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Transient elastography: changing clinical practice in hepatology

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Transient elastography is one of several new approaches that have recently been proposed to manage liver diseases. This quantitative method is used in clinical practice to assess liver fibrosis non-invasively and rapidly. The technique consists in generating low-frequency elastic shear waves through the liver and measuring their velocity using ultrafast pulse-echo ultrasound acquisition. Liver stiffness is directly related to shear waves velocity.

Nowadays more than 400 devices (Fibroscan®, Echosens, Paris, France) are being used worldwide in clinical practice. Studies reported a strong correlation between liver stiffness and the fibrosis stage obtained by liver biopsy in patients with chronic liver diseases: hepatitis B and/or C, HCV co-infection, HIV, alcoholism, etc. Stiffness measurements obtained using transient elastography are in good agreement with measurements performed using other elastography techniques (magnetic resonance elastography and radiation force).

Main limitations of transient elastography are related to the morphology of the patients. Examinations may be difficult or impossible in overweighted to obese patients and in children. New probes have been developed for children and obese patients. Using these probes and dedicated measurement procedures the performance of transient elastography is significantly improved. The development of transient elastography currently focuses on heterogeneous stiffness measurement.