"JOURNAL OF SCIENCE-INNOVATIVE RESEARCH IN UZBEKISTAN" JURNALI
VOLUME 2, ISSUE 6, 2024. JUNE
ResearchBib Impact Factor: 8.654/2023 ISSN 2992-8869

EPIDEMIOLOGY, CLINICAL COURSE, TREATMENT AND PREVENTION OF MEASLES

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✓ **Resume**

Measles is an acute infectious disease caused by the measles virus, which infects the epithelium of the upper respiratory tract and skin. Clinically characterized by a severe syndrome of general infectious intoxication, pathognomonic enanthema, maculopapular rash, conjunctivitis and respiratory tract (respiratory) syndrome. The syndromic disease was described in 1890 by Dr. Belsky (Pskov), in 1895 by pediatric doctor Filatov, and in 1898 by Dr. Koplik (USA).

Keywords: Measles, rash, age, symptom, spread, pregnancy, temperature.

Introduction. The virus envelope has 3 layers: a protein membrane, a lipid layer and external glycoprotein complexes that form peculiar protrusions. The virus strains are antigenically identical, have complement-fixing, hemagglutinating, hemolyzing properties and symplast-forming activity. CD-46 is the human receptor for the measles virus.

The virus is unstable in the external environment: it is sensitive to ultraviolet radiation, in drops of saliva under favorable conditions (sufficient humidity and absence of ultraviolet radiation) it dies in 2-3 hours, when dried and exposed to disinfectants, it dies instantly. Tolerates low temperatures well. The virus can be isolated from various environments of the body (blood, urine, feces, swabs from the mucous membranes of the oropharynx, conjunctiva, cerebrospinal fluid)

Epidemiology. Anthroponosis. The source of the disease is an exclusively infected person, also with an atypical form of measles disease. The infected person

is contagious from the last two days of incubation until the 4th day from the moment the rash appears, inclusive - from the 5th day the contagiousness disappears. Measles is one of the most contagious diseases in the world. The virus can remain in the air for up to 2 hours after the patient leaves the room. And upon contact with a patient, 9 out of 10 people without immunity to measles become ill.

Mechanism of transmission: airborne droplets (aerosol route), rarely transplacental (if a woman becomes ill at the end of pregnancy). Infection from recently vaccinated people is theoretically possible, but in practice this happens extremely rarely. There is a spring-winter seasonality. After an infection and a full course of vaccination, stable lifelong immunity develops. Anyone who is not imminent can become infected with measles—those who have not been vaccinated or those who have not developed immunity after vaccination. Unvaccinated young children are at the highest risk of measles disease and complications, including death. Measles is one of the leading causes of death among them. There were 134,200 measles deaths globally in 2015

Symptoms of measles. The incubation period in the typical form lasts from 9 to 11 days (in some cases up to 13). The onset of the disease is subacute (i.e., the main syndrome appears on the 2-3rd day from the onset of the disease), however, with proper preparation of the doctor (identification of pathognomonic enanthema - a rash on the mucous membranes), an acute onset can be determined (during the first day). In adulthood, due to the characteristics of the immune system, these criteria may not be met. Typical complaints of patients: increasing weakness, lethargy, loss of appetite, sleep disturbances, "sand in the eyes," swelling of the lower eyelids, sometimes a runny nose, increased body temperature (up to 39 °C). Then a sore throat develops, a dry cough appears, shortness of breath, there may be abdominal pain, diarrhea (layering of secondary flora), a rash appears (with its appearance, the

syndromes of general infectious intoxication and damage to the respiratory tract intensify). Objectively: one can note the occurrence of a maculopapular rash, which appears in typical cases on the 3-4th day of illness with pronounced stages (face, neck; then - torso, arms, thighs; then - legs and feet, and on the face at this moment turns pale). Belsky-Filatov-Koplik spots.

Symptoms of measles in children. Symptoms of measles in children and adults are similar. However, in young patients the disease is more severe and complications develop more often. Severe measles is common among malnourished children under 5 years of age and those whose immune systems are weakened by HIV/AIDS or other diseases. Three children out of 1000, according to statistics, die from measles due to neurological and respiratory complications.

