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ADVANTAGES AND DISADVANTAGES OF MODERN METHODS OF DIAGNOSIS OF CARDIOVASCULAR DISEASES IN A MODERN INTERPRETATION

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Abstract

Cardiovascular diseases remain one of the main causes of death in many countries of the world. However, most of these diseases can be prevented or successfully treated, especially if they are detected early. In order to quickly identify any pathology, it is important to know how to properly check the condition of the heart.

In this article, we will look at the various methods and tests that can help assess the health of this important organ, what steps you can take to maintain a healthy heart, and what symptoms may indicate potential problems.

Key words: Symptoms of heart diseases, early diagnosis, prevention, first aid.

How to Check Your Heart Health

Cardiovascular diseases can be manifested by various symptoms, they can be both open and hidden, knowing these symptoms is the key to quickly seek help and start treatment. Even if you don't find all the signs on the list, you should not ignore unusual feelings, especially if they become frequent or intensify over time.

1. Chest pain

This is one of the most common and serious symptoms of heart disease. A feeling of pressure, tightness or pain in the chest can indicate various diseases.

2. Shortness of breath

Shortness of breath or difficulty breathing, especially during exercise or at rest, may be a sign of heart or lung problems.

3. Fatigue and weakness

Persistent fatigue or weakness, especially if not explained by exercise or stress, may be a problem with circulation caused by heart disease.

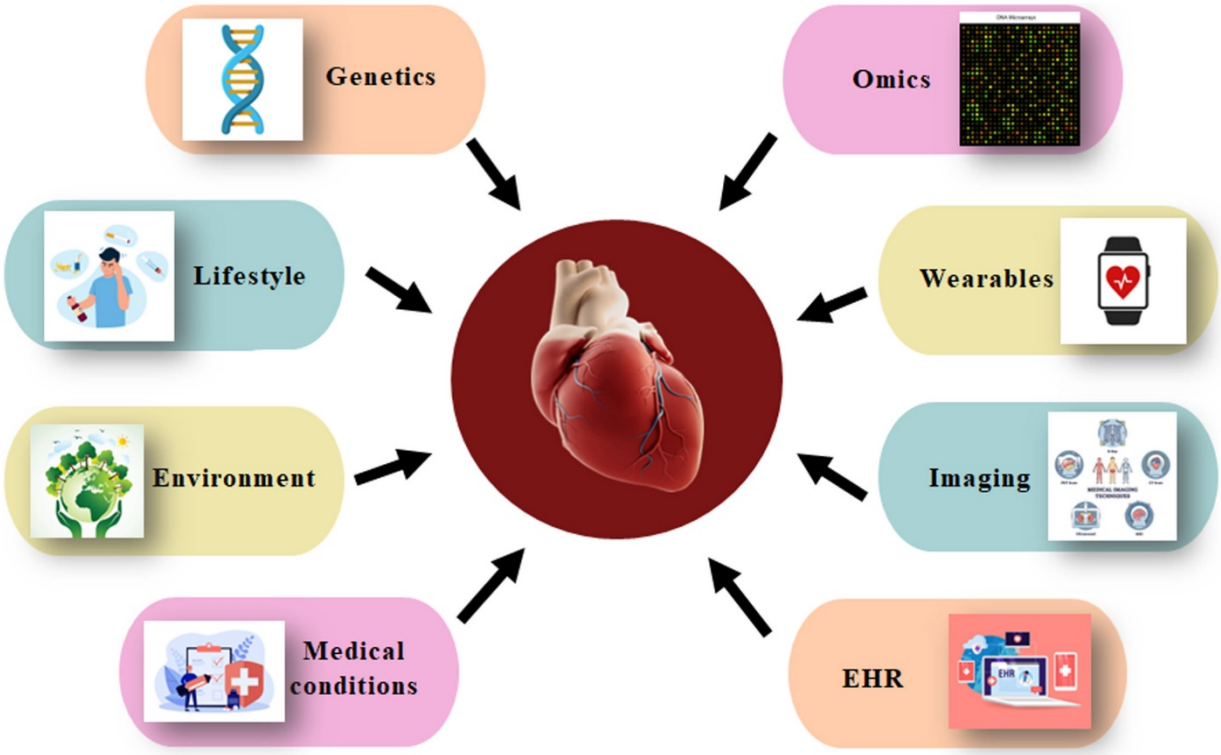
4. Fear and anxiety

A person may experience strange feelings of fear, anxiety, or unreasonable restlessness, which may be associated with heart rhythm disturbances.

