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COMBINED (IMAGING AND SERIC) NONINVASIVE SCORE FOR PREDICTING SIGNIFICANT LIVER FIBROSIS IN CHRONIC HEPATITIS C

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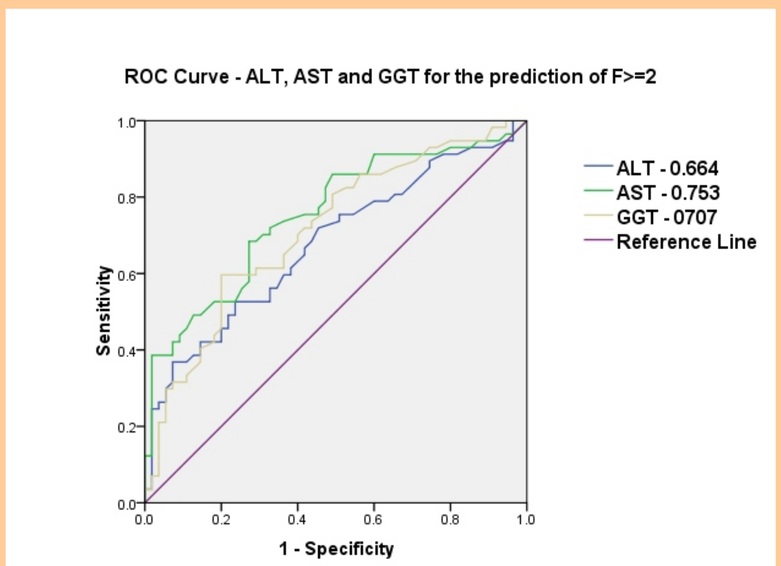
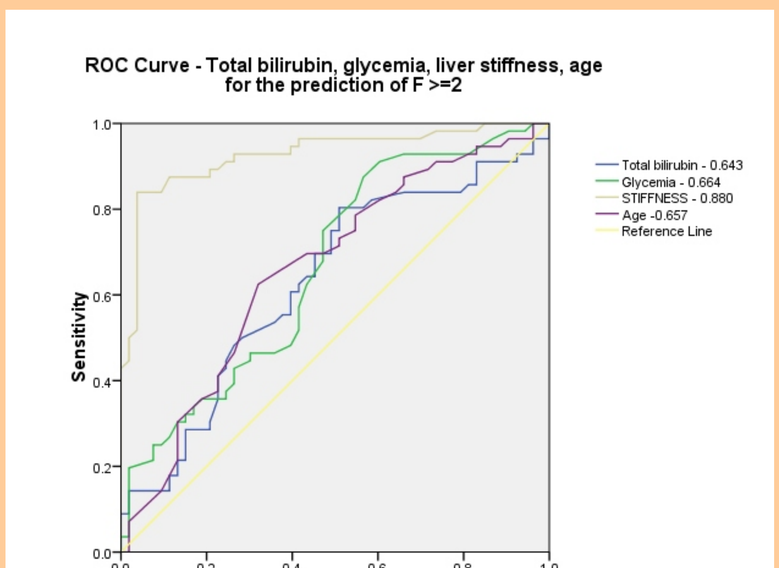
Background: In order to make correct therapeutic and monitoring options in chronic hepatitis C, detection of significant fibrosis (F≥2) and cirrhosis are the most important landmarks. For cirrhosis most of the validated noninvasive methods are proved to be reliable. We aimed to combine two types of noninvasive methods (serologic and imaging) in one score to obtain a better performance in detecting/excluding significant fibrosis.

Methods: We prospectively collected and then analyzed the data of 147 patients with chronic hepatitis C who underwent liver biopsy, Fibromax, Fibroscan and hematology panel in the same week.
We analyzed separately each component of Fibromax, age, sex, BMI, elastography and hematology panel components for direct correlations with the result of liver biopsy for fibrosis. Then we analyzed each of the correlated factors by their AUROC for F≥2. We obtained a score by binary logistic regression.

Results: We found ALT, AST, GGT, alfa2macroglobulin, haptoglobin, total bilirubin, glycemia, total cholesterol, platelets, age and elastography to have the best and statistically significant AUROCs for F≥2 (0.664, 0.753, 0.707, 0.764, 0.650, 0.643, 0.664, 0.662, 0.687, 0.657, 0.880 respectively).



