FEATURES ULTRASOUND DIAGNOSTICS

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ANNOTATION

The indisputable advantages of ultrasound research include high information content, the possibility of simultaneous examination of several organs and repeated repetition of procedures in a short period of time, ease of implementation, no radiation exposure (radiation), harmlessness to the patient and affordable cost compared to other diagnostic methods.

Key words: diagnostic methods, radiation, ultrasound.

Ultrasound examination (echography, scanning) is the only highly informative, safe non-invasive method that allows dynamic monitoring of the fetus from the earliest stages of its development.

The basis of ultrasound diagnostics is the reverse piezoelectric effect. Ultrasonic waves, differently reflected from organs and tissue structures, are captured by a receiver located inside the sensor and converted into electrical impulses. These pulses are reproduced on the screen in proportion to the distance from the sensor to the corresponding structure..

Ultrasound is an airborne vibration from 20 khz to 1000 mhz, inaudible to the human ear. In ultrasound diagnostics, a narrower frequency spectrum is used: from 1 to 25 MHz. (therefore, this study is safe, because there is no radiation, as with many other diagnostic methods).

Ultrasound machines use several different modes for examination. One of the most modern is elastography. Elastography is an assessment of the stiffness (elasticity) of tissues. It is mainly used in the case of identified education, which is especially important in oncology (with a high degree of reliability, it is possible to determine the benign or malignant nature of the pathological process).

Using this mode (elastometry), it is possible to determine the stage of liver fibrosis, which is especially important in patients with various hepatitis to determine the correct treatment tactics and now there is no need for a liver biopsy.

Physicians sometimes overestimate the value of ultrasound. It should be recalled that the doctor of ultrasound diagnostics gives an opinion, and the diagnosis is made by the attending physician based on the entire set of examination data, analyzes and other studies.

Ultrasound is a rather subjective technique, so the same data can be interpreted by doctors in different ways. It makes no sense to overestimate the images attached to the study protocol, since the image directly depends on the settings of the ultrasound machine and printer, the section angle, etc.

The qualifications of the doctor are also important, since various acoustic noise and artifacts can give a picture of those diseases that the patient does not have.

There may be limitations in the study of some structures due to the inability of the patient to raise, rotate or bend a limb when examining the musculoskeletal system.

Benefits of ultrasound diagnostics:

- the ability to study most organs and systems;
- availability and speed of research;
- no contraindications;
- high information content;
- safety, non-invasiveness;
- the possibility of repeated repetition of procedures to clarify the diagnosis, monitor the course of the disease, track the dynamics of treatment;
- the ability to conduct screening examinations for the prevention and early detection of pathology, etc.

LITERATURE

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