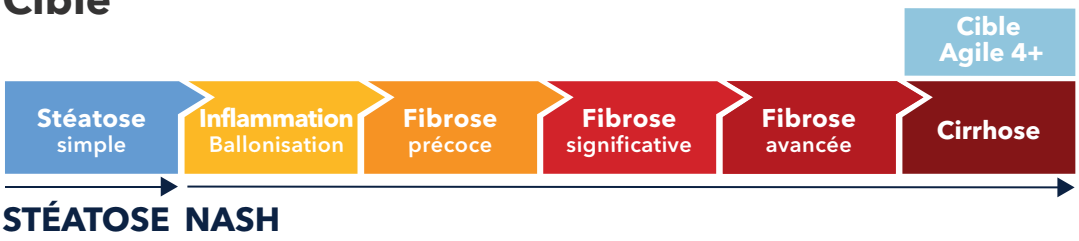
Scores
by echosens

Agile 4

Identification de la cirrhose chez les patients NAFLD

La cirrhose est une des principales causes de mortalité dans le monde. L'identification précoce de la cirrhose chez les patients aide à prendre en charge la maladie de manière proactive au moyen de dépistages des maladies hépatiques, telles que le carcinome hépatocellulaire et les varices œsophagiennes.

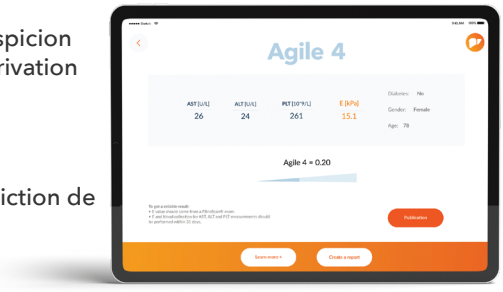
Cible



Construction

Performance

- Excellentes performances chez les patients avec suspicion de NAFLD calculées dans de larges cohortes de dérivation et de validation provenant de différentes origines géographiques
- Exclusion optimale de la présence de cirrhose
- Sensibilité et VPP* optimisées dans la zone de prédiction de la présence de cirrhose
- Nombre réduit de patients dont le diagnostic reste indéterminé



Accès gratuit au calcul du score via l'application myFibroScan

myFibroScan

Google Play App Store

Application gratuite

Références :

- Improving diagnosis of cirrhosis in patients with NAFLD by combining Liver Stiffness Measurement (LSM) by Vibration-Controlled Transient elastography (VCTE) and routine biomarkers: a global derivation and validation study, Z.M. Younossi, S.A. Harrison, P.N. Newsome, W.K. Chan, Y. Yilmaz, M.H. Poster AASLD, 2020
- A.J. Sanyal, J. Foucquier, Z.M. Younossi, S.A. Harrison, P.N. Newsome, W.K. Chan, Y. Yilmaz, V. De Ledinghen, C. Costentin, M.H. Zheng, V.W.S. Wong, M. Elkhashab, R.S. Huss, R.P. Myers, A. Labourdette, M. Destro, C. Fournier-Poizat, V. Miette, L. Sandrin, J. Boursier, "Enhanced diagnosis of advanced fibrosis and cirrhosis in non-alcoholic fatty liver disease patients with FibroScan-based Agile scores", article en cours d'examen

*VPP Valeur prédictive positive
NAFLD : Stéatopathie non alcoolique / NASH : Stéatohépatite non alcoolique / AST : ASpartate-aminoTransférase
ALT : ALanine-aminoTransférase / LSM : Mesure de l'élasticité du foie

CE

Validation clinique AASLD 2020 et ILC 2021

	Derivation cohort	Internal validation cohort	Muticentric US external validation cohort	Multicentric French external validation cohort
N patients	**1434**	**700**	**585**	**1042**
AUROC [95% CI]	0.91	0.89	0.93	0.89
Rule out cut-off	<0.25			
% patients	67%	68%	77%	81%
Se/Sp	0.85/0.82	0.79/0.83	0.87/0.86	0.71/0.88
NPV	0.97	0.96	0.98	0.96
Indeterminate zone	≥0.25 - < 0.57			
% patients	17%	16%	13%	11%
Rule in cut-off	≥0.57			
% patients	17%	16%	10%	8%
Se/Sp	0.55/0.95	0.53/0.96	0.55/0.97	0.44/0.97
PPV	0.63	0.65	0.72	0.68

Se Sensitivity/Sp Specificity/NPV Negative Predictive Value/PPV Positive Predictive Value

Poster AASLD 2020

Improving diagnosis of cirrhosis in patients with NAFLD by combining liver stiffness measurement by vibration-controlled transient elastography and routine biomarkers: a global derivation and auteurs validation study

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BACKGROUNDS: Currently available noninvasive tests, including FIB-4 and liver stiffness measurement (LSM) by VCTE (FibroScan), are highly effective in excluding cirrhosis yet their ability to rule in cirrhosis is more modest. Our objective was to develop and validate a new score (F4 score), combining LSM with routine clinical parameters to identify cirrhosis in NAFLD patients, with optimized positive predictive value (PPV) and reduced number of cases with indeterminate results.

