors (prodromal phase) is observed usually at recurrent GG, meets at half of the patients, and lasts about 24 h (with considerable variability in a clinical course). If the prodromal period is diagnosed in time, it can allow early treatment, which is more likely to be effective.

The location of lesions on the genitals is determined by the entrance gate of infection. In men, the manifestations of GG are usually localized on the foreskin, head, and body of the penis, as well as the perianal. The female genitalia is affected in the area of the labia, clitoris, perineum, vagina, and anus. It is also possible lesions of the cervix in the form of diffuse inflammation with erosion, the formation of largely isolated ulcers, sometimes even with the phenomena of necrosis.

The acute period of primary HH can reach 3-5 weeks, but sometimes the infection is latent, immediately passing into a latent phase.

Against the background of erythema, the blisters are ulcerated, covered with crusts, cuttings usually without scars. About a quarter of patients have neuralgia. Positive dynamics in the development of local manifestations are less pronounced in wet areas of the genitals. Erosions and ulcers localized in these areas heal much longer than on dry skin.

Severe pain and tissue destruction can cause urinary retention (usually in the initial attack). More rare complications in the acute stage are herpetic eczema, parasitism, proctitis, bilateral interstitial pneumonia, hepatitis, polymorphic erythema, aseptic meningitis, myelitis, etc. [18,30-32]

CONCLUSIONS

Summing up, it should be noted the role of infections in the pathogenesis of pathological conditions that form in the perinatal period. This is evidenced by numerous works on the problem of CBS. The most significant perinatal risk factors for fetal infection have been identified. It is proved that in the development of infectious lesions of the fetus, the severity of the disease, the localization of the pathological process, the rate of implementation, and manifestations of the pathology are an important type of pathogen, the path of penetration of microorganisms from mother to fetus to the immune response. Unfortunately, today the problem of preventing CBS is still far from being solved. However, knowledge of the pathogenesis, quality diagnostic methods, effective prevention, and treatment measures can significantly reduce the frequency of VUI and the severity of their consequences for the child.

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