Comparative evaluation of serology and polymerase chain reaction for hepatitis C viral infection in liver diseases

The diagnosis of hepatitis C virus (HCV) infection in acute and chronic liver diseases rests on the detection of the viral genome by polymerase chain reaction (PCR) and/or detection of specific antibodies by ELISA. We compared the results of these methods.

The study group consisted of 212 patients with acute viral hepatitis (AVH; n=71), fulminant hepatic failure (FHF; 42), subacute hepatic failure (SAHF; 10), chronic active hepatitis (CAH; 17), cirrhosis of liver (62) or hepatocellular carcinoma (HCC; 10). Hepatitis A virus (HAV) infection was diagnosed by detection of IgM anti-HAV antibodies in 11 patients (15.2%) with AVH and 22 (4.7%) with FHF. Hepatitis B was diagnosed by detection of HBsAg
<table>
<thead>
<tr>
<th>Disease group</th>
<th>No. of patients</th>
<th>NANB</th>
<th>Anti-HCV (ELISA)</th>
<th>HCV RNA (PCR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVH</td>
<td>71</td>
<td>42</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>FHF</td>
<td>42</td>
<td>18</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SAHF</td>
<td>10</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>CAH</td>
<td>17</td>
<td>8</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Cirrhosis</td>
<td>62</td>
<td>44</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>HCC</td>
<td>10</td>
<td>6</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

NANB = non A, non B

and/or IgM anti-HBc antibody in 18 patients (25%) with AVH, 22 (52.3%) with FHF, 6 with SAHF, 9 with CAH, 20 (31.2%) with cirrhosis and 4 with HCC. Sera samples which tested negative for the above markers were tested for HCV by a second-generation ELISA test (Pinnacle Biosystem, USA) and HCV RNA by PCR (Table). PCR was more frequently positive than ELISA.

Newer antibody tests, including third-generation ELISA and RIBA tests, particle agglutination tests, and IgM anti-HCV test are quite sensitive and specific and can diagnose HCV infection early. The RIBA-2 test can detect anti-HCV antibody at 11 weeks and always within 20 weeks from the onset of infection. But this is too long a period for a patient with FHF.

HCV is a more important etiologic agent in chronic liver diseases, and in these patients anti-HCV detection by ELISA may be used as a routine diagnostic modality.

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References

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