Prevalence and Molecular Analysis of Occult Hepatitis B Virus Infection Isolates in Cryptogenic Cirrhosis in Iran

by

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Introduction

Occult hepatitis B virus (HBV) infection is a well-recognized clinical entity characterized by the detection of HBV DNA in serum and/or liver in the absence of detectable HBV surface antigen (HBsAg), with or without any serological markers of a past infection.

Cryptogenic cirrhosis is a diagnosis made after excluding identifiable causes, including viral hepatitis, autoimmune hepatitis, and metabolic liver diseases. To investigate the prevalence of occult HBV infection among patients with cryptogenic cirrhosis.
METHODS

DNA Extraction

RealTime

PCR

Hemi nested or Nested

Sequencing

DIRECT SEQUENCING

Phylogenetic Network Analysis

Molecular Epidemiology Analysis
results

Prevalence of occult HBV

- Of twenty nine subjects, eleven (38%) were OBI-positive. Among the 11 OBI-positive patients, the mean age was 48 years, 9 (82%) were male and 2 (18%) were female.

- All the samples found positive by real-time PCR were also found positive by nested PCR. The levels of HBV DNA were all below 10,000 copies/mL.
## SEROLOGY/BIOCHEMISTRY ANALYSIS

<table>
<thead>
<tr>
<th></th>
<th>Seropositive (n=11)</th>
<th>Seronegative (n=18)</th>
<th>OBI-positive (n=11)</th>
<th>OBI-negative (n=18)</th>
<th>Total (n=29)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean±SD)</td>
<td>53±10</td>
<td>47±15</td>
<td>48±15</td>
<td>50±13</td>
<td>49±14</td>
<td>N.S.</td>
</tr>
<tr>
<td>Female</td>
<td>2 (18%)</td>
<td>3 (17%)</td>
<td>2 (18%)</td>
<td>3 (17%)</td>
<td>5 (17%)</td>
<td>N.S.</td>
</tr>
<tr>
<td>Male</td>
<td>9 (82%)</td>
<td>15 (83%)</td>
<td>9 (82%)</td>
<td>15 (83%)</td>
<td>24 (83%)</td>
<td></td>
</tr>
<tr>
<td>ALT (mean±SD)</td>
<td>93±103</td>
<td>73±84</td>
<td>85±81</td>
<td>78±98</td>
<td>81±91</td>
<td>N.S.</td>
</tr>
<tr>
<td>AST (mean±SD)</td>
<td>96±126</td>
<td>72±66</td>
<td>82±72</td>
<td>80±105</td>
<td>81±92</td>
<td>N.S.</td>
</tr>
<tr>
<td>Isolated Anti-HBc⁺</td>
<td>7 (64%)</td>
<td>0</td>
<td>3 (27%)</td>
<td>4 (22%)</td>
<td>7 (24%)</td>
<td>N.S.</td>
</tr>
<tr>
<td>Anti-HBs⁺</td>
<td>0</td>
<td>3 (27%)</td>
<td>6 (33%)</td>
<td>9 (31%)</td>
<td></td>
<td>N.S.</td>
</tr>
<tr>
<td>OBI⁺</td>
<td>4 (36%)</td>
<td>7 (39%)</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBI⁻</td>
<td>7 (64%)</td>
<td>11 (61%)</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

✓ This study suggests that diagnosis of cryptogenic cirrhosis based on HBsAg testing alone may miss a substantial proportion of HBV infections, and that assaying for HBV DNA is therefore important in HBsAg-negative patients.

• In some patients, low expression of HBsAg due to low viral load may be below the sensitivity of standard serologic assays.

• Etiological diagnosis of cryptogenic cirrhosis is significantly underestimated with current serology testing methods alone.
با تشکر از توجه شما

Thank you!