

## Mitral Insufficiency Origin in Modern Interpretation and Prevention

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**Abstract:** The heart acts as a pump. It forces blood to move through arteries and veins, and also passes through the lungs, where vital gas exchange takes place: red blood cells and erythrocytes are released from carbon dioxide (a product of tissue metabolism) and then saturated with oxygen - it is necessary for the normal functioning of all cells of the body.

**Keywords:** What is Mitral Regurgitation, Types of Mitral Regurgitation, Causes of Mitral Regurgitation, Symptoms of Mitral Regurgitation, Complications

The human heart has two halves (left and right) and four main chambers (two atria and two ventricles), separated by two valves. It is a conduction mechanism that does not allow blood to move in the opposite direction during contraction of the heart muscle - systole.

The first section is the right atrium. Here, blood saturated with carbon dioxide flows from the whole body through the veins. As a result of the contraction, the right atrium opens the tricuspid valve and allows some of the blood to flow into the right ventricle, at which point it relaxes. Then it also contracts and, in turn, pushes blood into the pulmonary artery (this is an exception, because venous blood actually flows through it). From there it enters the lungs and is saturated with oxygen.

Blood from the lungs flows through the pulmonary veins (another exception - they actually carry arterial blood) to the left atrium. By contracting, the atrium opens the mitral valve, and oxygenated blood enters the relaxed left ventricle, then, as it contracts, exits into the main artery (aorta) and is distributed throughout the body.

Structure of the heart: tricuspid and mitral valves

With mitral insufficiency or mitral insufficiency (Latin prefix re - "reverse movement" and gurgitare - "flooding"), the mitral valve cannot perform its function for one reason or another. As a result, blood from the left ventricle begins to partially return to the left atrium.

**With mitral insufficiency, part of the left ventricular blood returns to the left atrium.**

During the closing phase of the mitral valve, a slight reverse movement of blood from the left ventricle to the left atrium can be observed even in healthy people - this is a normal option. For example, this

phenomenon occurs in 5-6% of healthy women. But if the reverse blood flow exceeds the permissible values in terms of volume (more than 5 ml) or area, a disorder is diagnosed.

Mitral regurgitation is present in approximately half of patients with various heart defects. Most often it occurs in children.

Types of mitral insufficiency

Symptoms, as well as treatment methods for mitral insufficiency depend on the cause of the disorder, its effect on the heart and blood circulation.

The condition can be congenital or acquired.

**There are two main types of acquired mitral regurgitation:**

primary (degenerative) failure - associated with problems with the valve itself, in which it does not work properly. For example, its valves do not close completely due to deformities or developmental anomalies;

secondary (functional) failure - is not directly related to the valve mechanism and occurs as a result of other heart diseases.

Depending on the volume of blood returning to the atrium, as well as the length and area of the flow, mild, moderate and severe mitral insufficiency are distinguished. The severity of symptoms and possible complications of the disease depend on the severity of the disorder.

**Also, acquired mitral insufficiency can be acute or chronic.**

The acute form develops spontaneously and quickly, for example, due to an acute myocardial infarction and subsequent rupture of the papillary muscle, which is responsible for closing the valve. Acute mitral insufficiency makes itself felt almost immediately: the atrium and ventricle do not have time to adapt to changes in blood pressure in the heart, which can lead to blood stagnation, pulmonary edema, or a drop in blood pressure. Acute mitral regurgitation may require emergency medical attention.

With chronic mitral insufficiency, the disorder develops without problems. The heart gradually adapts to new working conditions: the atrium and ventricle are stretched (dilation occurs), the heart muscle thickens (hypertrophy). In this case, the disease enters a compensated phase, and symptoms of mitral valve insufficiency may not bother a person for years. Therefore, he does not see a doctor until the first alarming symptoms appear. If the disorder is detected by a doctor during a routine heart examination, the diagnosis can surprise the patient.

The classification of congenital mitral insufficiency in children is more extensive. Its development differs depending on the course and severity of the disease.

**Due to development:**

isolated defects of the mitral valve;

degenerative diseases (for example, hereditary);

defects caused by other congenital heart defects.

The causes of congenital mitral insufficiency are acute (related to lack of oxygen, infections or abnormalities in the structure of the circulatory system), chronic (this includes congenital diseases, the consequences of infections, changes in the heart muscle) and can be.

