



Liver stiffness in nonalcoholic fatty liver disease: A comparison of supersonic shear imaging, FibroScan, and ARFI with liver biopsy

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Résumé en
anglais

Nonalcoholic fatty liver disease (NAFLD) has become a major public health issue. The goal of this study was to assess the clinical use of liver stiffness measurement (LSM) evaluated by supersonic shear imaging (SSI), FibroScan, and acoustic radiation force impulse (ARFI) in a cohort of NAFLD patients who underwent liver biopsy. A total of 291 NAFLD patients were prospectively enrolled from November 2011 to February 2015 at 2 French university hospitals. LSM was assessed by SSI, FibroScan (M probe), and ARFI within two weeks prior to liver biopsy. Calculations of the area under the receiver operating curve (AUROC) were performed and compared for the staging of liver fibrosis. AUROC for SSI, FibroScan, and ARFI were 0.86, 0.82, and 0.77 for diagnoses of \geq F2; 0.89, 0.86, and 0.84 for \geq F3; and 0.88, 0.87, and 0.84 for F4, respectively. SSI had a higher accuracy than ARFI for diagnoses of significant fibrosis (\geq F2) ($P = 0.004$). Clinical factors related to obesity such as body mass index ≥ 30 kg/m², waist circumference ≥ 102 cm or increased parietal wall thickness were associated with LSM failures when using SSI or FibroScan and with unreliable results when using ARFI. In univariate analysis, FibroScan values were slightly correlated with NAFLD activity score and steatosis ($R = 0.28$ and 0.22 , respectively), whereas SSI and ARFI were not; however, these components of NAFLD did not affect LSM results in multivariate analysis. The cutoff values for SSI and FibroScan for staging fibrosis with a sensitivity $\geq 90\%$ were very close: 6.3/6.2 kPa for \geq F2, 8.3/8.2 kPa for \geq F3, and 10.5/9.5 kPa for F4.

CONCLUSION: Although obesity is associated with an increase in LSM failure, the studied techniques and especially SSI provide high value for the diagnosis of liver fibrosis in NAFLD patients. (Hepatology 2016;63:1817-1827).

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