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MRE Imaging Technique to Evaluate Different Levels of Liver Fibrosis

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Magnetic Resonance Elastography (MRE) is a non-invasive technique based on MRI used to quantify the mechanical properties of tissues *in vivo*. MRE is performed using a source of vibrations to generate low-frequency mechanical waves (20 - 200 Hz).

In the above-mentioned technique, we can specify three steps:

- generation of transverse waves in the tissue,

- obtaining images showing the propagation of induced transverse waves,

- transverse waves images processing to get quantitative tissue stiffness maps (elastograms).

MRE is used for clinical evaluation of patients with chronic liver diseases, which allows assessing the degree of liver fibrosis. Pathological changes are characterized by increased stiffness.

This technique is considered as a non-invasive and safe alternative to liver biopsy.

Liver fibrosis is the proliferation of the connective tissue of the organ that occurs during excessive accumulation of extracellular matrix proteins (the basis of connective tissue). This process is observed in most types of chronic liver disease.

In our research work, we have examined 100 volunteers in the age of 18-25 years.

We have measured the liver stiffness of each patient and analyzed results.

On the basis of the results we received, volunteers were classified into groups according to the degree of liver stiffness.

Biography:

Vitaliy Atamaniuk is a student of University of Rzeszów, Poland. He was studying Diagnostic Systems in medicine. He participated in a research project that specializes in Magnetic Resonance Elastography. For 3 years, he has been conducting research related to liver disorders such as liver fibrosis, non-alcoholic fatty liver disease or cirrhosis. Luckily, none of his young volunteers had serious problems with the liver. However, he cooperated with Government Hospital and he has the opportunity to examine patients, which have different liver diseases.