

SCARLET FEVER IN THE MODERN WORLD: CHANGES IN ITS COURSE AND DIAGNOSTIC APPROACH

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Abstract. Streptococcal infection remains one of the most pressing health problems in all countries, which is determined by the widespread prevalence of group A streptococci and the enormous socio-economic damage caused by this pathology.

Streptococcal diseases are among the most frequently reported in the world. According to WHO, 18.1 million suffer from severe diseases caused by group A streptococci. About 1.8 million new cases are registered annually, over 500,000 people die, to this should be added over 11 million cases of streptoderma and 616 million cases of pharyngitis. Streptococcal sore throats occupy second place in the structure of acute respiratory diseases after influenza.

Key words: fever, tonsillitis, rash, sore throat.

СКАРЛАТИНА В СОВРЕМЕННОМ МИРЕ: ИЗМЕНЕНИЯ В ЕЁ ТЕЧЕНИИ И ПОДХОДАХ К ДИАГНОСТИКЕ

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Аннотация. Стрептококковая инфекция остается одной из наиболее острых проблем здравоохранения во всех странах, что обусловлено широким распространением стрептококков группы А и огромным социально-экономическим ущербом, причиняемым этой патологией.

Стрептококковые заболевания входят в число наиболее часто регистрируемых в мире. По данным ВОЗ, 18,1 миллиона человек страдают от тяжелых заболеваний, вызванных стрептококками группы А. Ежегодно регистрируется около 1,8 миллиона новых случаев, более 500 000 человек умирают, к этому следует добавить более 11 миллионов случаев стрептодермии и 616 миллионов случаев фарингита. Стрептококковые ангины занимают второе место в структуре острых респираторных заболеваний после гриппа.

Ключевые слова: лихорадка, тонзиллит, сыпь, боль в горле.

Objective. Scarlet fever as the main disease of streptococcal etiology still remains a serious epidemiological and clinical problem. The incidence of scarlet fever in recent years has been low, but often manifests itself in group outbreaks in children's groups. The widespread use of antibacterial drugs has led to the fact that mild and moderate forms of the disease currently predominate. However, the importance of streptococcal infection in the formation of chronic lesions of the nasopharynx is indisputable. The risk of streptococcal allergy and the development of heart and kidney damage is significant. Severe septic complications and even death is also possible.

Introduction. Scarlet fever is an acute infectious disease, the course of which is accompanied by damage to the nasopharynx, severe intoxication of the body and the appearance of characteristic rashes. The causative agent of the disease is group A streptococcus. Transmission of infection occurs by airborne droplets or by contact.

Symptoms of the disease are fever, general intoxication of the body, sore throat, inflammation of the regional lymph nodes, raspberry color of the tongue, rash with scarlet fever.

In 1556, the Italian physician Ingrassias first distinguished the symptoms of scarlet fever from those of measles. He named the new disease scarlet fever (from the Italian word *scarlatto*, meaning "purple"). A century later, the English physician Thomas Sydenham fully described the clinical picture of the disease.

Scarlet fever is now considered a distinct infectious disease. However, until the 16th century, it wasn't distinguished from other rash diseases. In 1556, the Italian physician Ingrassias first distinguished the symptoms of scarlet fever from those of measles. He named the new disease scarlet fever (from the Italian word *scarlatto*, meaning "purple").

A century later, the English doctor Thomas Sydenham fully described the clinical picture of the disease. In the pre-bacteriological era, ideas about scarlet fever were based on the miasmatic theory. It was believed to be the result of exposure to impurities. In the 1940s, the works of the couple Dick and V.I. Ioffe demonstrated the streptococcal etiology of the disease.

The last time the clinical characteristics of scarlet fever were assessed in Russia was 15-25 years ago. Researchers decided to update the data and examine the clinical manifestations of the disease in a modern metropolis. They analyzed 295 medical records of children hospitalized in Moscow clinics between 2020 and 2022.

Results and discussion. It's especially important to recognize the onset of symptoms in children who have recovered from COVID-19. They are 8.3 times more likely to develop severe scarlet fever than others. These findings were reached by a group of scientists from Sechenov University and Moscow medical organizations, led by Nikolai Briko, Academician of the Russian Academy of Sciences and Head of the Department of Epidemiology and Evidence-Based Medicine at the Sechenov University Institute of Public Health. The results were published in the September issue of the Russian Medical Journal.

Complications from scarlet fever occur in 12 percent of children, most often in schoolchildren. They typically appear within the first week. In most cases (over 70 percent), these are otitis media. Sinusitis occurs in 14 percent of children, while bullous otitis media (with the formation of blisters that significantly impair hearing) and community-acquired pneumonia occur in 6 percent. Three percent develop an oral abscess and toxic shock syndrome (the production of a toxin that can lead to inflammation). In the second week and later, the disease can cause allergic reactions, kidney complications, and, less commonly, heart and joint complications. Children who have had COVID-19 are more likely to develop serious complications such as post-infectious cardiomyopathy (a myocardial disease in which the heart enlarges or heart failure occurs), otitis media, acute tubulointerstitial nephritis (an inflammatory kidney disease), and toxic shock syndrome, the authors of the article listed.

They also found that scarlet fever symptoms are developing and lasting longer. Now, the rash lasts an average of 6.5 days, fever 4.5 days, throat redness 8 days, tonsil plaque 6 days, and tongue plaque nearly 4 days. However, studies conducted in Voronezh from 2013 to 2015 and in St. Petersburg from 1995 to 2022 yielded significantly lower results: the rash in children resolved in an average of 4 days, fever 3.5 days, and tongue plaque began clearing on the second day.

Furthermore, symptoms that were previously rare with scarlet fever have emerged. Now, one in five hospitalized patients experiences gastrointestinal symptoms, including vomiting, loose stools, and abdominal pain. The main symptoms, however, remain the same: a fever of 37.2-39 degrees Celsius or higher, a sore throat, and a bright red or pale pink rash on the body, consisting of small dots or papules. Weakness, loss of appetite, itching, and headaches may also occur. The average incidence rate in 2022 was 18.7 cases per 100,000 people. To prevent complications, including life-threatening ones, it's important to identify the disease as early as possible and prescribe antibiotic therapy, noted Nikolai Briko. However, since scarlet fever symptoms are similar to those of other infectious diseases, such as measles, rubella, and drug-induced dermatitis, a correct diagnosis is difficult without specialized tests. Scarlet fever is usually diagnosed when a child is already hospitalized. "Therefore, modern rapid laboratory

diagnostic methods need to be more widely implemented in clinical practice, including before hospitalization," the academician believes.

Conclusion. The lifting of COVID-19 anti-epidemic restrictions in 2022 led not only to a 3.6-fold increase in scarlet fever cases among children aged 0 to 18 years compared to 2021, but also, as a consequence, to an increase in hospitalizations in Moscow. The number of children hospitalized with scarlet fever in 2022 increased 18.0-fold compared to 2020. The majority of those hospitalized (83.4%) were preschool- and school-age children, including those aged 3 to 7 years (52.9%) and 7 to 15 years (39.3%), with an average disease severity of 93.6%. Of the children examined, 53 (18.0%) had a history of COVID-19, with one in five experiencing a severe form of scarlet fever.

In today's metropolitan settings, scarlet fever presents with a typical clinical picture. The overwhelming majority of children with scarlet fever had a moderate course, with various complications occurring in 12.2%. While hospitalizations have increased, the number of patients with severe scarlet fever has decreased, while the incidence of complications has remained unchanged (12.3–12.8%). Among patients who have had COVID-19, severe scarlet fever is 8.3 times more likely to occur compared to children without a history of COVID-19.

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