5. Swelling

Swelling in the legs, ankles, or abdomen can be a sign of congestive heart failure, where the heart can't pump blood efficiently.

6. Pain and discomfort in other areas



Pain and discomfort in the neck, back, shoulders, jaws or arms can sometimes indicate heart problems, especially in women.

These symptoms can be signs of serious heart problems, but they can also be caused by other medical conditions. In any case, if you notice at least one of these signs, it is important to consult a doctor for further diagnosis.

Methods of detecting heart diseases

How to Check Your Heart Health

Modern medicine offers a variety of modern functional research methods, which allow doctors to more accurately assess the state of the cardiovascular system.

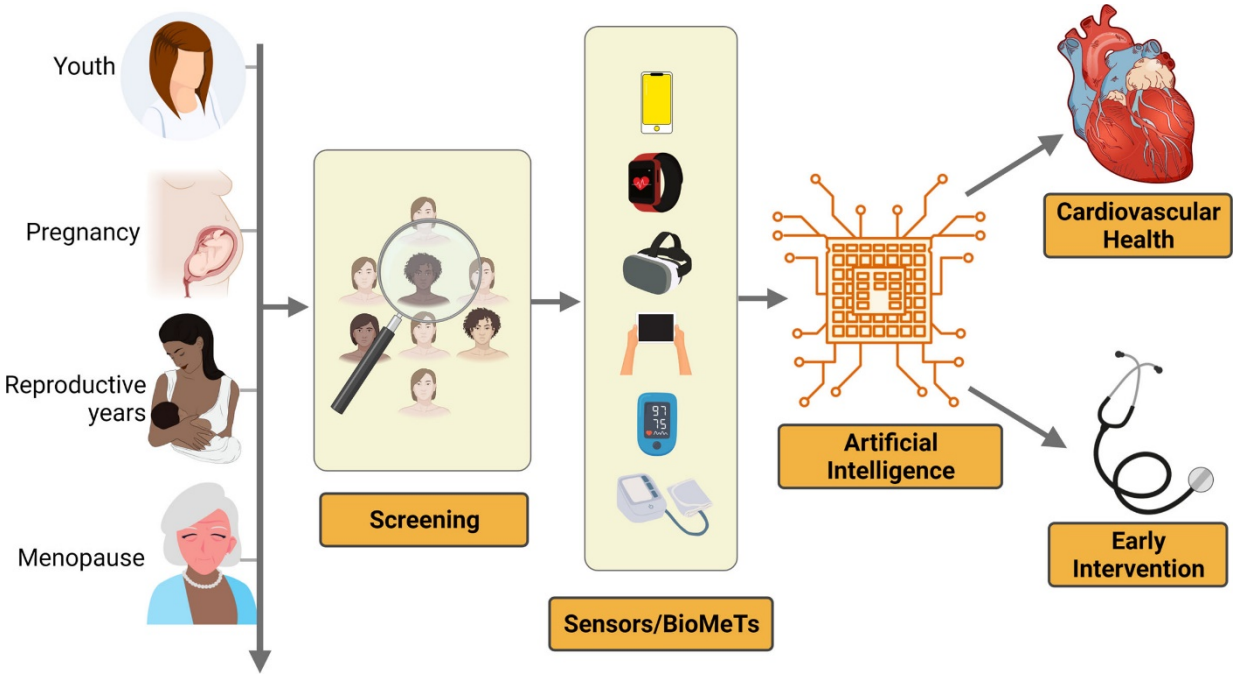
Various graphic methods of heart examination:

Electrocardiography (ECG)

Electrocardiography (ECG) is one of the most common methods of studying the heart. It allows recording the electrical activity of the heart and identifying interruptions in its activity. A 6-lead

ECG provides more detailed information about the heart's activity and is used to diagnose a variety of conditions such as arrhythmia, ischemia, and myocardial infarction.

ECG is performed by attaching electrodes to the skin of the patient's chest and limbs. Electrodes record the heart's electrical activity over time and create a graphic image of the heart's rhythm. Later, the specialist interprets the cardiogram and gives a conclusion.