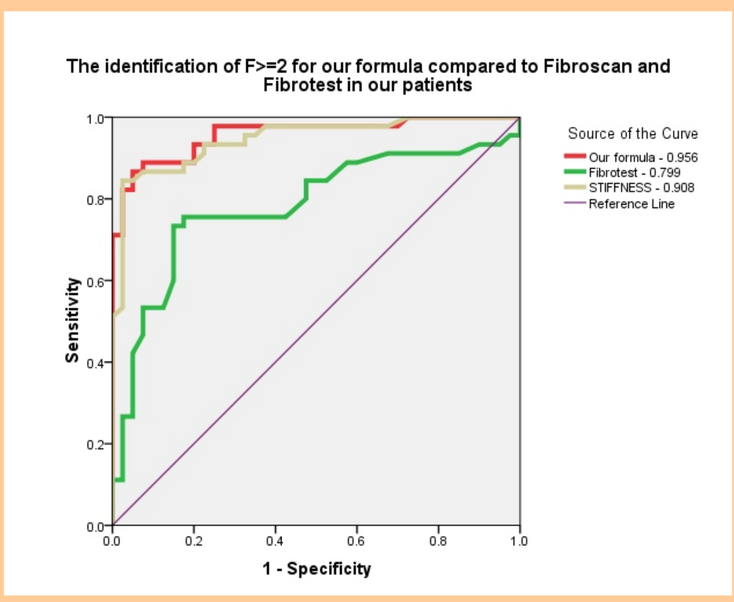


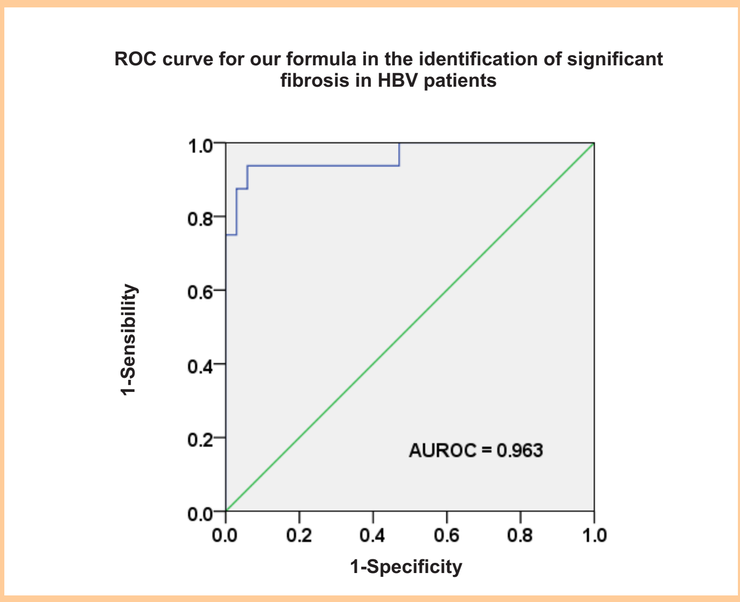
After regression an algorithm for predicting significant fibrosis based on liver stiffness, ALT, AST, Bilirubin, cholesterol and apolipoprotein A1 was obtained.

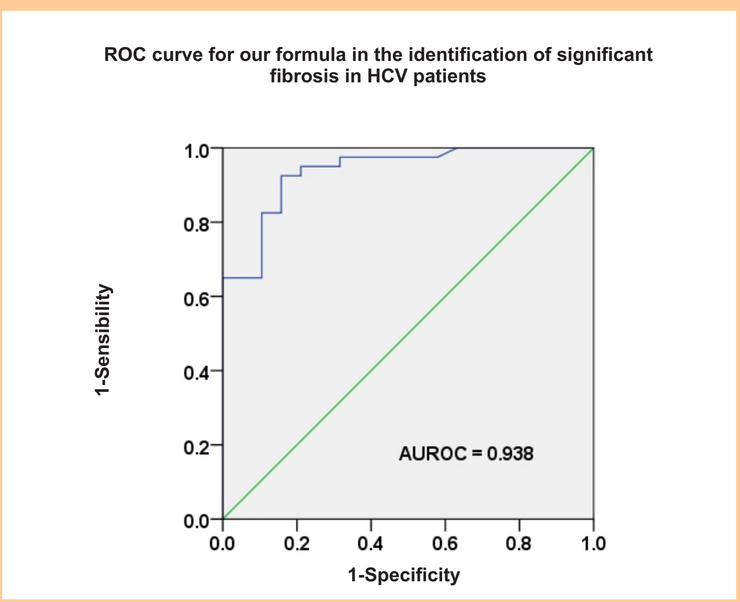
$$p = \frac{\exp(-29.426 + 1.531 \times \text{Stiffness} + 11.605 \times \text{ApolipoA1} - 0.062 \times \text{ALT} + 0.171 \times \text{AST} + 0.308\text{TB} - 1.35 \times \text{Cholesterol})}{1 + \exp(-29.426 + 1.531 \text{Stiffness} + 11.605 \times \text{ApolipoA1} - 0.062 \times \text{ALT} + 0.171 \times \text{AST} + 0.308 \times \text{TB} - 1.35 \times \text{Cholesterol})}$$

p = the probability that the patient has significant fibrosis; Stiffness = Liver stiffness (Kpa) measured by Fibroscan; ApolipoA1 = Apolipoprotein A1 (g/l); TB = Total Billirubin

This formula had an AUROC for determining F≥2 in our group of 0.956, CI95% = 0.920 – 0.992, p<0.001.
In our patients, Liver stiffness measurement by Fibroscan alone had an AUROC of 0.908 for predicting F>=2, while Fibrotest had AUROC of 0.799. Our score performed well regardless the etiology, with a higher AUROC for HBV (0.963) versus HCV (0.938), but without statistical significance (P= 0.234).
This score has to be verified in future trials in independent groups.







Conclusion: We found a combined score that performs better in our group than Fibroscan or Fibrotest (AUROCs of 0.908 respectively 0.799) in identifying significant fibrosis.
This score has to be verified in future trials in independent groups.