



Diagnostic accuracy and prognostic significance of blood fibrosis tests and liver stiffness measurement by FibroScan in non-alcoholic fatty liver disease

Submitted by Véronique Bourgeais on Tue, 02/12/2019 - 15:49

Titre	Diagnostic accuracy and prognostic significance of blood fibrosis tests and liver stiffness measurement by FibroScan in non-alcoholic fatty liver disease
Type de publication	Article de revue
Auteur	Boursier, Jérôme [1], Vergniol, Julien [2], Guillet, Anne [3], Hiriart, Jean-Baptiste [4], Lannes, Adrien [5], Le Bail, Brigitte [6], Michalak, Sophie [7], Chermak, Faiza [8], Bertrais, Sandrine [9], Foucher, Juliette [10], Oberti, Frédéric [11], Charbonnier, Maude [12], Fouchard-Hubert, Isabelle [13], Rousselet, Marie-Christine [14], Calès, Paul [15], de Ledingham, Victor [16]
Editeur	Elsevier
Type	Article scientifique dans une revue à comité de lecture
Année	2016
Langue	Anglais
Date	Septembre 2016
Numéro	3
Pagination	570-8
Volume	65
Titre de la revue	Journal of hepatology
ISSN	1600-0641
Mots-clés	Biomarkers [17], Biopsy [18], Cross-Sectional Studies [19], Humans [20], Liver Cirrhosis [21], Longitudinal Studies [22], Non-alcoholic Fatty Liver Disease [23], Prognosis [24]

BACKGROUND & AIMS: NAFLD is highly prevalent but only a small subset of patients develop advanced liver fibrosis with impaired liver-related prognosis. We aimed to compare blood fibrosis tests and liver stiffness measurement (LSM) by FibroScan for the diagnosis of liver fibrosis and the evaluation of prognosis in NAFLD.

METHODS: Diagnostic accuracy was evaluated in a cross-sectional study including 452 NAFLD patients with liver biopsy (NASH-CRN fibrosis stage), LSM, and eight blood fibrosis tests (BARD, NAFLD fibrosis score, FibroMeter(NAFLD), aspartate aminotransferase to platelet ratio index (APRI), FIB4, FibroTest, Hepascore, FibroMeter(V2G)). Prognostic accuracy was evaluated in a longitudinal study including 360 NAFLD patients.

RESULTS: LSM and FibroMeter(V2G) were the two best-performing tests in the cross-sectional study: AUROCs for advanced fibrosis (F3/4) were, respectively, 0.831 ± 0.019 and 0.817 ± 0.020 ($p \leq 0.041$ vs. other tests); rates of patients with $\geq 90\%$ negative/positive predictive values for F3/4 were 56.4% and 46.7% ($p < 0.001$ vs. other tests); Obuchowski indexes were 0.834 ± 0.014 and 0.798 ± 0.016 ($p \leq 0.036$ vs. other tests). Two fibrosis classifications were developed to precisely estimate the histological fibrosis stage from LSM or FibroMeter(V2G) results without liver biopsy (diagnostic accuracy, respectively: 80.8% vs. 77.4%, $p = 0.190$). Kaplan-Meier curves in the longitudinal study showed that both classifications categorised NAFLD patients into subgroups with significantly different prognoses ($p < 0.001$): the higher was the class of the fibrosis classification, the worse was the prognosis.

CONCLUSIONS: LSM and FibroMeter(V2G) were the most accurate of nine evaluated tests for the non-invasive diagnosis of liver fibrosis in NAFLD. LSM and FibroMeter(V2G) fibrosis classifications help physicians estimate both fibrosis stage and patient prognosis in clinical practice.

LAY SUMMARY: The amount of liver fibrosis is the main determinant of the liver-related prognosis in patients with non-alcoholic fatty liver disease (NAFLD). We evaluated eight blood tests and FibroScan in a cross-sectional diagnostic study and found that FibroScan and the blood test FibroMeter(V2G) were the two most accurate tests for the non-invasive evaluation of liver fibrosis in NAFLD. A longitudinal prognostic study showed these two tests initially developed for the diagnosis are also prognostic markers as they allow for the stratification of NAFLD patients in several subgroups with significantly different prognosis.

Résumé en anglais

URL de la notice	http://okina.univ-angers.fr/publications/ua18832 [25]
DOI	10.1016/j.jhep.2016.04.023 [26]
Lien vers le document	https://www.journal-of-hepatology.eu/article/S0168-8278(16)30167-2/fulltext
Titre abrégé	J. Hepatol.
Identifiant (ID) PubMed	27151181 [28]

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Publié sur *Okina* (<http://okina.univ-angers.fr>)