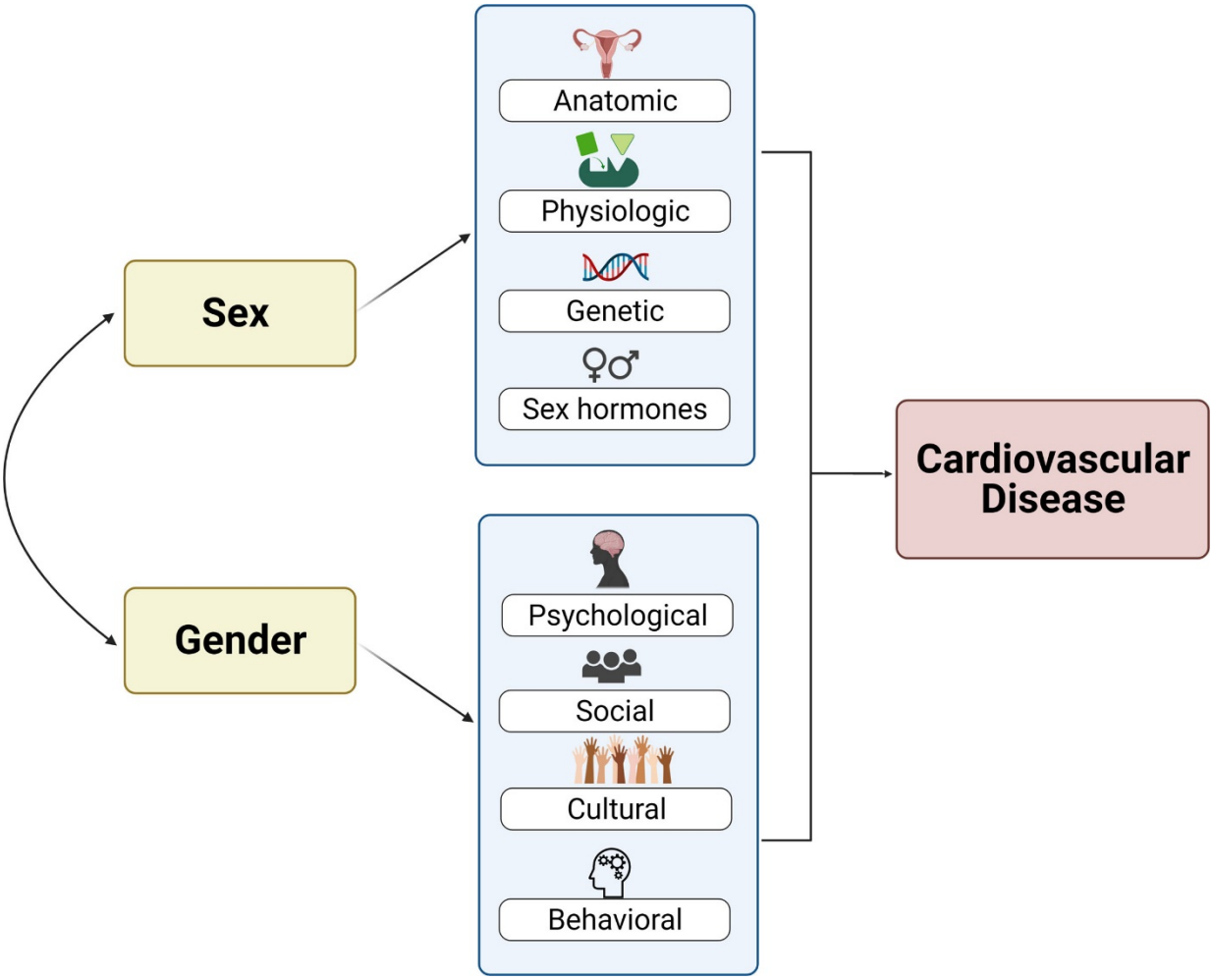
ECHO-cardiography or ultrasound examination of the heart (ultrasound examination of the heart)

Ultrasound provides images of the heart with high resolution and detail. This method uses ultrasound waves to visualize the structures of the heart and assess their function. Ultrasound examination of the heart makes it possible to detect defects, determine the size of the heart, evaluate the function of the valves and identify other pathologies.

Ultrasound examination of the heart is performed using an ultrasound probe placed on the patient's chest. The transducer creates an image of the heart and its valves, producing sound waves that bounce off the structures of the heart.

