

LIVER FIBROSIS EVALUATION BY NONINVASIVE MEANS AT THE BEGINNING OF HCV HEPATITIS TREATMENT AND AFTER TREATMENT.

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Noninvasive methods for liver fibrosis assessment may be used theoretically for monitoring the evolution of this parameter in chronic hepatitis patients. The present study aims to evaluate liver fibrosis evolution during and after the treatment of C viral hepatitis and the reliability of these methods.

Methods: 32 patients were included in this study, which ended their treatment for C chronic hepatitis between 01.03.2009 and 01.03.2010. In all of these patients Fibroscan was performed and Forns, Fib4 and APRI scores were calculated at the beginning of treatment, 12 months and 18 months after initiation regardless of the outcome of the treatment. 28 of these patients also had a liver biopsy at the initiation. There were 17 women and 15 man included. Their BMI ranged from 18.3 to 32 (median 22.95) and age from 20 to 63 years (median 49).

The scores:

$$\text{APRI} = [(\text{AST}/\text{ULN}) \times 100] / \text{platelet count} (\times 10^9/\text{litre})$$

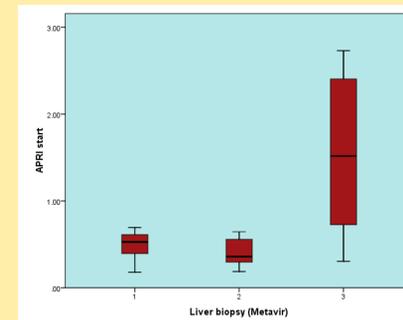
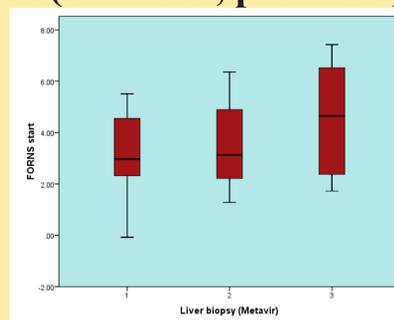
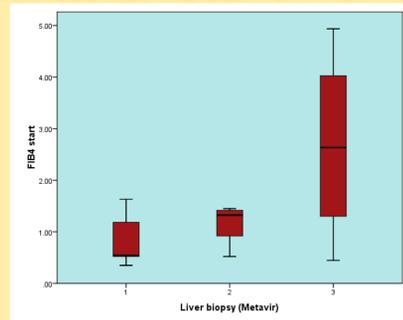
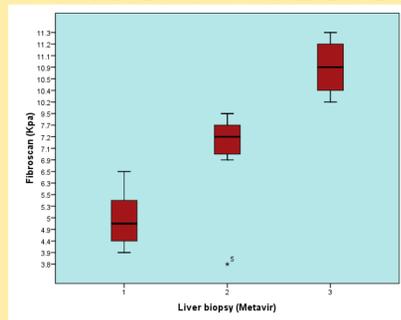
$$\text{FIB-4} = [\text{age}(\text{years}) \times \text{AST} (\text{IU/l})] / [\text{platelet count} (\times 10^9/\text{litre}) \times \sqrt{\text{ALT} (\text{IU/l})}]$$

$$\text{Forns} = 7.811 - 3.131 \times \ln(\text{platelet count} (\times 10^9/\text{litre})) + 0.781 \times \ln[(\text{GGT} (\text{UI/L}))] + 3.467 \times \ln[\text{age}(\text{years})] - 0.014 [\text{cholesterol} (\text{mg/dL})]$$

Fibroscan cut-offs: F1- 5.5Kpa, F2 - 7.1 Kpa, F3 - 9.5 Kpa, F4 - 14.5 Kpa

Results: *At the beginning of the treatment:*

If a difference of maximum one degree was considered satisfactory, Fibroscan was found to be the best correlated with LB (96.4%). For a cut-off set at 1.45, FIB 4 had a 60% sensitivity and 85% specificity for identifying significant fibrosis (F>=2), while for a cut-off set at 3.25, the sensitivity was 79% and specificity 81% in identifying severe (F>=3) fibrosis. For a cut-off of 4.2, Forns score showed a sensitivity of 0.6 and a specificity of .52 in identifying significant fibrosis. APRI had 66% sensitivity and 40% specificity in identifying F>=2 for a cut-off of 0.5. Fibroscan was significantly correlated with FIB-4 (r=0.654, p=0.0005) and APRI (r=0.546, p=0.0047). Forns score was not correlated with fibroscan. APRI and FIB-4 were correlated (r=0.8938, p<0.0001).

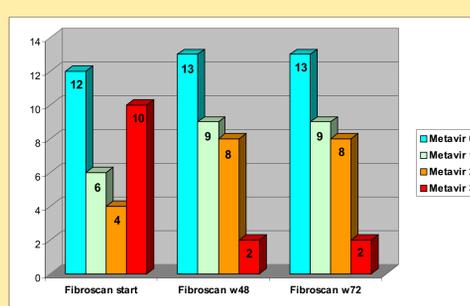
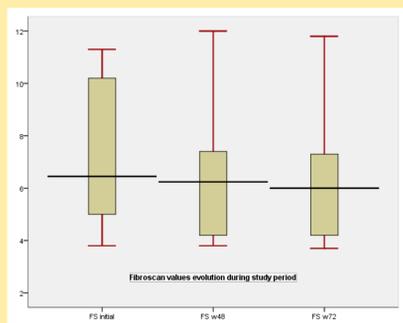


Relationship between noninvasive methods and liver biopsy at treatment start

At 12 months, in 24 patients was found a decrease in liver stiffness. Transformed in corresponding Metavir fibrosis grade (considering the mentioned cut-offs), this decrease was found in only 15 patients, while 14 remained in the same grade and 3 raised. The biochemical scores measured in the first week after treatment were influenced by hematological and biochemical modifications induced by the treatment and their tendency was to raise.

At 18 months the situation was identical, none raised from previously measured value (transformed in Metavir).

APRI had the closest evolution with liver stiffness, while the other two scores were not well correlated.



All 3 patients in which fibrosis (stiffness) rose were nonresponders, and fibrosis rose from F0 to F1. Most decreases were found in patients which were initially staged as Metavir 3 and were of maximum one stage.

Conclusions:

- Fibroscan had the best correlation with liver biopsy and the expected evolution, showing a 46.87% rate of significant stiffness decrease after a successful treatment.
- Liver stiffness decreases mainly during treatment period, and less after and thus this is probably mainly related to inflammation than fibrosis reduction. APRI evolution suggests the same conclusion.
- Due to sensitivity and specificity values mentioned above, FIB4 seems more useful in excluding significant fibrosis than identifying it, while APRI is more sensitive for identifying F>=2. The values of FIB4 and Forns score during or immediately after treatment are influenced by biochemical modifications induced by treatment.