

MODERN CONCEPTS OF DIAGNOSIS AND TREATMENT OF RHEUMATIC FEVER IN CHILDREN

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Acute rheumatic fever – a systemic inflammatory disease of connective tissue with predominant localization of the process in the cardiovascular system, developing in connection with acute streptococcal infection in predisposed individuals, mainly at the age of 7–15 years.

Rheumatism was already known in the 5th century BC. Hippocrates wrote in his work “Four Books of Diseases”: “With arthritis, fever appears, acute pain seizes all the joints of the body, and these pains are sometimes sharper, sometimes weaker, affecting one or another joint.” In ancient times, doctors believed that inflammation in the joints was caused by some poisonous liquid spreading throughout the body. This is where the name of the disease came from - “rheumatism” (from the Greek “rheuma” - flow). Damage to the cardiovascular system was considered a complication of joint syndrome. After the publication of outstanding works by the French doctor Bouillot (1836) and the Russian doctor I.G. Sokolsky (1838), rheumatism was singled out as an independent disease that involves damage to the heart.

For more than a century and a half of studying this severe, often disabling disease, a connection between its development and streptococcal infection has been determined, a system of diagnostics, treatment and prevention has been developed and implemented. This contributed to a general decrease in the incidence of rheumatism by the middle of the twentieth century. However, in recent years, due to a number of negative socio-economic processes, ***a tendency towards an increase in the incidence of rheumatism in all age groups has been noted, and more intensively in children***. This tendency is also due to the presence of secular rhythms characteristic of aggressive streptococcal infection and a decrease in the sensitivity of streptococci to penicillins. A study of the dynamics of the epidemic process shows that in the last decade, streptococcal infection has appeared and is increasing, which is an analogue of that of past times, which can contribute to an increase in the frequency and severity of rheumatism. Therefore, in the future, the problem of rheumatism will not lose its relevance.

Prevention strategies are generally divided into primary, secondary, and tertiary interventions (3, 4). The goal of primary prevention is to prevent the development of a disease by eliminating specific risk factors or increasing a person's resistance to the disease. An example of this approach is vaccines against infections. The goal of

secondary prevention is to slow the transition from the latent or asymptomatic phase of the disease to the symptomatic phase. Thus, secondary preventive interventions attempt to interrupt the mechanisms of disease development before they develop into overt disease.

The goal of tertiary prevention is to delay or limit the impact of established disease (5). This is where most rheumatic diseases are currently treated, with rheumatologists typically performing tertiary prevention, attempting to prevent disease progression to disability or premature death after a patient has presented with clinically apparent disease (e.g., swollen joints in RA or skin rash in SLE). However, rheumatologists are less likely to perform primary or secondary preventive interventions in rheumatic diseases. As knowledge of risk factors for rheumatic diseases increases (e.g., smoking in rheumatoid arthritis (RA)) (6), primary prevention may become a higher priority for rheumatic diseases. Environmental risk factors are of great interest for rheumatic disease prevention strategies because they are potentially modifiable (7).

Cardiovascular diseases has increased throughout the world . This is explained, on the one hand, by the successes of modern medicine, which has significantly improved the prognosis of most cardiovascular diseases, and on the other hand, by the fact that these diseases are now much more common than before. The continuous increase in morbidity has led to the problem of prevention and treatment of these diseases becoming a problem of national importance in many countries. Rheumatic diseases occupy a significant place in the structure of morbidity and mortality from cardiovascular diseases . According to a number of authors [6, 21, 42, 59], the prevalence of chronic heart diseases in Kazakhstan is 89.7 per 100,000 population. The social significance of rheumatic diseases is due to economic losses in public production, the negative impact on labor potential due to the constantly lengthening period of temporary and permanent loss of ability to work, and the increasing mortality of people of working age.

The negative social impact is also caused by the constant growth of general and primary morbidity in all age groups of the population of the Republic of Kazakhstan.

Data from official medical statistics and in-depth scientific research show that the achievements in the organization of rheumatological care for the population achieved in the 60-80s of the last century have now been lost, and new organizational and methodological approaches to its organization have not yet been developed.

The relevance of the problem of developing rheumatological care in the public health system is determined by the need to find new methodological approaches to increasing the effectiveness of primary and secondary prevention, organization of diagnosis, treatment and medical rehabilitation of patients with rheumatic diseases, based on the introduction of new organizational and clinical technologies.

Statistics of rheumatic diseases in the Republic of Kazakhstan do not always correctly reflect the real state of affairs. One of the reasons leading to a decrease in the level of rheumatic diseases is their unreliable registration, insufficient qualification of district doctors and doctors of the cardiorheumatology service in matters of diagnosis, prevention, treatment and rehabilitation of rheumatological diseases.

Acute rheumatic fever, previously designated as "active rheumatism", in the Republic of Kazakhstan amounted to 36.6 cases per 100,000 of the population. In the Russian Federation, its level is 2.0 per 100,000, in Ukraine - 1.7 per 100,000. Apparently, in our country there is a hyperdiagnosis of acute rheumatic fever, when cases of various joint pains accompanied by fever are attributed to this nosology, while not paying enough attention to the generally accepted criteria of the disease.

According to the summarized data of the WHO (1989), the incidence of rheumatism in economically developed countries began to decline at the beginning of the 20th century and especially significantly over the last 40 years, which coincides with the period of intensive introduction of antibiotics into rheumatism treatment and prevention programs. At present, the detection of new cases of rheumatic fever is 5 cases per year per 100,000 population.

At the same time, in some countries of the Mediterranean and Asia-Pacific region, the incidence of rheumatic fever fluctuates widely - from 27 to 116 cases per 100,000 population. In industrialized European countries, the prevalence of rheumatic heart disease among school-age children fluctuated within 0.09-0.16, and in developing countries - 15-22 cases per 1000 [2].

The fact that the problem of rheumatism has not been resolved is indicated by outbreaks of the disease that have occurred in the last decade in the USA and European countries. In developing countries, 10 to 20 million new cases of rheumatic fever are registered annually.

This confirms the opinion of scientists that rheumatism will not disappear as long as group A streptococci circulate, and the population of our planet cannot be rid of this group of streptococci within the next fifty years. According to Academician A. I. Nesterov (Moscow, 1978), without streptococci there is neither rheumatism nor its relapses.

Pathogenetic concepts of rheumatic carditis formation are based on the theory of abnormal immune reaction to streptococcal antigens, which is based on cross-reactions between various structures of GABHS and host proteins. Recently, this theory has received a number of new proofs of the existence of homology of the streptococcal M-protein molecule and tropomyosin, the pexin fragment of M-5 and sarcolemma, the ability of antibodies to 3 epitopes of serotypes M3, M5, M18 to react with heart tissue. The obtained data confirmed the concept of molecular mimicry as the main pathogenetic mechanism of the influence of streptococcal infection in rheumatic

carditis: antibodies formed in response to streptococcal antigens cross-react with host autoantigens .

In 2000-2002, the European Society of Cardiology published data on the possible trigger role of viruses, heat stress proteins 15

shock in the formation of relapses of rheumatic fever and rheumatic carditis. However, the discussed mechanisms do not allow us to answer the question of why rheumatic fever and rheumatic carditis develop only in a small number of patients who have had a disease caused by BSGA. The answer lies in the recognition of the genetic predisposition of people to the development of rheumatic diseases. Risk factors for the development of rheumatism currently include: the presence of rheumatism and connective tissue deficiency in first-degree relatives, female gender, age, adolescence, previous acute streptococcal infections and frequent nasopharyngeal infections, as well as the presence of some genetic markers.

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