Holter heart rate monitoring

Holter heart rate monitoring is a continuous recording of the heart's electrical activity over a long period of time, usually 24 or 48 hours. This method makes it possible to detect interruptions in the heart rhythm that are difficult to detect in a regular ECG.



Holter heart rate monitoring involves wearing a small, portable device that records the electrical activity of the heart for 24 to 48 hours.

Cardiological examination is a comprehensive examination of the cardiovascular system, which includes not only the cardiologist's examination, but also the necessary instrumental and laboratory examinations. It is aimed at determining the risk of developing cardiovascular diseases, diagnosing existing pathologies and assessing the general condition of the cardiovascular system.

Radiation methods for studying the heart

X-ray of the chest

Chest X-ray is one of the simplest and most common imaging methods. It provides images of the heart, lungs and blood vessels. This method is used to detect heart enlargement and other pathologies.

Cardiac computed tomography (cardiac CT)

Cardiac computed tomography provides detailed images of the heart and blood vessels. CT angiography allows visualization of coronary arteries and assessment of their patency, stenoses, aneurysms and calcifications.

Cardiac magnetic resonance imaging (cardiac MRI)

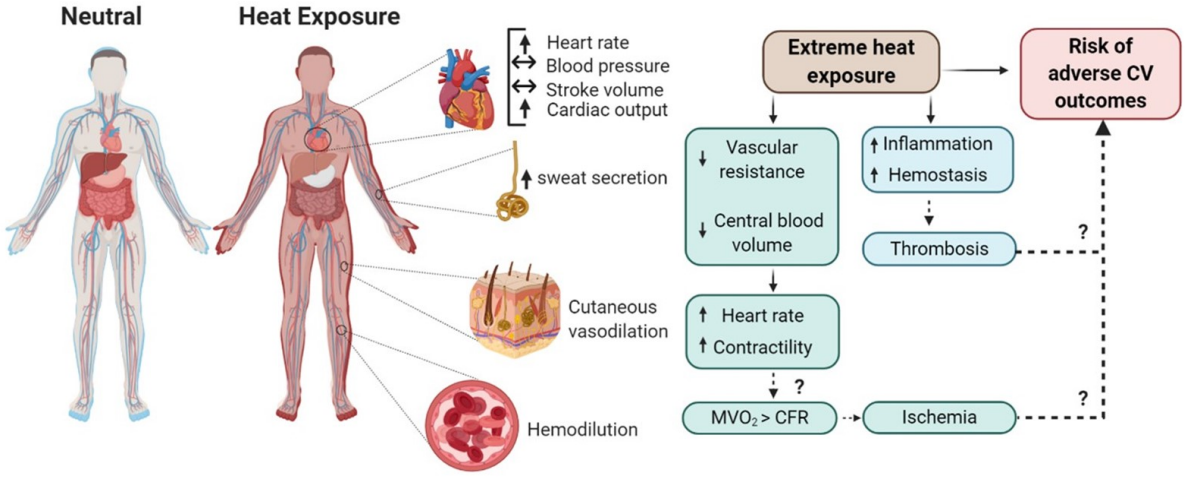
Cardiac MRI uses magnetic fields and radio waves to produce high-quality images of the heart and blood vessels. This method allows you to evaluate the anatomy and function of the heart, to identify inflammatory processes, as well as to evaluate the myocardium and valves in detail. Cardiac MRI does not use ionizing radiation, which makes it safe for patients.

Methods of studying radionuclides

Radionuclide techniques such as myocardial scintigraphy, single photon emission computed tomography (SPECT) and positron emission tomography (PET) use radioactive substances to visualize blood flow and metabolic activity of the heart. These methods help to identify the ischemic areas of the myocardium and assess the condition of the heart tissue.

Angiography

Angiography or coronary angiography is an invasive examination, but it involves X-rays using contrast material. This method allows you to visualize the coronary arteries in real time and assess their patency, detect stenosis and aneurysms. Angiography is often used before procedures such as angioplasty or stent placement.



Non-invasive methods of heart examination, such as electrocardiography (ECG), cardiac ultrasound (echocardiography), Holter heart rate monitoring, radionuclide methods (myocardial scintigraphy, SPECT, PET), computed tomography (CT) and magnetic resonance imaging (MRI), providing detailed information about the condition of the heart and blood vessels without surgical intervention. These methods allow detection of arrhythmia, ischemia, heart failure and other diseases. Extensive cardiac examination, including heart examination, conducted at the capital's medical clinic allows timely diagnosis and prevention of cardiovascular diseases.