Symptoms of measles in pregnant women. Measles in pregnant women is a fairly rare disease. This may be due to age and women's instinctive caution when interacting with people who may be sick, for example if the person has a rash. But in general, the disease in pregnant women is more severe due to physiological immunosuppression - the body's natural reaction to preserve the embryo. Infection in the early stages can lead to spontaneous miscarriage, stillbirth or missed abortion. This is due to viremia (long-term presence of the virus in the blood) and the fact that the pregnant woman does not have immunity that protects the fetus from the penetration of the virus. For a child, everything can end with malformations of the central nervous system with the risk of dementia, the development of inflammatory diseases of the cardiovascular and pulmonary systems, but the likelihood of their development is less than with rubella. If the patient becomes infected in the later stages, malformations usually do not occur, but the risk of developing subacute sclerosing panencephalitis, inflammatory multisystem lesions (pneumonia, colitis, otitis, skin lesions), as well as premature birth and prematurity, increases.

Diagnosis of measles

• detailed general clinical blood test (leukopenia, lymphocytosis and monocytosis, eosinopenia, normal ESR); if complications develop - appropriate changes;

• general clinical urine analysis (with the development of glomerulonephritis - proteinuria, cylindruria, hematuria);

• biochemical blood tests (increased AST in myocarditis);

• bacterioscopy (in the initial period and during the first 2 days of the rash, detection of Warthin-Finkelday cells in sputum, urine, nasopharyngeal mucus) - not used in practice;

• serological diagnostics (detection of antibodies of classes M and G in blood serum by ELISA, measles virus by PCR) - the standard of laboratory diagnostics;

• PCR diagnostics is possible from material from nasopharyngeal mucus, urine, and cerebrospinal fluid.

Class M antibodies detected during ELISA, characteristic of the acute phase of the disease, may be false positive in the presence of rheumatological diseases.

Treatment of measles. Bed rest. The bed should be facing the window with its head end - if you are ill, the light irritability of the eyes increases. If sleep is disturbed and insomnia appears, you should still try to go to bed on time. Treatment of measles with medications. There is no specific treatment against the measles virus. The prescription of drug therapy depends on the severity of the disease; in mild forms, a sufficiently enriched vitamin diet and a sufficient amount of liquid to drink are sufficient. In moderate forms, especially in adult patients, intravenous infusion solutions, expectorants, cleaning the oral cavity and conjunctiva with antiseptic solutions, and means of normalizing cardiac tone may be indicated. In severe conditions, the administration of specific anti-measles immunoglobulin, the administration of hormones, antibiotic therapy (if complications arise), intensive

care and resuscitation measures are included. Dispensary observation in uncomplicated cases - about one month, in case of complications - up to two years

Prevention. At the source of measles, a set of measures is carried out to localize and eliminate it:

• when a focus of infection is identified in kindergartens, schools, as well as in organizations with round-the-clock attendance of adults, from the moment the first patient is identified until 21 days from the moment the last patient is identified, persons who have not had measles and have not been vaccinated against this infection are not allowed into the team;

• patients with measles are required to be hospitalized;

• persons who have been in contact with measles patients are subject to medical observation for 21 days from the moment the last case of the disease is detected in the outbreak;

• in the source of infection, people are identified who are subject to immunization against this infection according to epidemic indications (that is, persons who have been in contact with the patient (if the disease is suspected), have not previously had measles, are not vaccinated, do not have information about vaccinations against measles, as well as people, vaccinated against measles once - without age limit). Immunization is carried out within the first 72 hours from the moment the patient is identified. As the radius of the outbreak increases, the immunization period can be extended to seven days from the moment the first patient is identified in the outbreak. Children who have not been vaccinated against measles are given normal human immunoglobulin no later than the 5th day after contact with the patient.

Vaccination against measles. The main method of specific prevention and protection of the population from measles is vaccine prevention. The measles

vaccine has been used for more than 50 years. It is safe, effective and inexpensive. Immunizing one child against measles costs about one US dollar.

Immunization of the population against measles is carried out within the framework of the national calendar of preventive vaccinations and the calendar of preventive vaccinations for epidemic indications. The only way to ensure that a patient is protected from measles is through a documented two-dose vaccine or a positive test result for class G specific antibodies. The effectiveness of a two-dose vaccine is at least 97%. If a previous illness or vaccination is not confirmed in any way, the doctor does not have the right to take the patient's word for it - he is obliged to vaccinate the patient or refer him for laboratory testing. Pregnant women who have been in contact with a person with measles cannot be vaccinated with a live vaccine, but passive immunization is recommended. To do this, the patient is administered measles human immunoglobulin once at a dose of 0.25 ml/kg body weight in the first 72 hours after contact.

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