MONITORING THE RESULTS OF CHRONIC HEPATITIS C TREATMENT BY NONIVASIVE METHODS

G. Gherlan, M. Neata, A. Kosa, P. Calistru,

Center for Diagnostics and Treatment "Dr. Victor Babes", Bucharest, Romania

Background: Using noninvasive methods for monitoring the course of a liver disease may allow us to evaluate the evolution of fibrosis without biopsies. This study aims to assess if there is any improvement in the liver fibrosis during and after treatment of C hepatitis.

Methods: 39 patients included in this study, which ended their treatment for C chronic hepatitis between 01.03.2009 and 31.05.2011. 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.
34 of the patients also had liver biopsy at the initiation.

The scores:

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

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

Forns = 7.811 - 3.131 x ln (platelet count($\times 10^9$/litre)) + 0.781 x ln[(GGT (UI/L)] + 3.467 x ln [age(years)] - -0.014 [cholesterol (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 (94.11%). For a cut-off set at 1.45, FIB 4 had a 61% sensitivity and 85% specificity for identifying significant fibrosis (F>=2), while for a cut-off set at 3.25, the sensitivity was 77% and specificity 80% in identifying severe (F>=3) fibrosis. For a cut-off of 4.2, Forns score showed a sensitivity of 60% and a specificity of 55% in identifying significant fibrosis. APRI had 66% sensitivity and 43% specificity in identifying F>=2 for a cut-off of 0.5.
Fibroscan was significantly correlated with FIB-4 (r=0.749, p<0.0001) and APRI (r=0.770, p<0.0001). Forn's score was correlated with fibroscan (p=0.480, r=0.002). APRI and FIB-4 were correlated (r=0.940, p<0.0001).
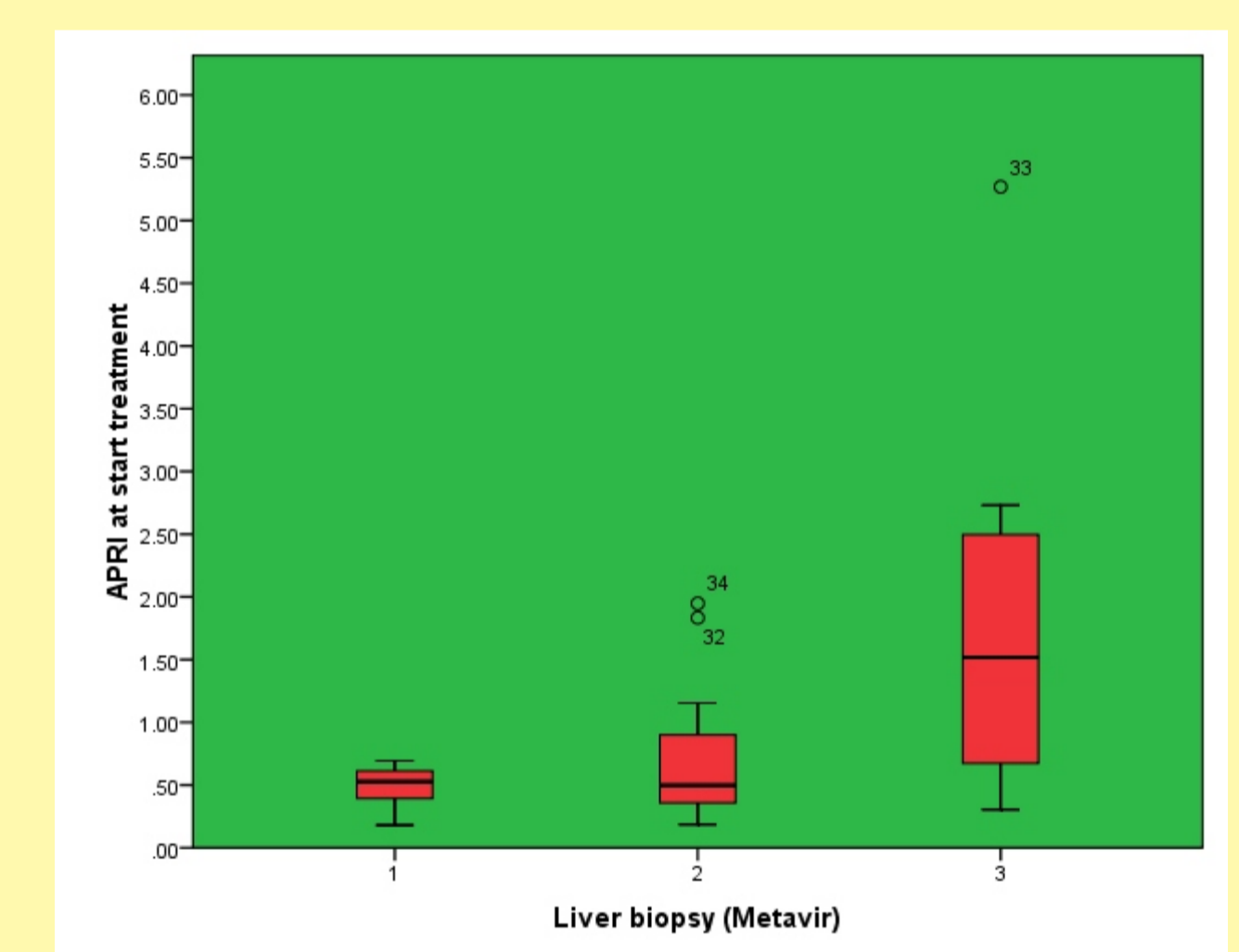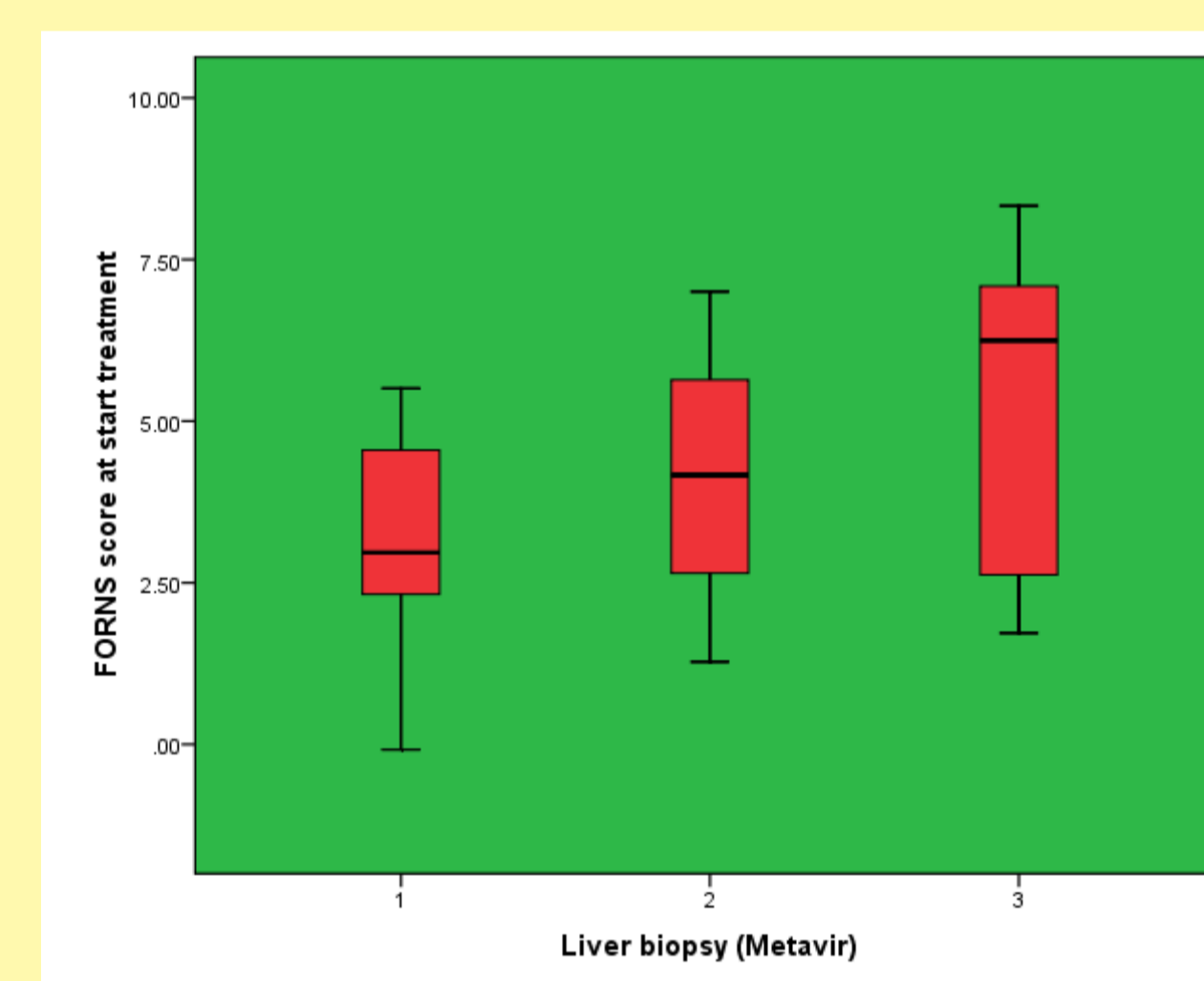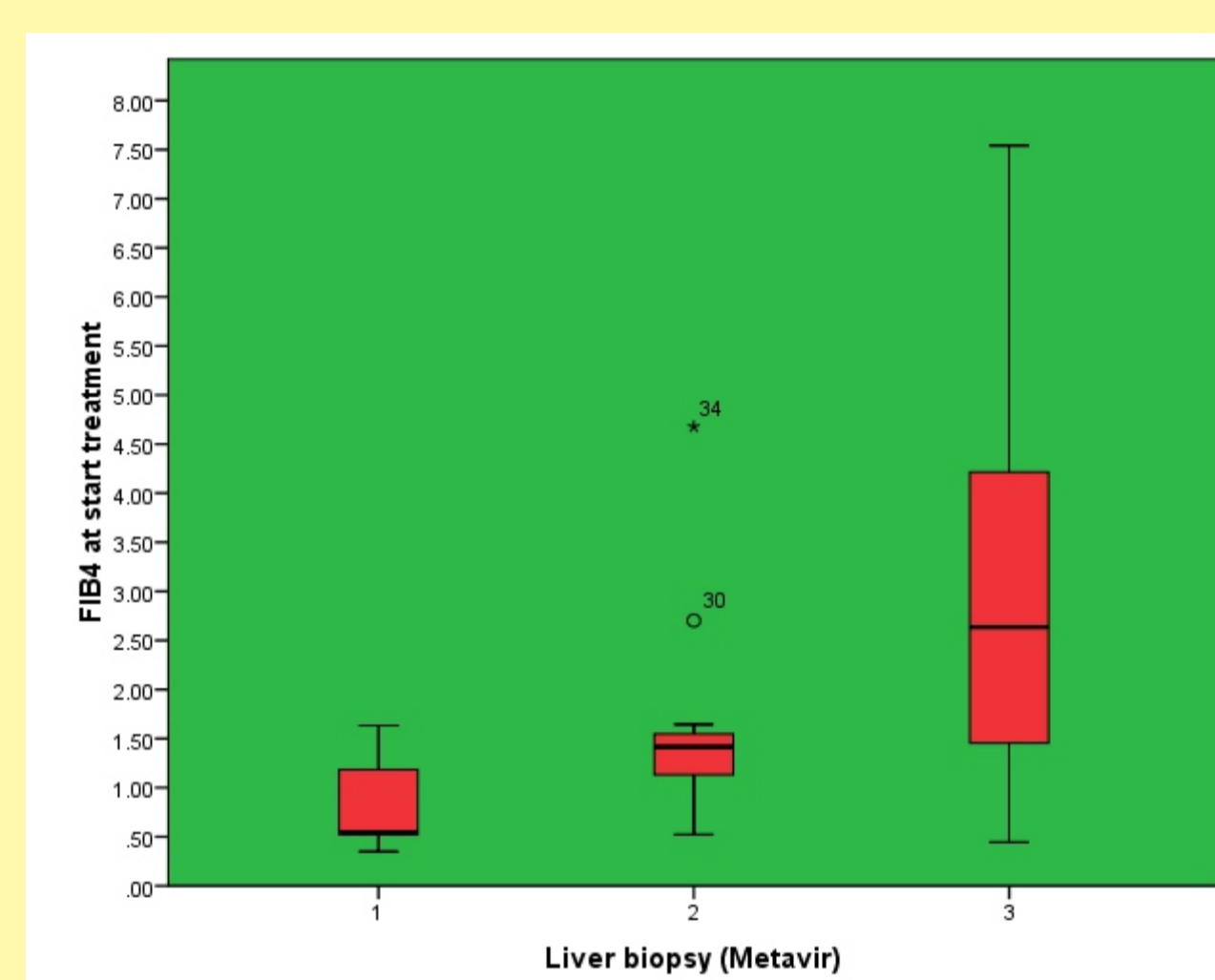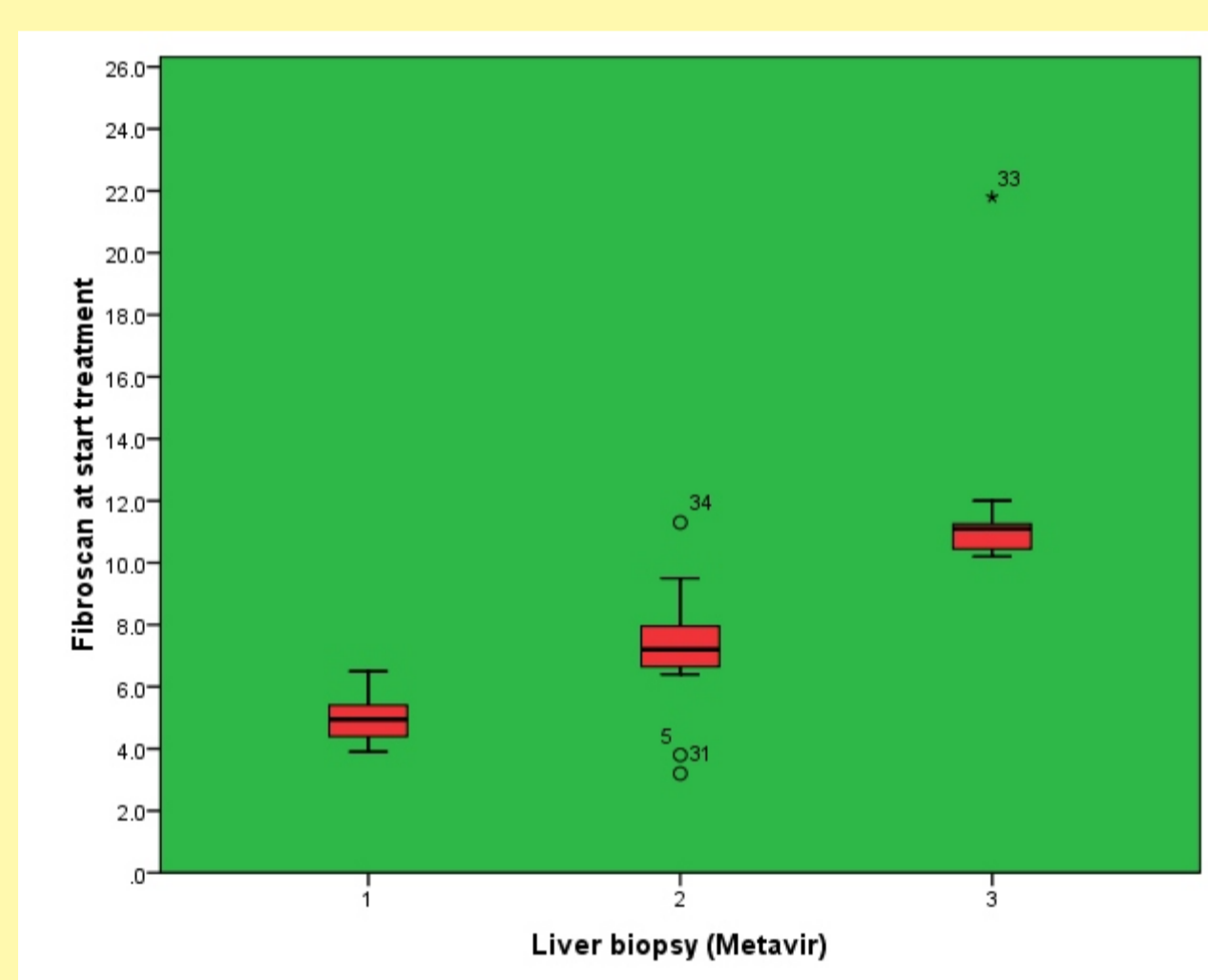

Relationship between noninvasive methods and liver biopsy at treatment start

At 12 months, in 28 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 19 remained in the same grade and 5 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.
