Liver Staging: FibroScan

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History of Fibroscan

- Developed in 2003 in France, FDA approved in April 2013 in US
- Non-invasive method to determine liver fibrosis
- Used to measure shear wave speed in the liver to classify patients in terms of severity of liver fibrosis
- Vibration-Controlled Transient Elastography and is recorded in kilopascals ranging from 2.5 – 75.0, higher numbers equals higher fibrosis score
Liver biopsy:

- expensive
- invasive with potential complication risk such as pain (20%), bleeding (1%) and 1/10,000 risk of death
- Also potential for incorrect staging given small sample size

FibroScan:

- Quick, less expensive with point of care with instant results
- Non-invasive, painless without side effects
- Limitations: less reliable for lower degrees fibrosis, not covered by all insurance and not possible with ascites, morbid obesity, severe liver congestion, acute inflammation or narrow intercostal space.
Biopsy Vs FibroScan

• Fibroscan was found to be superior to routine diagnostic tests such as ultrasound and platelet count, allowing for additional 10-16% of patients to be diagnosed with cirrhosis that would have been missed by other modalities.

• TE was superior to detect cirrhosis compared to non invasive methods 90% vs APRI 70%, Fibrotest 79%, Platelet Count 82% and predicted the presence of esophageal varices with 76% sensitivity and 78% specificity with a cut off of 21.5 kPa

• In a large US multicenter study, TE was found to be an accurate assessment of liver fibrosis in patients with chronic viral hepatitis, which was consistent with European and Asian Cohorts

Interpretation

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Description</th>
<th>Neg Pred Value</th>
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</thead>
<tbody>
<tr>
<td>&lt; 7.1 kPa</td>
<td>Lower level of fibrosis, F &lt; 2</td>
<td>95%</td>
</tr>
<tr>
<td>≥ 9.6 kPa</td>
<td>Advanced Fibrosis F ≥ 2</td>
<td>85%</td>
</tr>
<tr>
<td>&gt; 12.9 kPa</td>
<td>Cirrhosis F 4</td>
<td>Score</td>
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</tbody>
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- These measurements are for Hepatitis C, there is variance with other types of liver disease, measurements are lower for hepatitis B and a little higher for NAFLD.
