Comparison of accuracy of fibrosis degree classifications by liver biopsy and non-invasive tests in chronic hepatitis C

Titre	Comparison of accuracy of fibrosis degree classifications by liver biopsy and non-invasive tests in chronic hepatitis C
Type de publication	Article de revue
Auteur	Boursier, Jérôme [1], Bertrais, Sandrine [2], Oberti, Frédéric [3], Gallois, Yves [4], Fouchard-Hubert, Isabelle [5], Rousselet, Marie-Christine [6], Zarski, Jean-Pierre [7], Calès, Paul [8], Sniff 17 Group, [9], Vindiag 7 Group, [10], Metavar 4 Group, [11], ANRS HC EP 23 Fibrostar Study Group [12]
Editeur	BioMed Central
Type	Article scientifique dans une revue à comité de lecture
Année	2011
Langue	Anglais
Date	2011
Numéro	1
Volume	11
Titre de la revue	BMC Gastroenterology
ISSN	1471-230X

Résumé en anglais	BackgroundNon-invasive tests have been constructed and evaluated mainly for binary diagnoses such as significant fibrosis. Recently, detailed fibrosis classifications for several non-invasive tests have been developed, but their accuracy has not been thoroughly evaluated in comparison to liver biopsy, especially in clinical practice and for Fibroscan. Therefore, the main aim of the present study was to evaluate the accuracy of detailed fibrosis classifications available for non-invasive tests and liver biopsy. The secondary aim was to validate these accuracies in independent populations. Methods Four HCV populations provided 2,068 patients with liver biopsy, four different pathologist skill-levels and non-invasive tests. Results were expressed as percentages of correctly classified patients. Results In population #1 including 205 patients and comparing liver biopsy (reference: consensus reading by two experts) and blood tests, Metavir fibrosis (FM) stage accuracy was 64.4% in local pathologists vs. 82.2% ($p < 10-3$) in single expert pathologist. Significant discrepancy (≥ 2FM vs reference histological result) rates were: Fibrotest: 17.2%, FibroMeter2G: 5.6%, local pathologists: 4.9%, FibroMeter3G: 0.5%, expert pathologist: 0% ($p < 10-3$). In population #2 including 1,056 patients and comparing blood tests, the discrepancy scores, taking into account the error magnitude, of detailed fibrosis classification were significantly different between FibroMeter2G (0.30 ± 0.55) and FibroMeter3G (0.14 ± 0.37, $p < 10-3$) or Fibrotest (0.84 ± 0.80, $p < 10-3$). In population #3 (and #4) including 458 (359) patients and comparing blood tests and Fibroscan, accuracies of detailed fibrosis classification were, respectively: Fibrotest: 42.5% (33.5%), Fibroscan: 64.9% (50.7%), FibroMeter2G: 68.7% (68.2%), FibroMeter3G: 77.1% (83.4%), $p < 10-3$ ($p < 10-3$). Significant discrepancy (≥ 2 FM) rates were, respectively: Fibrotest: 21.3% (22.2%), Fibroscan: 12.9% (12.3%), FibroMeter2G: 5.7% (6.0%), FibroMeter3G: 0.9% (0.9%), $p < 10-3$ ($p < 10-3$). Conclusions The accuracy in detailed fibrosis classification of the best-performing blood test outperforms liver biopsy read by a local pathologist, i.e., in clinical practice; however, the classification precision is apparently lesser. This detailed classification accuracy is much lower than that of significant fibrosis with Fibroscan and even Fibrotest but higher with FibroMeter3G. FibroMeter classification accuracy was significantly higher than those of other non-invasive tests. Finally, for hepatitis C evaluation in clinical practice, fibrosis degree can be evaluated using an accurate blood test.
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DOI	10.1186/1471-230X-11-132 [14]
Lien vers le document	http://dx.doi.org/10.1186/1471-230X-11-132 [14]

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