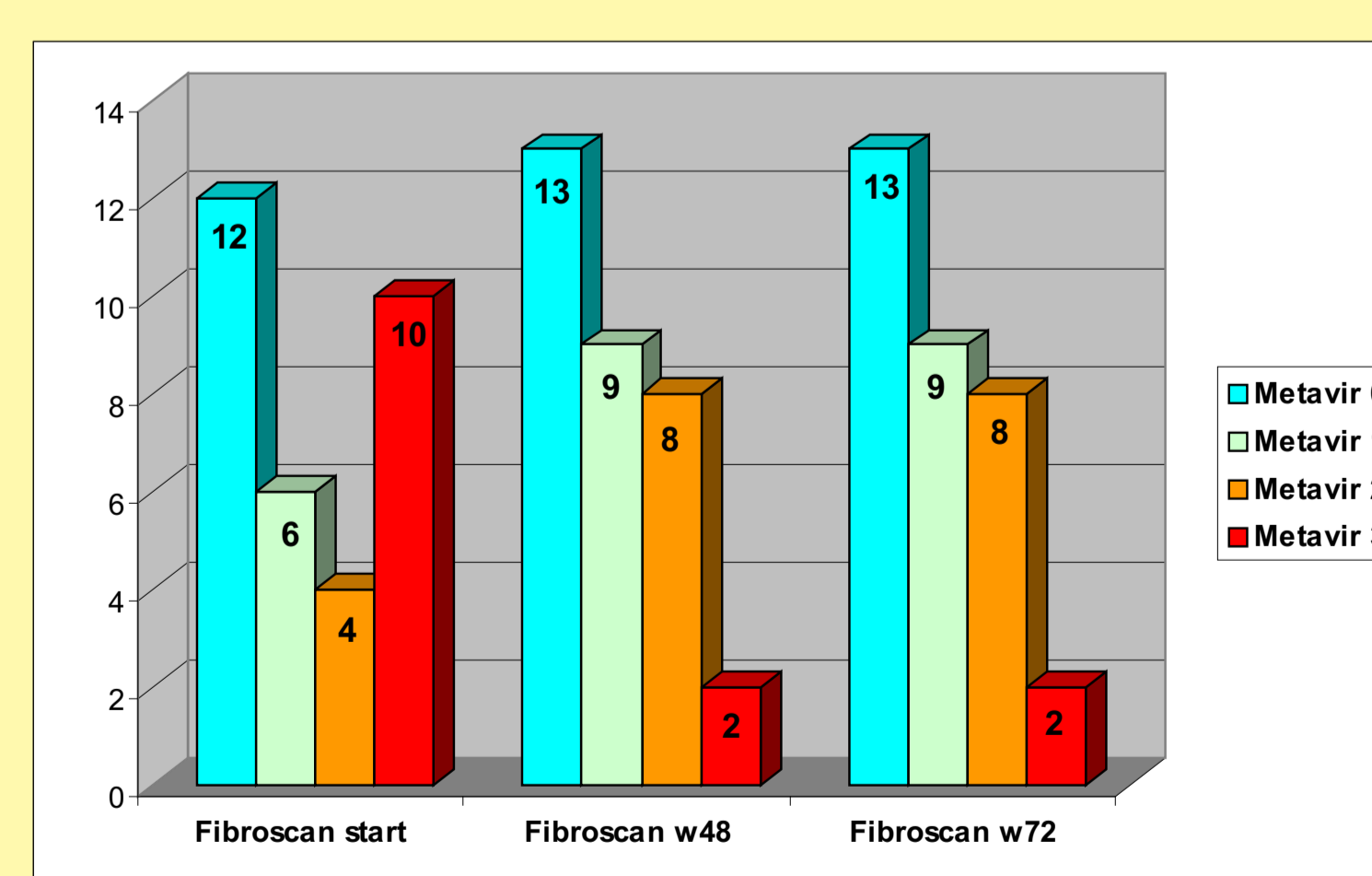
At 18 months the situation was identical, none raised from previously measured value (transformed in Metavir). APRI had the closest evolution with liver stiffness, while the other two scores were not well correlated.