The functional characteristics of the disease depend on how the mitral valve leaflets work:

normal movement of valves (the cause of the disease may be a defect in their structure, for example,

rupture);  
prolapse of the valves - they literally sink;  
limiting valve mobility;  
abnormal structure of the muscles that control the mitral valve.

According to the severity of mitral insufficiency in children, it is divided into four categories:

Stage A - there are risk factors for the development of the disease;

Stage B - asymptomatic progressive mitral insufficiency;

Stage C - severe asymptomatic mitral valve insufficiency;

Stage D - severe mitral valve regurgitation with symptoms.

**Causes of mitral regurgitation**

Primary mitral insufficiency develops due to disorders related to the functioning of the mitral valve itself, for example, congenital developmental anomalies, degenerative changes in the leaflets, their stretching and sagging - called mitral valve prolapse.

In the case of primary regurgitation, defects in the function or structure of the mitral valve can occur due to genetic predisposition, congenital heart defects, and age-related changes. Separately, the effect of rheumatic fever (systemic inflammation of the connective tissue) or infection should be noted, which damages the cover tissues, which leads to scarring. Hereditary connective tissue diseases can also be the cause.

Secondary mitral insufficiency can develop against the background of other heart diseases. These include myocardial infarction, congenital defects of other parts of the heart, and cardiomyopathy - a mechanical or electrical dysfunction of the heart muscle in which it cannot contract and relax sufficiently.

In addition, infections that cause heart failure can cause secondary mitral regurgitation. For example, infectious endocarditis is an inflammation of the inner lining of the heart, and formations consisting of plants - fibrin, platelets and microorganisms are formed on the leaflets of the heart valves.

### **Symptoms of mitral regurgitation**

In acute mitral insufficiency, shortness of breath at rest, a feeling of lack of air, weakness and swelling can be observed - these symptoms are associated with a violation of oxygenated arterial blood supply to tissues. In severe cases, mitral insufficiency can lead to a strong decrease in blood pressure (arterial hypotension) and multisystem damage to internal organs, because they suffer from hypoxia - oxygen starvation. A cough with pink, frothy sputum may also occur. If the mitral insufficiency is secondary and developed as a result of other disorders related to heart function, symptoms of the disease may come to the fore. With a myocardial infarction, for example, this is sweating, fear of death and pain behind the sternum in the area of the heart, radiation of the neck, shoulder blade or left arm.

Mitral regurgitation can lead to serious heart problems, such as myocardial infarction

With a bacterial infection that affects the work of the heart and causes inflammation of its tissues, a person's temperature rises, shivering and general weakness appear. And since bacteria often enter through the right atrium and ventricle, the tricuspid valve can also fail at the same time - its function is similar to the mitral valve, but it separates the right atrium and ventricle.

Chronic mitral regurgitation, unlike acute mitral regurgitation, can be accompanied by a gradual (over many years) worsening of symptoms. Symptoms develop slowly with changes in the size of the left ventricle and atrium, hypertrophy of the heart muscle, and involvement of the right chambers of the

heart. Early symptoms of chronic mitral regurgitation may include mild shortness of breath, dizziness, and poor exercise tolerance. With the development of heart failure (a condition in which the heart cannot perform the function of pumping blood in the required volumes), cough and edema appear.

**The main symptoms of mitral insufficiency:**

shortness of breath;  
increased fatigue;  
cough (with or without pink sputum);  
the feeling of a heartbeat;  
swelling of the limbs.

**Complications**

Acute mitral insufficiency is dangerous because it leads to disruption of normal blood circulation and heart failure. As a result, retention of blood in the lungs can cause their swelling, and the high load on the left atrium and ventricle can cause cardiogenic shock. This condition is manifested by a decrease in blood pressure, and as a result, important organs are left without blood supply. This leads to dysfunction and subsequent death if the person is not treated immediately.

In addition, mitral insufficiency can cause atrial fibrillation - atrial fibrillation, the atrium contracts chaotically and very often. As a result, the blood remains and often begins to thicken. In this case, there is a high risk of blood clots in the left atrium. After they are formed, they enter directly into the carotid artery system, and from there into the cerebral vessels. Thrombosis of cerebral arteries causes ischemic stroke.

If a clot enters the bloodstream, it becomes an embolus - literally a foreign object that blocks any artery. In this case, the blood supply in the area supplied by the artery stops completely. In many cases, thrombosis can lead to serious consequences (for example, ischemic stroke) or the rapid death of a person.

