Rubella in children

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Abstract: Rubella is an acute infectious viral disease characterized by moderate intoxication, small-spotted exanthema and lymphadenopathy. Allocate congenital and acquired rubella. They differ in the mechanism of pathogen transmission and clinical manifestations. Congenital rubella leads to severe fetal malformations, acquired has a mild course.

Keywords: rubella, infections, pathogen transmission, fetal malformations.

The route of distribution is airborne with a primary lesion of children from 1 to 9 years old. There is a winter-spring peak of incidence. Sources of infection - a sick person or a virus shedder. An infectious patient is 7 days before the rash appears and 5-7 days after it appears. Innate immunity to rubella is present in children of the first six months of life, then it decreases. After the transferred rubella, a stable, lifelong immunity is developed.

The virus infects the vascular endothelium, causing their increased permeability, edema and hemodynamic disturbances in the tissues. In the clinic, this is manifested by catarrhal syndrome, intoxication. In the vascular endothelium of the surface layers of the skin, the virus causes a focal inflammatory reaction, which predetermines the appearance of a rash. 2-3 days later, neutralizing antibodies appear in the blood, which leads to the release of the body from the pathogen and the formation of intense and long-lasting immunity. The rubella virus has a tropism for embryonic tissue.

It proceeds cyclically, like an acute infectious disease. The incubation period is 11-24 days. In some patients, the first sign of rubella is a small-spotted pink rash that occurs against an unchanged skin background, while fever and intoxication are absent. In some patients, the disease begins with malaise, headache, pain in the joints, muscles, and a short-term increase in body temperature. The rash appears on the 1-3rd day of illness and spreads throughout the body. It has a small-spotted character, appears primarily on the face, after which it quickly spreads to the trunk and then to the limbs.

The first concept of congenital rubella was formulated by the Australian ophthalmologist Norman Gregg, who in 1941 proved the existence of a link between rubella in a pregnant woman and congenital malformations of the fetus. He described congenital cataracts and heart defects in fetuses whose mothers had rubella in early pregnancy. The symptom complex of congenital rubella (Congenital Rubella Syndrome - CRS) depends on the period of infection of the fetus. When the fetus is infected in the early stages of development, especially in the first 8 weeks of pregnancy (i.e., in the critical phase of organogenesis), multiple anomalies occur, which are the result of a massive infection. The heart, organs of hearing, vision, bones of the skull, limbs are damaged. Among these infants there is a very high percentage of perinatal mortality. The most common types of congenital anomalies associated with rubella infection in women after the first trimester of pregnancy are deafness and retinopathy. Slightly less common is an increase in the liver and spleen, hemorrhagic syndrome, signs of hepatitis, pneumonia. The classic triad of defects (Gregg's triad) associated with congenital rubella includes cataracts, heart defects, and sensorineural deafness, but many other anomalies have also been described.

These include cataracts (bilateral or unilateral), retinopathy, microphthalmia, glaucoma, chorioretinitis. Among the neurological manifestations of CRS, meningoencephalitis, microcephaly, mental retardation, slowing of

psychomotor reactions, speech impairment of central origin should be indicated. In addition to the first two, the remaining neurological manifestations are among the so-called delayed CNS disorders. The delayed manifestations of CRS include insulin-dependent diabetes mellitus, which is detected in 20% of children with this syndrome and is caused by viral and autoimmune damage to pancreatic cells. Rare manifestations of CRS include corneal opacity, dermatoglyphic abnormalities, generalized lymphadenopathy, growth hormone deficiency, hemolytic anemia, hepatitis, thyroid pathology, "late developmental disease", myocardial pathology, severe myopia, pneumonia.

Methods of laboratory diagnostics:

1. virological method: isolation of the virus in sensitive cell structures;

2. molecular biological method: determination of virus RNA in PCR;

3. serological methods: detection of M-antibodies during primary infection within 1-2 months (absent during reinfection);

4. detection of low-visible G-antibodies up to day 25 during primary infection (absent during reinfection);

5. detection of seroconversion (seropositivity) or a significant increase in G-antibodies (4-fold or more) in the study of paired sera obtained at intervals of 3-4 weeks (with negative 2nd serum, 3rd serum is obtained 2 weeks after the 2nd serum).

Laboratory diagnosis of congenital rubella.

Material for research: cord blood, blood of a newborn child, pharyngeal mucus, conjunctival discharge, urine, cerebrospinal fluid.

Differential diagnosis for rubella is carried out with measles, enterovirus exanthema, allergic rash, scarlet fever, pseudotuberculosis, infectious mononucleosis.

Complications:

1. Rubella encephalitis (inflammation of the brain) - develops 5 days after the appearance of skin rashes. A characteristic feature of this complication is severe headaches, deterioration of the general condition (weakness, malaise, body aches, fever, vomiting), then, as a rule, convulsions develop, as a result of which partial or complete disturbances in the sensitivity of the limbs appear in the form of paralysis, the patient falls into a coma. The probability of a lethal outcome at complication by encephalitis is very high;

2. Arthritis. It develops 1-2 days after the disappearance of the rash, the patient begins to be disturbed by pain and swelling in the joints. They are stored for 5-10 days; infectious intoxication rubella

3. Thrombocytopenic purpura. It is characterized by increased bleeding due to a decrease in the number of platelets. In most cases, nasal, gastrointestinal and renal bleeding occurs. On the skin, petechial hemorrhages are detected. In the general analysis of urine, pronounced hematuria (a large number of red blood cells) is manifested;

4. Serous meningitis;

5. Pneumonia. Accompanied by respiratory failure, shortness of breath, cough, fever, chest pain, swollen lymph nodes;

6. Angina. The ability of the virus to infect the tonsils is due to its relationship with the respiratory epithelium;

7. Otitis;

8. Orchitis. In severe cases and occurrence over the age of 5 years, it can lead to infertility.

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