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CURRENT NONINVASIVE METHODS FOR LIVER FIBROSIS EVALUATION– AGREEMENT AND DISAGREEMENT IN CHRONIC HEPATITIS B AND C

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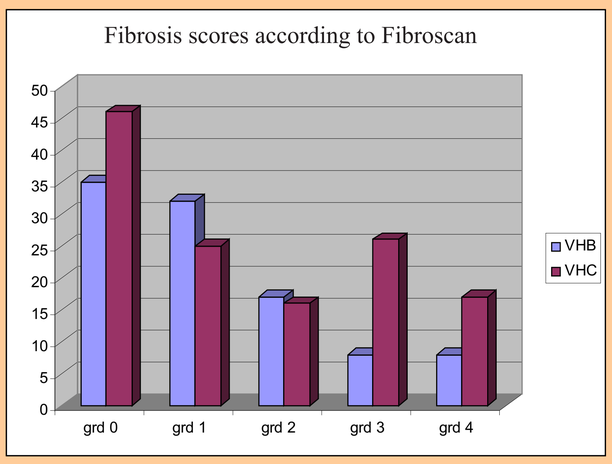
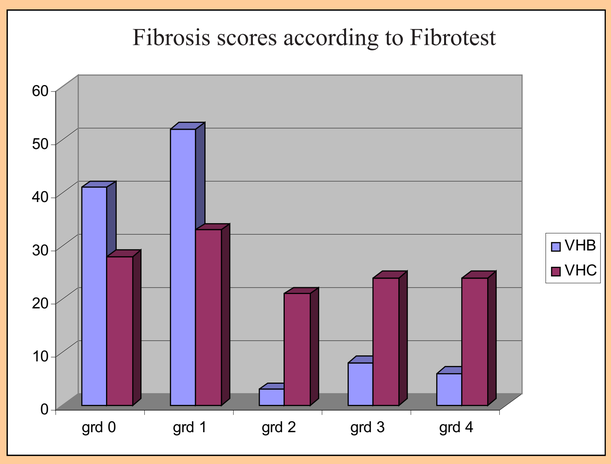
Background: Fibroscan (FS) and Fibrotest (FT) are the most validated two methods for noninvasive evaluation of liver fibrosis. Each of them has proved a good sensitivity and specificity for identifying liver fibrosis stage compared to liver biopsy. Used together their sensitivity and specificity raises. We compared their agreement in different types of viral hepatitis (B and C).

Patients and methods: 230 patients were included in the study, 100 patients with chronic hepatitis B and 130 with chronic hepatitis C. All the patients had FS, Fibromax/FT and CBC performed in the same day. Only patients with valid investigations (according to their manufacturer's recommendations) were included in the study.
APRI and FIB4 scores were also calculated for each patient.

Results: FT and FS correlation: an overall agreement of 70.9% (163/230) was found if we accepted a maximum of one degree difference between the two methods. The correlation was statistically significant for the corresponding Metavir stage ($r=0.449$, $p<0.0001$) and for absolute values ($r=0.422$, $p<0.0001$). The fibrosis stages according to the two methods are shown in the graphics below:

