Effect of the degree of liver inflammation on FibroScan detection

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[Abstract] Objective To observe the degree of liver inflammation on transient elastography (FibroScan) detection value (FS). Methods A total of 282 patients with chronic hepatitis from 302 Hospital of PLA from April 2009 to December 2010 were enrolled in the current study. The patients were subjected to histologic examination of a liver biopsy and FibroScan detection. The patients were divided into two groups according to stage of fibrosis $F_3$ and $F_4$ to compare the FS values of the patients with different degrees of inflammation. The patients were divided into the $G_{13}$ group and $G_{14}$ group according to grade of histologic inflammation, and Receive Operating Characteristic (ROC) curve were drawn for the two patient groups to diagnose liver cirrhosis using the FS values and to analyze the correlation between the FS value of patients with the different degrees of inflammation. Results Up to 115 patients had histologic inflammation grade (G)1, 109 patients had grade 2, 54 had grade 3, and 4 patients had grade 4. Their FS values were $6.4 (2.9, 35.0)$, $11.6 (2.9, 45.0)$, $15.1 (5.2, 75.0)$, and $61.5 (45.0, 75.0)$, respectively. Significant differences were observed among the groups ($P<0.001, H=107.5$). Among the patients in groups $G_{13}$ and $G_{14}$, the FS value increased with the degree of inflammation ($P<0.001$). The area under the curve was 0.833 and 0.897 for the patients of $G_{13}$ and $G_{14}$ groups, respectively, using the FS value to diagnose liver cirrhosis. The FS threshold limit value was 17.7kPa and 18.7kPa, respectively. Conclusion Liver inflammation is one of the factors that affect FS values. The threshold limit for FS in diagnosing liver cirrhosis among patients with different degrees of liver inflammation varies.

[Key words] liver cirrhosis; biopsy; needle; inflammation; FibroScan

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临床诊断282名患者的病例

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<th>HBV</th>
<th>HCV</th>
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<th>PBC</th>
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<td>5</td>
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<td></td>
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<tr>
<td>6</td>
<td>48</td>
<td></td>
<td>6</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

2.1 纤维化程度（F）

不同纤维化级患者组织学炎症程度分布图

图1

2.2 治疗方法进行单因素方差分析

比较不同病理炎症分级的患者

F.S.比较采用非参数Kruskal-Wallis H检验

FIBROSCAN®

ALT

INR

ROC

2.3 比较采用非参数Kruskal-Wallis H检验

F.S.比较采用非参数Kruskal-Wallis H检验

FIBROSCAN®

ALT

INR

ROC

2.4 比较采用非参数Kruskal-Wallis H检验

FIBROSCAN®

ALT

INR

ROC

3
结果显示多级患者炎症程度稍重。

当然，任何一项测试都不能完全代表肝脏炎症的真实情况。

临床研究发现影响ALT指标年龄和糖尿病。

已有研究显示不同炎症程度下ALT值的具体原因不清。

对结果也会有一定程度的影响，当然，任何一项测试都不能完全代表肝脏炎症的真实情况。

分析不同炎症程度下ALT值的具体原因不清。

对结果也会有一定程度的影响，当然，任何一项测试都不能完全代表肝脏炎症的真实情况。

在减少糖尿病的基础上，对结果也会有一定程度的影响，当然，任何一项测试都不能完全代表肝脏炎症的真实情况。

ALT指标年龄和糖尿病。

已有研究显示不同炎症程度下ALT值的具体原因不清。

对结果也会有一定程度的影响，当然，任何一项测试都不能完全代表肝脏炎症的真实情况。

<table>
<thead>
<tr>
<th>G (m=167)</th>
<th>G (m=64)</th>
<th>G (m=25)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.9±10.9</td>
<td>36.7±11.1</td>
<td>34.3±11.2</td>
<td>0.252(4.6)</td>
</tr>
<tr>
<td>39.8±10.8</td>
<td>42.4±10.5</td>
<td>32.9±12.7</td>
<td>40.0±5.3</td>
</tr>
<tr>
<td>6.3(2.9,35.0)</td>
<td>9.1(2.9,38.0)</td>
<td>12.6(2.2,32.0)</td>
<td>&lt;0.00147(6)</td>
</tr>
<tr>
<td>6.6(5.6,22.6)</td>
<td>13.1(3.4,45.1)</td>
<td>18.0(10.4,75.0)</td>
<td>61.5(45.0,75.0)</td>
</tr>
<tr>
<td>35(9.31)</td>
<td>91(15.1517)</td>
<td>165(18.728)</td>
<td>&lt;0.00148(4)</td>
</tr>
<tr>
<td>167(11.21)</td>
<td>151(59.272)</td>
<td>154(79.293)</td>
<td>169(79.21)</td>
</tr>
<tr>
<td>12.4(9.3,49.9)</td>
<td>15.3(5.2,492.7)</td>
<td>15.8(7.6,322.1)</td>
<td>0.0515(5.9)</td>
</tr>
<tr>
<td>41.9±3.1</td>
<td>38.7±3.1</td>
<td>37.2±3.5</td>
<td>&lt;0.0016(3.1)</td>
</tr>
<tr>
<td>41.8±3.6</td>
<td>38.4±3.8</td>
<td>36.1±4.2</td>
<td>32.8±2.6</td>
</tr>
<tr>
<td>1.03±0.04</td>
<td>1.04±0.06</td>
<td>1.06±0.06</td>
<td>0.082(2.4)</td>
</tr>
<tr>
<td>1.03±0.06</td>
<td>1.10±0.05</td>
<td>1.11±0.05</td>
<td>1.23±0.14</td>
</tr>
</tbody>
</table>

Fig 2 ROC curve of liver cirrhosis diagnosed by FS in patients with different G grades.
【一】


【6】Han KH, Yoon KT. New diagnostic method for liver fibrosis and cirrhosis[J]. Internistology, 2008, 51(suppl1): 11-16.


【8】FibroScan<sup>®</sup> (Qi X MELD<sup>®</sup> <sup>(1)</sup>) parallels the results of biopsy and increases the diagnostic sensitivity and specificity for the diagnosis of drug-induced hepatitis[J]. Hepatology, 2000, 8(6): 324-328.