**List of used literature:**

1. Andryev S. et al. Experience with the use of memantine in the treatment of cognitive disorders //Science and innovation. – 2023. – T. 2. – №. D11. – C. 282-288.
2. Antsiborov S. et al. Association of dopaminergic receptors of peripheral blood lymphocytes with a risk of developing antipsychotic extrapyramidal diseases //Science and innovation. – 2023. – T. 2. – №. D11. – C. 29-35.
3. Asanova R. et al. Features of the treatment of patients with mental disorders and cardiovascular pathology //Science and innovation. – 2023. – T. 2. – №. D12. – C. 545-550.
4. Begbudiyevev M. et al. Integration of psychiatric care into primary care //Science and innovation. – 2023. – T. 2. – №. D12. – C. 551-557.
5. Bo'Riyev B. et al. Features of clinical and psychopathological examination of young children //Science and innovation. – 2023. – T. 2. – №. D12. – C. 558-563.
6. Borisova Y. et al. Concomitant mental disorders and social functioning of adults with high-functioning autism/asperger syndrome //Science and innovation. – 2023. – T. 2. – №. D11. – C. 36-41.
7. Ivanovich U. A. et al. Efficacy and tolerance of pharmacotherapy with antidepressants in non-psychotic depressions in combination with chronic brain ischemia //Science and Innovation. – 2023. – T. 2. – №. 12. – C. 409-414.
8. Karshiyev Z. et al. The degree of adaptation to psychogenic effects in social life in patients with psychogenic asthma //Science and innovation. – 2023. – T. 2. – №. D11. – C. 295-302.

9. Konstantinova O. et al. Clinical and psychological characteristics of patients with alcoholism with suicidal behavior //Science and innovation. – 2023. – T. 2. – №. D11. – C. 399-404.
10. Konstantinova O. et al. Experience in the use of thiamine (vitamin B1) megadose in the treatment of korsakov-type alcoholic encephalopathy //Science and innovation. – 2023. – T. 2. – №. D12. – C. 564-570.
11. Kosolapov V. et al. Modern strategies to help children and adolescents with anorexia nervosa syndrome //Science and innovation. – 2023. – T. 2. – №. D12. – C. 571-575.
12. Lomakin S. et al. Biopsychosocial model of internet-dependent behavior. Risk factors for the formation of the internet //Science and innovation. – 2023. – T. 2. – №. D12. – C. 205-211.
13. Lomakin S. et al. Features of electroencephalographic disorders in patients with mental disorders due to brain damage or dysfunction //Science and innovation. – 2023. – T. 2. – №. D12. – C. 367-372.
14. Lomakin S. et al. Socio-demographic, personal and clinical characteristics of relatives of patients with alcoholism //Science and innovation. – 2023. – T. 2. – №. D12. – C. 278-283.
15. Lukasheva A. et al. Psychosomatic relationships in different age groups in patients with facial dermatosis //Science and innovation. – 2023. – T. 2. – №. D11. – C. 289-294.
16. Malakhov A. et al. Modern views on the treatment and rehabilitation of patients with dementia //Science and innovation. – 2023. – T. 2. – №. D12. – C. 322-329.
17. Malakhov A. et al. Problems of prevention of socially dangerous behavior by individuals with mental disorders //Science and innovation. – 2023. – T. 2. – №. D11. – C. 405-412.
18. Nematillayevna S. D. et al. Psychological factors for the formation of aggressive behavior in the youth environment //Science and Innovation. – 2023. – T. 2. – №. 12. – C. 404-408.
19. Nikolaevich R. A. et al. Comparative effectiveness of treatment of somatoform diseases in psychotherapeutic practice //Science and Innovation. – 2023. – T. 2. – №. 12. – C. 898-903.
20. Novikov A. et al. Alcohol dependence and manifestation of autoaggressive behavior in patients of different types //Science and innovation. – 2023. – T. 2. – №. D11. – C. 413-419.
21. Ochilov U. et al. Factors of alcoholic delirium patomorphosis //Science and innovation. – 2023. – T. 2. – №. D12. – C. 223-229.
22. Ochilov U. et al. The main forms of aggressive manifestations in the clinic of mental disorders of children and adolescents and factors affecting their occurrence //Science and innovation. – 2023. – T. 2. – №. D11. – C. 42-48.
23. Ochilov U. et al. The question of the features of clinical and immunological parameters in the diagnosis of juvenile depression with "subpsychotic" symptoms //Science and innovation. – 2023. – T. 2. – №. D12. – C. 218-222.