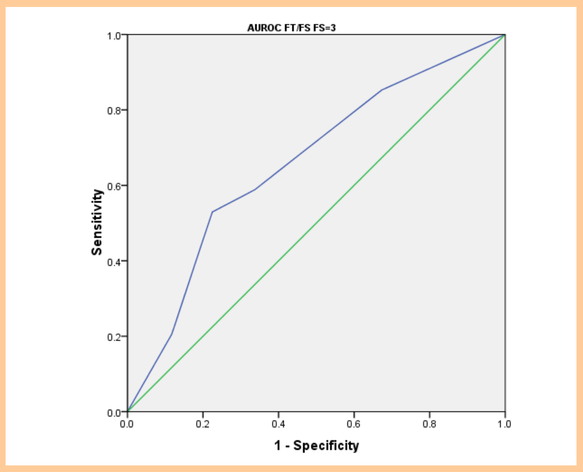


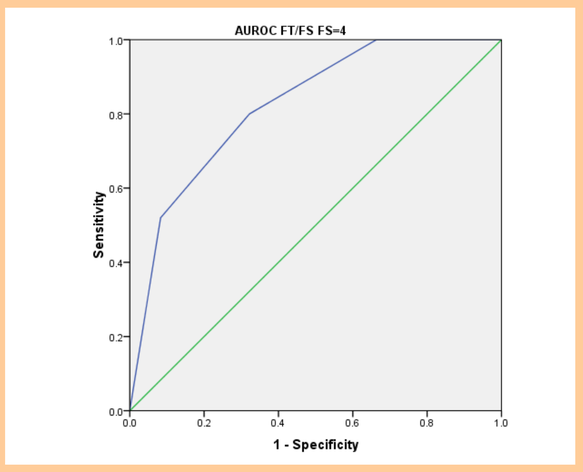


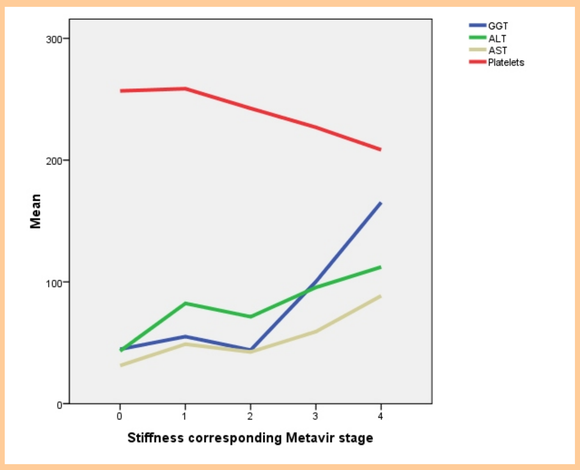
The agreement of the two methods is higher in HCV hepatitis ($r=0.516$, $p<0.0001$ vs. $r= 0.278$, $p=0.005$ in HBV). FT shows higher values in HCV hepatitis (median 0.47 vs. 0.29, $p<0.0001$). FS also had higher values in HCV(median 9.7 vs. 8.17 kPa, but not statistically significant $p=0.203$).

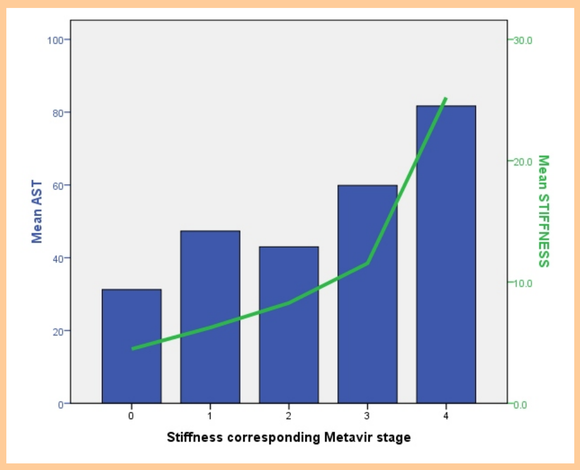
For the Castera algorithm 65.6% of the biopsies would be avoided (the algorithm proposed in 2005 by Castera et al. recommends to consider valid FS and FT if both show fibrosis<F2 (no/mild fibrosis) or if both show fibrosis>=F2 (significant fibrosis), otherwise liver biopsy is recommended).

The prediction of FT by FS measured by AUROC is higher for F4 and F3 (0.823, CI 0.745-0.901 and 0.659, CI 0.560-0.759) while for lower grade is poor.
Liver stiffness is significantly influenced by alfa2macroglobulin, GGT, ALT, AST, platelets ($r=0.251$, 0.445, 0.255, 0.372, -0.330, $p<0.0001$) and cholesterol ($r=-0.222$, $p=0.005$).
This correlations are valid regardless etiology.









In the HCV group we also found a correlation of stiffness with glycemia ($r=0.273$, $p<0.0001$.
Remarkably, these correlations are only valid for the group in which FS is in agreement with FT.
No statistical significant differences regarding the parameters we analyzed were found between the groups in which FS and FT agreed/disagreed.

APRI and FIB4 are as well correlated with FT and respectively FS ($r=0.515$, 0.373, 0.725, 0.491, $p<0.0001$).

Conclusions: We found a satisfactory agreement between methods, regardless etiology (overall 70.9% for FS and FT).
Using an algorithm like the one proposed by Castera and noninvasively classifying the fibrosis as none/mild, severe or cirrhosis seems more appropriate and accurate than trying to exactly stage the fibrosis according Metavir score, moreover, that this is actually the clinician's interest.
It is already recommended to use two noninvasive methods instead of one, preferably a imaging one in association with a biochemical score.
In centers where Fibrotest is not available, APRI or FIB-4 could be used in association with Fibroscan.