# Modern infectious structure of myocarditis I.V. Fadeev, E.N. Berezina (MC "BIO-FALL", Voronezh, Russia)

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#### Introduction

In most cases, myocarditis is part of the manifestations of multiple organ damage in systemic pathological processes. In accordance with the main reasons, all myocarditis is divided into 3 groups:

- infectious (infectious toxic);

- allergic (immunopathological, autoimmune);

- toxic and allergic.

Myocarditis is often associated with endocarditis and pericarditis. In the last 10–15 years, not so much an increase in the incidence of myocarditis has been noted, but a change in the structure of this pathology. In a number of regions of our country, non-rheumatic forms almost double the incidence of rheumatic myocarditis.

Almost any infectious agent can cause myocarditis. In the middle of the last century, it was believed that the most common were bacterial infectious-toxic myocarditis caused by diphtheria and scarlet fever. However, according to a number of modern scientists (Roitberg G.E., Strutynsky A.V., 2007), in more than half of the cases, the causative agents of myocarditis are now the Coxsackie viruses of group B. Although most cardiologists recognize the main infectious nature of this disease, in practice in in half of the cases, the etiology of myocarditis cannot be established.

The second group of causes that cause myocarditis is based on allergic or immunopathological reactions, including the use of drugs, serums, vaccines, etc. Often, autoimmune myocarditis develops in systemic diseases of the connective tissue, bronchial asthma, burns, transplants, etc. In addition, this group also includes autoimmune myocardial lesions, which develop as a result of a past infection. As a rule, without exacerbation of the disease, the presence of viral particles in cardiomyocytes and interstitial tissue cannot be detected by most modern diagnostic methods. There are also no extracardiac manifestations of infection. In these cases, the cellular and humoral immune response, "triggered" by an infectious agent, is of primary importance in the development of inflammation of the heart muscle.

G, autoimmune complexes, complement and other aggressive immune factors that damage cardiomyocytes. Such infectious-allergic myocarditis is only a further stage of damage to the heart muscle by an infectious agent (P.Kh. Janashia et al., 2000).

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The causes of myocarditis of the third group (toxic-allergic) is a direct pathological effect on the myocardium of various chemical and biologically active substances (for example, an excess of thyroid hormones, uric acid salts, toxic chemical compounds used in industry, agriculture, alcohol, drugs, etc.) ... In this case, immune inflammation occurs in the heart muscle according to the type of delayed-type hypersensitivity reaction.

## Relevance

Despite the widespread use of modern anti-inflammatory, antibacterial and antiviral agents, the frequency of myocarditis does not decrease, but only changes its structure. According to a number of reputable cardiologists, this is not at all a rare pathology (up to 10% with biopsy, who died from cardiovascular diseases).

### Purpose of the study

Study of the modern infectious structure of myocarditis.

## **Research objects**

Patients diagnosed with myocarditis, which is clinically established (35 people).

## Studied phenomena

The term myocarditis unites a large group of inflammatory diseases of various etiology and pathogenesis of myocardial lesions. What infections are the basis for the leading characteristic of myocarditis inflammation.

## Research methods and results obtained

A study and analysis of the data obtained using autonomic resonance testing on the APK "IMEDIS-EXPERT" was carried out in 35 patients with a diagnosis of myocarditis who have contacted us over the past five years:

- the most frequent was the combined viral-bacterial nature of the disease 68% (24 people);
- less often, only viral myocardial damage was noted 20% (7 people);
- bacterial myocarditis 12% (4 people).

In more detail, the modern etiological structure of myocarditis caused by infectious agents is as follows: in 63% of patients (22 people) one of the influenza viruses was detected, in 46% (16 people) - hemolytic streptococcus, in 28% (10 people) - scarlet fever, in 17% (6 people) - one of the coxsackie viruses, in 6% diphtheria and pneumococcus (2 people each). Herpes zoster, mononucleosis, measles or rubella were noted in no more than 3% (1 person each).

## Discussion

Most often, myocarditis develops in response to exogenous exposure to microorganisms or toxic substances. The above are only the infectious causes of this disease, which should be paid attention first of all when carrying out diagnostic measures. In addition, we would like to note that auto-aggressive processes in the myocardium were established in no less than in polio patients according to the results of the study. In addition, the toxic effect of antibacterial drugs on the myocardium was determined in at least a quarter of patients. From the anamnesis it became clear that they were frivolous about the frequent use of potent antibiotics, and this further provoked the development of a toxic-allergic process in the myocardium. The result was the transition of acute inflammation into a chronic sluggish autoimmune process and the consolidation of new pathological mechanisms that are much more difficult to treat. Latent immunopathological processes lead to latent heart failure and more severe and sudden consequences.

Separately, we would like to note such a useful feature of the IMEDIS software as a flexible interface design for the user's personal needs. For example, each doctor in the section "user groups" can create folders for themselves that greatly facilitate both the diagnostic process and the selection of a suitable drug.

#### conclusions

Based on the study, the following conclusions were made:

1. In the modern etiological structure of both acute and chronic myocarditis, the main triggering role is played by various influenza viruses and streptococci.

2. A huge number of uncontrolled (without preliminary selection) The drugs used contribute to both the formation of mutant forms of microorganisms and the development of severe, sometimes late diagnosed autoimmune myocardial lesions.

3. An excess of chemical and toxic substances with which modern a person is forced to face every day creates an additional load on the myocardium and provokes new toxic-allergic reactions in it.

4. This research method allows you to changepicture ofmodern etiological structure of myocarditis,especially withthe autoimmune nature of the disease.especially with

5. Rational use of the possibilities of early etiological diagnostics helps to identify both the individual cause of the developed inflammation in the myocardium, and to choose an adequate treatment.

In conclusion, we would like to say that the software "IMEDIS" has a good resource for systematizing their own experience for each doctor and analyzing what information signs he really needs. I would like to think that the time has come for a deep cleansing of irrelevant information, and this should become the basis for the competent use of both the method itself and the release of the equipment to a qualitatively new stage of its development.

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I.V. Fadeev, E.N. Berezina Modern infectious structure of myocarditis // XVIII