How to Check Your Heart Health

If you suspect heart problems, it is important to consult a cardiologist who will prescribe the necessary tests, diagnose and offer appropriate treatment.

The two main specialists you can refer to are a cardiologist and a general practitioner.

Cardiologist

A cardiologist is a doctor who deals with the diagnosis, treatment and prevention of diseases of the heart and blood vessels. A cardiologist examines the patient, including taking a medical history, interpreting diagnostic test results such as EKG, cardiac ultrasound, and Holter monitoring. He or she may also recommend treatment, including medications, procedures, or surgery, if needed.

A cardiologist treats a wide range of cardiovascular conditions, including:

Coronary heart disease (angina, myocardial infarction)

Cardiac arrhythmias (atrial fibrillation, atrial fibrillation)

Heart valve diseases (mitral stenosis, aortic insufficiency)

Peripheral vascular diseases (varicose veins, thrombosis)

Therapist

A general practitioner is a general practitioner who has extensive knowledge in various areas of medicine, including cardiology. He can conduct an initial assessment of the patient's condition, identify risk factors and refer him to a cardiologist for further diagnosis and treatment. A doctor also treats common conditions that can affect the heart, such as hypertension, diabetes, and hyperlipidemia.

Various laboratory tests may be required to evaluate your cardiovascular health.

Plasma glucose

This test determines the level of glucose (sugar) in the blood. Elevated glucose levels can indicate metabolic disorders, including diabetes, which is a risk factor for cardiovascular disease.

Triglycerides and total cholesterol

Triglycerides and total cholesterol are lipid indicators. Elevated levels of these fats in the blood can be associated with atherosclerosis and increase the risk of cardiovascular diseases such as coronary heart disease and myocardial infarction.

HDL cholesterol and LDL cholesterol

These tests measure cholesterol levels carried by high-density lipoproteins and low-density lipoproteins, respectively. Elevated levels of LDL cholesterol and decreased levels of HDL cholesterol are associated with an increased risk of atherosclerosis.

C-reactive protein (highly sensitive method)

This test measures the level of inflammation in the body. Elevated levels can be an indicator of chronic inflammation;

Na:K:Cl

This test measures sodium, potassium, and chlorine levels in the blood. Electrolyte imbalance may be associated with arrhythmia.

General urinalysis with sediment microscopy

This analysis helps to determine the presence of pathologies in the urinary system, which may also be related to heart diseases.

Complete blood list (leukocytes, erythrocytes, hemoglobin, platelets, ESR, etc.)

This test gives a general picture of the state of the body, including the presence of inflammation (ESR), anemia (hemoglobin), as well as other diseases that may be related to the cardiovascular system.

Usually, the tests are taken on an empty stomach, after an overnight fast of 8-12 hours.

Before the tests, you should avoid physical activity and stress.

Some tests may require special preparation, such as temporarily stopping medication or diet 1-2 days before the test.

Prevention of heart failure

Most cardiovascular diseases can be prevented or slowed by a healthy lifestyle and regular checkups.

Basic preventive measures to help keep the heart healthy:

Healthy eating

A balanced diet rich in fruits, vegetables, whole grains, lean proteins, and healthy fats can help control weight, cholesterol, and blood pressure.

Physical activity

Regular exercise can help strengthen the cardiovascular system, lower cholesterol and blood pressure, improve circulation, and help control weight.

Giving up bad habits

Smoking and alcohol consumption are risk factors, giving up or reducing their consumption can significantly reduce the risk of pathologies;

Regular medical examinations

Regular visits to the doctor can help identify and manage risk factors for various diseases, such as high cholesterol, diabetes, obesity, and more.

Cardiological examination is a comprehensive examination of the cardiovascular system, which includes the following procedures:

Complete medical history and examination by a cardiologist (initial and repeated).

Instrumental studies: 6-way electrocardiography, interpretation and ultrasound examination of the heart (ECHO-cardiography).

Laboratory tests: general blood test, blood test for glucose, cholesterol, platelets, ESR, urinalysis, etc., depending on individual indicators.

This complex approach allows to determine the risk of developing heart diseases, diagnose existing pathologies and assess the general condition of the cardiovascular system.

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