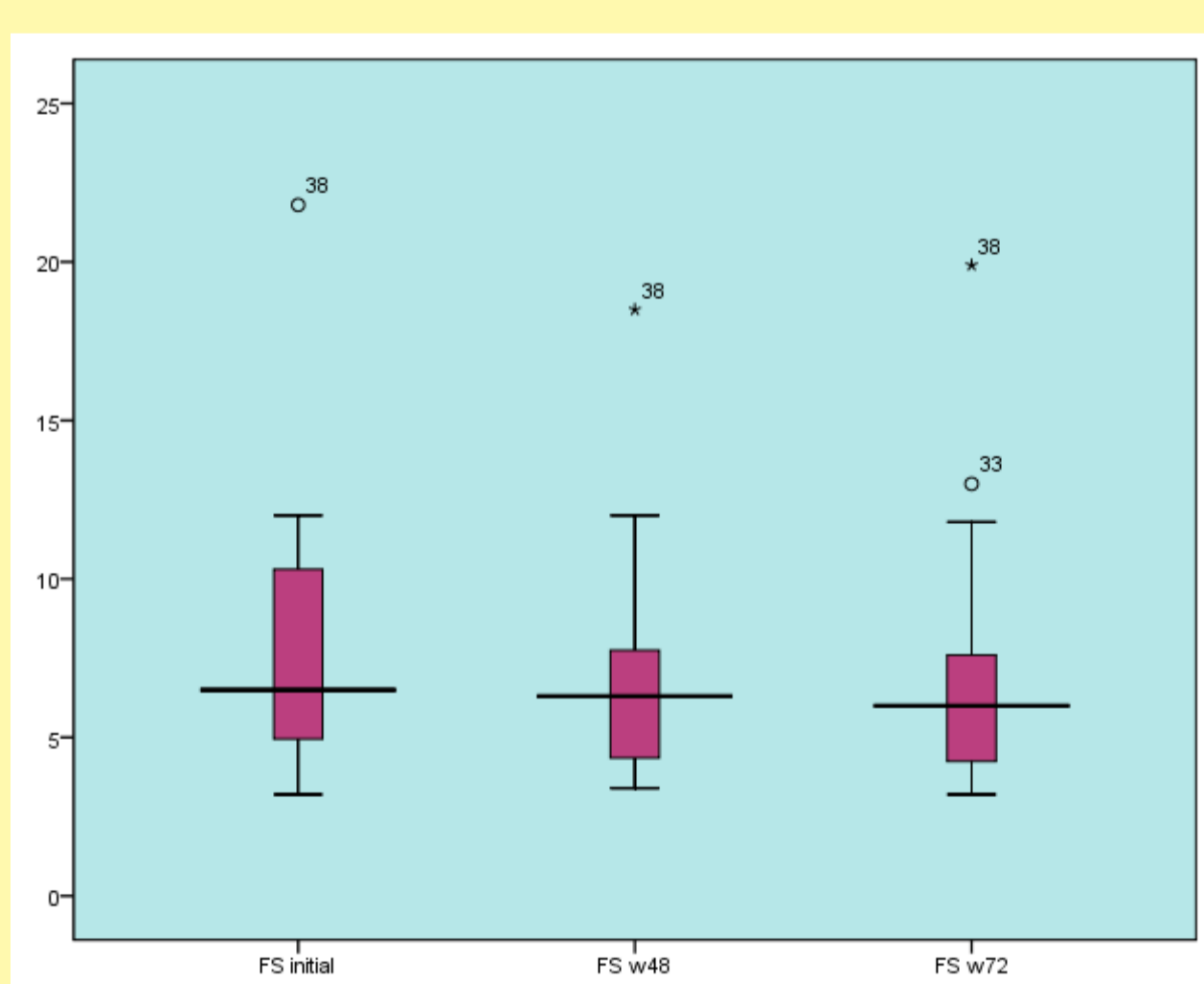
Fibroscan values evolution during study period
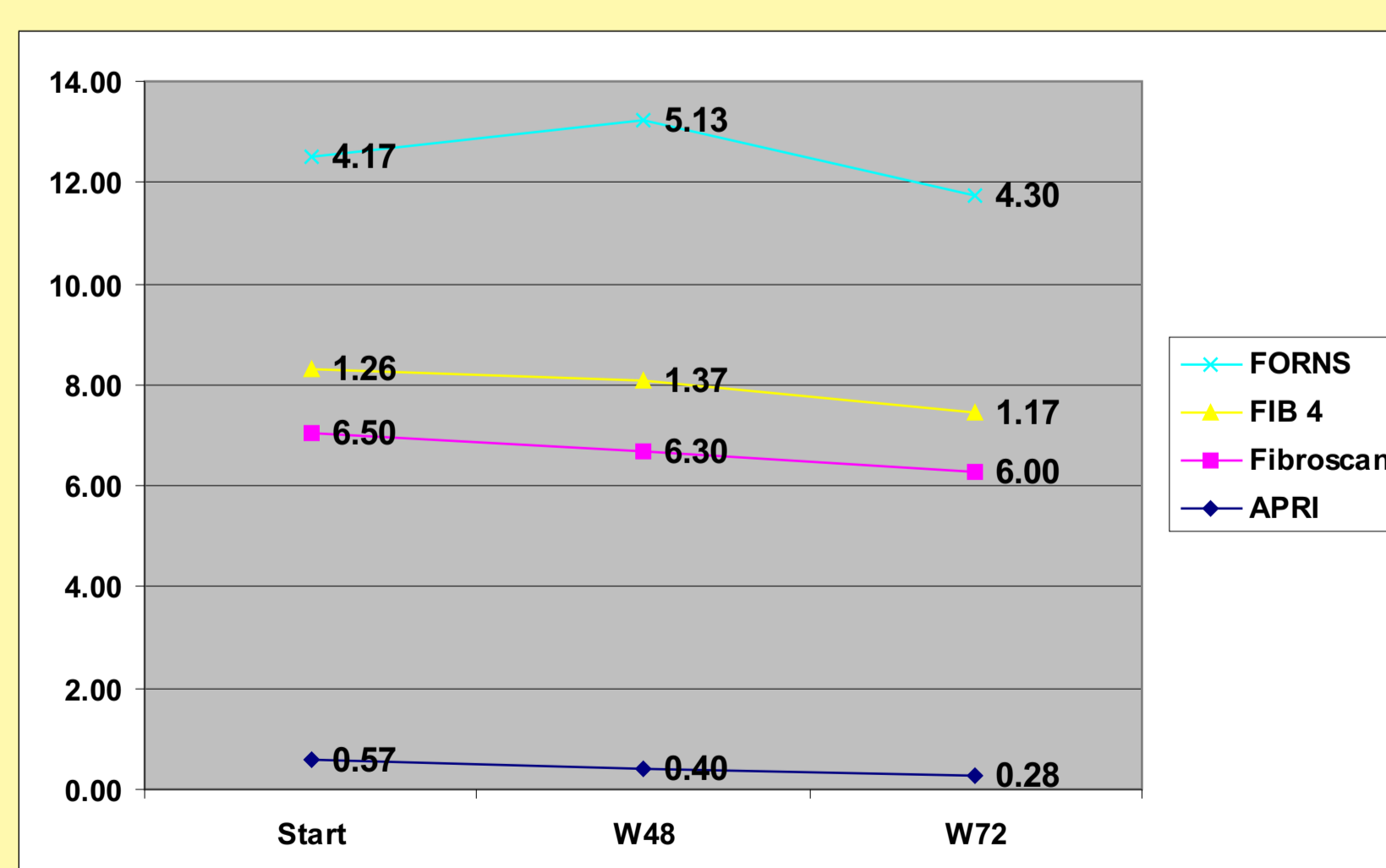
Evolution of parameters during study period (median)

Stiffness-Metavir correspondent evolution

In the patients in which stiffness apparently increased, the variation between the two measurements was below 25% from the start LSM. 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 inflamation 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.