FibroScan® is a new non-invasive method for the diagnosis of liver fibrosis in children: a prospective comparison with Fibrotest, and liver biopsy.

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Abstract

**Background & Aims**

**Introduction**

Transient elastography (FibroScan®) is a novel, non-invasive and rapid (< 5 mn) method to assess liver fibrosis by measuring liver stiffness in adult patients. Recent reports have shown that FibroScan® allowed accurate prediction of hepatic fibrosis in adult patients with chronic hepatitis C virus infection and in HIV-COVID-19 co-infected patients.

**Aim**

The aim of this prospective study was to evaluate the feasibility and the accuracy of FibroScan® for the detection of fibrosis and cirrhosis in children with chronic liver disease.

**Patients and methods**

• Prospective study

• 104 children with chronic liver disease

• Clinical, biological, morphological evaluation

• Fibrotest and FibroScan®

• If needed, liver biopsy – METAVIR and SQS® score

**Correlation of FibroScan® and liver biopsy in HCV patients**

<table>
<thead>
<tr>
<th>FibroScan®</th>
<th>METAVIR F0-F1</th>
<th>METAVIR F2</th>
<th>METAVIR F3</th>
<th>METAVIR F4</th>
</tr>
</thead>
<tbody>
<tr>
<td>F0-F1</td>
<td>0.94</td>
<td>0.93</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>0.85</td>
<td>0.86</td>
<td>0.85</td>
<td>0.85</td>
</tr>
</tbody>
</table>

**Characteristics of the 104 children**

- Gender (Boys / Girls): 49 / 55
- Mean age (years): 10.7 (1 month – 20 years)
- ALT (IU/l): 143 ± 249
- AST (IU/l): 123 ± 297
- Total bilirubin (µmol/l): 33 ± 60
- Platelet count (G/l): 218 ± 91
- Prothrombin Time (%): 85 ± 12
- Albumin (g/l): 41 ± 4

**Liver diseases**

<table>
<thead>
<tr>
<th>Disease</th>
<th>All children (n=104)</th>
<th>Children with liver biopsy (n=34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cystic fibrosis</td>
<td>38</td>
<td>0</td>
</tr>
<tr>
<td>Biliary atresia</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Chronic viral hepatitis</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>Wilson disease</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Autoimmune hepatitis</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>16</td>
<td>10</td>
</tr>
</tbody>
</table>

**Conclusion**

• In children, it is feasible to perform liver stiffness measurement using FibroScan®.

• FibroScan® is a good method for the evaluation of liver fibrosis and severity of liver disease.

• Fibrotest is less useful than FibroScan® for the evaluation of liver fibrosis.

• FibroScan® could avoid liver biopsy in many cases and its usefulness in the follow-up of children should be evaluated.

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