Performance of Non-invasive Tests to Predict Significant Liver Fibrosis in Patients with Morbid Obesity

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Background

- Non-Alcoholic Fatty Liver Disease (NAFLD) affects more than 90% of patients with morbid obesity (MO).
- NAFLD includes a spectrum of disease that begins with simple steatosis (fatty change), then steatohepatitis (NASH) in 10-15% and eventually cirrhosis in 3-8%.
- Liver biopsy is the gold standard for diagnosis of NASH and stages of fibrosis and cirrhosis; however, several non-invasive blood tests have demonstrated an ability to predict the presence or absence of significant liver fibrosis in hepatitis.

Objectives

- To determine the ability of non-invasive blood tests (NAFLD, BARD, Fib-4, APRI) to predict liver biopsy findings of significant fibrosis (SF) vs no significant fibrosis (NSF) specifically in patients with MO.

Design

Liver biopsies from patients with MO undergoing gastric bypass surgery were studied retrospectively.

Inclusion criteria:
- BMI ≥ 40 kg/m² or > 35 kg/m² with Diabetes or hypertension
- Availability of data concerning sex, age, BMI, Diabetes, platelet count, AST, ALT and albumin within 6 months preceding surgery

Exclusion criteria:
- Any other potential cause of liver pathology
- Test cut-off scores for SF were set using available on-line calculators.

Results

<table>
<thead>
<tr>
<th>Blood Test</th>
<th>Parameters</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAFLD</td>
<td>Age, BMI, AST, ALT, Platelet, Albumin, DM</td>
<td>41.9% (13/31)</td>
<td>86.29% (107/124)</td>
</tr>
<tr>
<td>BARD</td>
<td>BMI, AST, ALT, DM</td>
<td>90.3% (28/31)</td>
<td>29.8% (37/124)</td>
</tr>
<tr>
<td>FIB-4</td>
<td>Age, AST, ALT, Platelet</td>
<td>3.23% (1/31)</td>
<td>100% (124/124)</td>
</tr>
<tr>
<td>APRI</td>
<td>AST, Platelet</td>
<td>16% (5/31)</td>
<td>99% (123/124)</td>
</tr>
</tbody>
</table>

Conclusion

- No single non-invasive test showed sufficient sensitivity and specificity to recommend it.
- Sequential combinations of these non-invasive test results might improve their predictive value.
- Diabetes was associated with SF in patients with MO and is likely to be a risk factor for progressive liver fibrosis.