METHODS: This multi-national, retrospective study included 7 cohorts of adults with suspected NAFLD who underwent liver biopsy (LB), LSM by VCTE, and phlebotomy in either routine clinical practice or during screening for clinical trials. The population was randomly divided into a training set (TS; 2/3 of pool), on which the best fitting logistic regression model was built, and an internal validation set (VS; 1/3 of pool), on which performance and goodness of fit of the model were assessed. An additional cohort from 8 US centers was used as an external VS (NASH CRN). Cut-offs with 85% sensitivity and 95% specificity in the TS were derived to rule out and rule in cirrhosis, respectively.

RESULTS: 2719 patients were included (TS, n=1434; internal VS, n=700; external VS, n=585). The optimal new F4 score combined LSM, AST/ALT ratio, platelets, gender, and presence of diabetes mellitus. Calibration plots for both the internal and external VS did not show misspecification of the model. For the diagnosis of cirrhosis, the AUCs of the F4 score in the TS, internal VS, and external VS were 0.91, 0.89, and 0.93, respectively. In the external VS, the F4 score outperformed LSM and FIB-4 in terms of AUC, percentage of patients with indeterminate results, sensitivity, and PPV to rule-in cirrhosis, while maintaining equivalent performance characteristics to exclude cirrhosis.

CONCLUSION: A novel noninvasive score including LSM by VCTE and routine clinical parameters improves the identification of cirrhosis among patients with NAFLD and may reduce the necessity of liver biopsy in this patient population.

ILC 2021

Prognostic value of Agile scores in patients with non-alcoholic fatty liver disease

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BACKGROUND AND AIMS: Recently, Agile 4 and Agile 3+, two scores combining liver stiffness measurement (LSM) by vibration-controlled transient elastography (VCTE) with routine clinical parameters were proposed to diagnose cirrhosis and advanced fibrosis in NAFLD patients, respectively. The objective of the present work was to assess the prognostic accuracy of Agile 4 and Agile 3+ for the prediction of liver-related events (LRE) and to compare them to LSM alone.

METHOD: This retrospective study included adults with NAFLD from a French tertiary care center who underwent LSM and blood sampling as part of routine clinical practice. The main study outcome was LRE, a composite endpoint combining cirrhosis complication or hepatocellular carcinoma LRE were ascertained by chart review. Cut-off values of Agile 4 and Agile 3+ previously determined (1) and Baveno cut-off values for LSM (10kPa - 15kPa) were used to define the rule-out, indeterminate and rule-in zones at baseline. Kaplan-Meier curves were compared using the Log-rank test.

RESULTS: 341 NAFLD patients were included in the study (median age: 58 years, male sex: 65%, diabetes: 36%). LRE occurred in 27 (7.9%) patients after a median follow-up of 5.2 years (1st and 3rd quartiles: 2.9-7.2). The rate of patients included in the rule-out / indeterminate / rule-in zones of the Agile 3+ and Agile 4 were respectively 56%/15%/29% and 83%/9%/8%. Kaplan-Meier curves (Figure) for Agile 4 and Agile 3+ showed significant differences between the rule-out and the rule-in zones ($p<0.001$ for both) and between indeterminate and rule-in zones ($p\leq0.002$ for both), while the difference between indeterminate and rule-out zones was not significant. By comparison, the rates of patients included in the rule-out / indeterminate / rule-in zones with LSM were 57%/23%/20%.Using LSM, patients experiencing a LRE were initially either in the indeterminate or the rule-in zones and consequently, a significant difference ($p<0.001$) between the rule-out and the indeterminate zone was observed while the difference between the indeterminate and rule-in was less significant ($p=0.03$).

CONCLUSION: Agile 4 and Agile 3+ well predict the occurrence of liver-related events in patients with NAFLD. Particularly, rule-in cut-offs of both scores better identify at-risk patients than LSM alone. These results demonstrate the interest of those scores in the identification of patients requiring hepatocellular carcinoma and esophageal varices screening.

Le calculateur Agile 4 est un outil destiné aux médecins, calculé à partir de la LSM (mesure de l'élasticité du foie obtenue avec l'appareil FibroScan®), de l'ASAT de l'ALAT, des plaquettes, du niveau de diabète et du sexe, pour aider à identifier les patients avec suspicion de stéatopathies métaboliques (NAFLD) comme étant atteints d'une cirrhose. Il a été développé à partir de cohortes rétrospectives et paru dans des publications soumises à des comités de lecture. Agile 4 est présenté comme un service de formation destiné aux professionnels de santé agréés. Bien que ce score traite de problèmes médicaux et de santé spécifiques, il ne peut se substituer ni remplacer un avis médical individuel et n'est pas destiné à servir de critère unique pour prendre des décisions médicales ou de santé individualisées. Conformément à la loi américaine sur les aliments, les médicaments et les cosmétiques « Federal Food, Drug and Cosmetic Act » (21 CFR 880.6310) le Produit est une aide à la décision clinique sans appareil.