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ULTRASONOGRAPHY OF THE HEART OR ECHOCARDIOGRAPHY (ECHOCG)

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ANNOTATION

Ultrasound examination of the heart - echocardiography (EchoCG) - is one of the leading methods for studying the structure and function of the heart. Together with electrocardiography, coronary angiography (X-ray and tomography), the method makes it possible to understand all the processes occurring in the heart.

Keywords: EchoCG, coronary angiography,heart,modes.

INTRODUCTION

Ultrasound is widely used in clinical practice. For the last For several decades, the method has become one of the most common and important, which provides the diagnosis of many diseases. Methodology has no contraindications, is safe, it is distinguished by a sufficiently high diagnostic efficiency (diagnostic accuracy in a number of diseases in comparison with pathoanatomical data reaches more than 80%) simplicity, no radiation exposure (allows you to explore pregnant women and children), non-invasiveness, the possibility of various research, as well as the fact that it is carried out in real time. Ultrasound equipment can be delivered to any medical institution for the examination of severe, non-transportable patients. More one advantage is the simultaneous study of many organs and systems, which is especially important in a complex clinical picture. A significant advantage over other methods of radiation diagnostics is the cost-effectiveness of the method.

Don't wait for an emergency. In case of discomfort in the chest, shortness of breath and swelling, as well as a feeling of irregularity in the pulse, it is necessary to contact a cardiologist and undergo an ultrasound of the heart (EchoCG).

You can not hesitate with an ultrasound study if the following symptoms were noticed:

- Recurrent or frequent pain in the heart or arm;
- Feeling of heaviness or burning in the region of the heart;
- Increased blood pressure;
- Rhythm disturbances: arrhythmia, tachycardia (increased heart rate) or bradycardia (slow heart rate);
- Dyspnea;
- Fast fatiguability;
- Numbness of the limbs;
- Previous myocardial infarction (to monitor the patient's condition);

Lag in height and weight in a child, as well as excessive restless behavior of the baby or his lethargy, as well as if you know you have a heart condition.

Doctors prescribe an ultrasound of the heart for suspected:

- Congenital heart defect;
- Heart murmurs;

- Heart failure;
- Chronic hypertension with high blood pressure;
- Ischemic heart disease (heart attack, angina pectoris);
- Diseases of the membranes of the heart (cardiomyopathy, pericarditis).

Ultrasound Can Detect:

- Ischemic disease;
- Myocardial infarction or pre-infarction condition;
- Arterial hypertension and hypotension;
- Congenital and acquired heart defects;
- Heart failure;
- Rhythm disturbances;
- Rheumatism;
- Myocarditis, pericarditis, cardiomyopathy;
- Vegetative dystonia.

EchoCG Uses the Following Modes:

B-mode - direct 2D visualization of the heart and different approaches using different sections. Shows the dimensions of the chambers, the thickness of the walls of the various chambers, the area of the valve holes and the structure of the valves, gives an assessment of the contractile activity of the ventricles of the heart.

M-mode - is more indicative and historically more "ancient", however, it is still used for some calculations of the size of the left ventricle, its walls, aorta.

D - mode - this is a study of the quality of intracardiac blood flow: determination of interchamber shunts (septal defects) and the quality of intervalvular blood flow.

Thus, the presence and degree of stenosis (narrowing) of the valve openings, the insufficiency of their cover (assessment of the degree of insufficiency - regurgitation) are determined.

Also, this method helps to determine the diastolic dysfunction of the left and right ventricles (i.e., the function of relaxation of the ventricles), provided that the sinus rhythm is preserved.

We are also considering installing the following modes on our device:

- ✓ Tissue doppler:
- ✓ Assessment of the movement of atrioventricular (valve) rings at any rhythm - an accurate assessment of the systolic function of the ventricles;
- ✓ Speckle tracking (strain technology, vector analysis):
- ✓ Assessment of left ventricular myocardial deformation in all planes — accurate digital assessment of contractility and deformability of the left ventricular myocardium.

This is the latest technology that allows you to assess the violation of local contractility in coronary artery disease. Unlike traditional methods for assessing contractility, strain shows a change in deformation properties during minimally invasive (stenting) and traditional (bypass) interventions on the coronary arteries.

Evaluation of the asynchrony of contraction and deformation of the myocardium in heart failure and evaluation of the effectiveness of resynchronization therapy.

Thus, the combination of tomographic coronary angiography and echocardiography with the use of tissue Doppler provides complete information about the work of the heart.

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