LIVER BIOPSY, IMAGING AND BIOCHEMICAL SCORES – THE INVASIVE – NONINVASIVE AGREEMENT

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Background: Liver biopsy (LB) is still the gold standard in the evaluation of liver fibrosis, but is expensive, hardly accepted and invasive. Fibroscan and Fibrotest are already verified against LB, but they cost. APRI, FIB-4, Forns are free and based on widely available tests. The aim of our study was to compare the effectiveness of these methods and to see which combination of them would work best to improve the accuracy of the investigation.

Methods: We analyzed the data of 230 patients with chronic hepatitis B or C. They all had LB, Fibroscan, Fibrotest and CBC performed during a period of maximum one week. APRI, FIB-4 and Forns were then calculated based on the values used for Fibrotest and CBC.

Results:

An overall significant correlation was found between LB and the noninvasive methods as follows: Fibroscan (r=0.869), Fibrotest (r=0.723), FIB-4 (r=0.625), APRI (r=0.595), and Forns (r=0.487), all with p<0.0001.

These correlations maintained when we looked into cases by etiology, except for Forns, which was only correlated for C hepatitis. For all methods, the correlation was better in patients with C hepatitis.

For identifying significant fibrosis (F≥2), all noninvasive methods performed well, elastography had the best sensibility and specificity (AUROC = 0.902) and was followed by APRI (AUROC = 0.806). A combination of these two methods ("Our formula" in charts) had an even better AUROC: 0.953. For F≥3, Fibroscan performed again the best (AUROC = 0.913), and the second was Fibrotest (AUROC = 0.847). The combination of Stiffness and APRI had again the best AUROC: 0.935 (CI95%=0.916-0.990). For lower grades (0 and 1), their performance was poorer, with AUROC under 0.75.

Conclusions: Noninvasive tests are very useful in confirming or excluding a significant fibrosis, but they are not very accurate in staging low grades of fibrosis. For cirrhosis, all studied methods are very accurate. We found a combination of two markers (Fibroscan and APRI) with very high sensibility and specificity (AUROC = 0.953) for the identification of significant fibrosis. Using APRI and Fibroscan separately we can reliably avoid LB in over 60% of the patients.