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Critical Importance of Using FibroScan to Identify Patients with Cirrhosis in a Predominantly African American Patient Population

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The Role of FibroScan to Identify Patients with Cirrhosis in a Predominantly African American Patient Population

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INTRODUCTION

- Identifying patients with cirrhosis is complicated, but Ultrasound based Transient Elastography (TE;FibroScan) for non-invasive assessment of fibrosis may offer a more accurate approach than serum-based cirrhosis determination.
- The objective of our study was to use a FibroScan database to identify patients with cirrhosis in our primarily African American (AA) Hepatitis C (HCV) patients.
- Cirrhotic patients were used to compare FibroScan to serum assessments of fibrosis and to track outcomes for HCV patients.

METHODS

- Of 332 individuals with a FibroScan evaluation of fibrosis between 2014 and 2016, 79 (24%) had a score of >12.5 kPa (cirrhosis). Their electronic medical records were reviewed, risk factor for cirrhosis determined and outcomes evaluated.
- Data analysis was performed using the SAS-JMP statistical software.
- Serum based fibrosis was calculated using the AST to Platelet Ratio Index (APRI) and Fibrosis-4 (FIB-4) within a year of the FibroScan. An APRI score >0.7 and FIB-4 score >3.25 was used for predicting advanced fibrosis/cirrhosis.

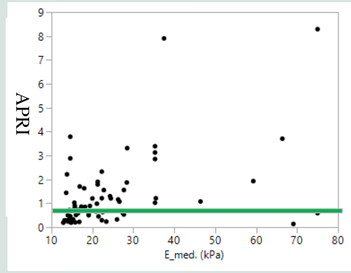
APRI= ((AST value /AST upper limit)/Platelet Count) x 100
FIB-4= (Age(years) x AST)/(Platelet Count x Sqrt(ALT))

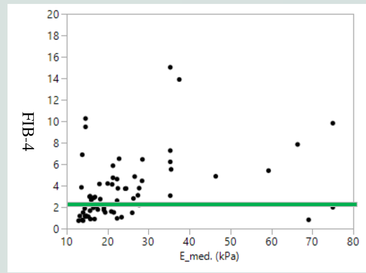
RESULTS

Patient Population
Cirrhotic HCV patients were 92% AA and 52% male. FibroScan values ranged from 12.5 to 75 with a mean of 25.5 kPa for AA and 28.0 kPa for Non-AA. Most HCV patients (82%) were treated after their initial FibroScan with a high sustained virologic response (SVR) rate (97%).

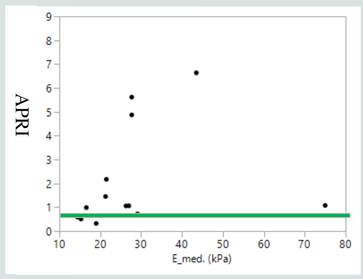
Correlation between FibroScan Fibrosis and Serum Fibrosis Value

African Americans





Non-African Americans



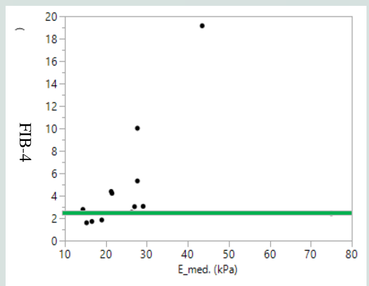
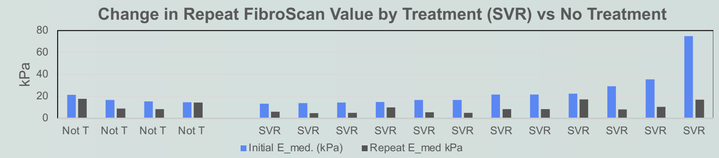


Figure 1: APRI and FIB-4 Scores as compared to FibroScan scores for the patients with cirrhosis (kPa >12.5). The green line represents the literature cut-off typically used to identify patients with significant fibrosis/cirrhosis by the serum-based assays. The primary advantage of FibroScan is in identifying patients with early cirrhosis where the serum assessment has the lowest sensitivity and specificity.

In patients who had FibroScan-defined cirrhosis, neither their APRI nor FIB-4 scores were as reliable as FibroScan for identifying patients with cirrhosis (Figure 1). The data in Figure 1 plots the FibroScan score vs the two serum assessment values as continuous variables. The primary failure to identify cirrhosis was due to low serum-based scores in patients who had early cirrhosis as defined by FibroScan.

RESULTS

Outcomes for patients with HCV were tracked using two criteria:
a) improvement in FibroScan scores, and
b) development of decompensated cirrhosis.



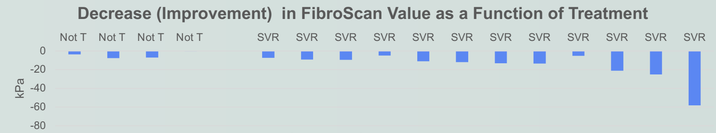


Figure 2: Change in FibroScan values as a function of treatment. The upper graph plots the initial and subsequent FibroScan result for patients who were not treated or who were treated and achieved viral clearance (Sustained Viral Response (SVR)). The lower graph is a plot of the improvement in FibroScan value. Using pair wise analysis, the patients who achieved an SVR has a significant improvement ($p<0.005$) while those who were not treated did not.

- Patients with a subsequent FibroScan after HCV eradication, had a statistically significant improvement in fibrosis if they achieved SVR as compared to the non-treated patients ($p<0.005$) (Figure 2).
- Only 1 patient developed decompensation in the SVR group (1/40= 3%) as compared to non responders or not treated patients (3/5= 60%; $p<0.0001$)

CONCLUSIONS

- FibroScan is better than serum-based assays for identifying early cirrhosis in HCV patients.
- Identifying regression of cirrhosis scores after HCV eradication is also a potential utility for the methodology.
- Regression of cirrhosis may predict decreased risk for decompensation, hepatocellular carcinoma and esophageal varices.
- Further studies evaluating the relationship between improvement in Fibrosis by FibroScan and the development of liver disease are needed.