

MAGNETIC RESONANCE ELASTOGRAPHY AND FIB-4
ARE SUPERIOR TO VIBRATION CONTROLLED TRANSIENT
ELASTOGRAPHY FOR DIAGNOSING ADVANCED FIBROSIS AND
CIRRHOSIS IN VETERANS WITH BIOPSY PROVEN NAFLD

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Background: Vibration controlled transient elastography (VCTE) and magnetic resonance imaging (MRI) techniques provide noninvasive diagnosis of fibrosis and steatosis in patients with nonalcoholic fatty liver disease (NAFLD). However, its clinical application among the Veterans with NAFLD is unknown.

Methods: Veterans who underwent VCTE, MRI & liver biopsy for NAFLD evaluation (scored per NASH-CRN criteria) were included. Quality assessment, agreement between tests, and receiver operating characteristic curve analyses(AUROC) were performed to compare CAP and HFF for steatosis (grades 0-3), and TE, MRE, FIB-4, APRI and NFS for fibrosis (stages 0-4) with respect to biopsy analyses.

Results: 210 Veterans (92% males, 61% White, age 59±10 years, BMI 33±7 kg/m²) were studied. Of these, 109 had MRE and 105 had HFF. 95% percent of VCTE had adequate quality [IQR/med(%) ≤30%]. Agreement with liver histology improved from fair to moderate for CAP and moderate-to-good for HFF using newly derived AUROC cutoffs (CAP: S0 ≤268, S1≤307, S2≤329, S3>329; HFF: S0≤6.9%, S1 7%-11.6%, S2 11.7%-15.4% and S3>15.4%). The AUROCs for diagnosing steatosis and fibrosis were: HFF (0.90; 95% CI, 0.82-0.95) vs. CAP (0.80; 95% CI, 0.72-0.88; p=0.13) and MRE (0.74, 95% CI 0.64-0.82) vs. VCTE (0.64; 95% CI, 0.54-0.73, p=0.60). Blood-based biomarkers and imaging parameters were compared with fibrosis staging on biopsy. MRE best distinguished F0 vs. any stage of fibrosis. For advanced fibrosis(F3-4 vs. ≤F2), MRE outperformed VCTE (p=0.04) and discriminated cirrhosis(F4) (p=0.02). Notably, comparable AUROC was observed for FIB-4 and MRE in cirrhosis.

Conclusion: In this cohort of Veterans, we demonstrate diagnostic concordance between CAP and HFF for steatosis, and VCTE and MRE for fibrosis. Current VCTE cutoffs show fair-to-moderate agreement with histology for steatosis. MRE and FIB-4 were superior to VCTE in diagnosing advanced fibrosis/cirrhosis in Veterans with NAFLD. These findings merit further validation to define criteria specific for Veterans.