

Liver Elastography (AB-45)

Targeted screening of populations at increased risk for advanced liver disease is advised to identify and manage those with clinically significant fibrosis.

Although liver biopsy remains the reference standard for the grading and staging of nonalcoholic steatohepatitis (NASH), it has important limitations related to risk, cost, and sampling error.¹⁴ Noninvasive biomarkers are emerging as valuable tools for predicting adverse liver-related outcomes.

The most validated laboratory-based fibrosis biomarker is FIB-4, which outperforms other calculations in its ability to identify patients with a low probability of advanced fibrosis. A FIB-4 score > 2.67 is associated with a high risk of advanced fibrosis.

Liver stiffness is a physical characteristic of the liver that increases with fibrosis severity. Vibration Controlled Transient Elastography (VCTE), e.g., Fibroscan, is the most commonly used method to assess liver stiffness. Transient elastography (VCTE) is the most studied elastography technique and informs multiple evidence-based guidelines with respect to fibrosis scoring. No national evidence-based guideline recommends the use of either ARFI or real-time tissue elastography (RTTE) over the use of VCTE for any clinical protocol, nor is there direct evidence that ARFI or RTTE improves health outcomes over and above VCTE. VCTE-derived liver stiffness measurement (LSM) of < 8 kPa can be used to rule out advanced fibrosis, especially if used with FIB-4. An LSM between 8 and 12kPa may be associated with fibrotic NASH, and a value > 12 kPa is associated with a high likelihood of advanced fibrosis.

For the assessment of cirrhosis in individuals with hepatitis C, the American Gastroenterological Association (AGA) noted that MRE has little to no increase in identifying cirrhosis, but had poorer specificity and thus higher false-positive rates than VCTE. In view of this, the AGA concluded that MRE has a poorer diagnostic performance in this setting, compared to VCTE. In their recommendations for the assessment of fibrosis in chronic liver disease, VCTE was recommended over MRE with the exception of NAFLD in high-risk populations, in which MRE resulted in a lower rate of false positives compared to VCTE.⁶

Magnetic Resonance Elastography (MRE) is more sensitive than VCTE in detecting fibrosis stage ≥ 2 and is considered the most accurate noninvasive, imaging-based biomarker of fibrosis in NAFLD. Although MRE is not the first-line approach for risk stratification, it becomes an important tool when clinical uncertainty exists, concomitant cross-sectional imaging is needed, there is a discrepancy between the clinical picture and VCTE results, or when VCTE is unavailable. MRE is also useful when VCTE is limited by BMI ≥ 35 or when use of an XL probe has failed. Among patients with cirrhosis, baseline LSM by MRE most accurately predicts future risk of hepatic decompensation and death.

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