Letters to the Editor

Viral genotypes and human rs12979860 polymorphism of the IFNL3 gene in hepatitis C infected patients in Southern Brazil

Dear Editor,

Hepatitis C virus (HCV) infection is a global health problem and approximately 80% of the patients develop chronic hepatitis C, which can progress to liver cirrhosis and hepatocellular carcinoma. HCV genotype is a classical predictor of the success of the standard treatment (interferon-α in combination with ribavirin). HCV genotype 1 carriers have usually a lower rate of response than patients infected with HCV genotypes 2 and 3.1 Human single nucleotide polymorphisms near the gene for interferon-λ3 (IFNL3; formerly known as IL28B) were also recently associated with spontaneous HCV clearance and sustained response to interferon-based therapy.2 The present study aimed to determine the frequency of the HCV and IFNL3 genotypes in hepatitis C patients from the North region of Rio Grande do Sul state, Southern Brazil.

Adult individuals with chronic hepatitis C attended in referral services for patient care in Passo Fundo (a medium-sized urban center in the North region of Rio Grande do Sul state) were selected from August 2010 to July 2011. Socio-demographic data were obtained from a structured questionnaire and patient medical records were reviewed to obtain clinical and virological information. IFNL3-molecular analysis was performed as previously described.2 The study was approved by the Research Ethics Committee of the Universidade Luterana do Brasil (ULBRA).

A total of 191 HCV-infected patients were included in the study. Patients were predominantly female (52.9%) and had a mean age of 51.6 ± 11.4 years. Approximately half of the participants (n = 92, 48.2%) received blood transfusions and 75 patients (39.3%) reported that this condition was the possible HCV transmission route. Use of sharp objects (26.7%) and needle sharing (17.8%) were also cited as possible transmission factors. HCV genotype 1 was found in 76 (39.8%), genotype 2 in 46 (24.1%) and genotype 3 in 69 patients (36.1%). HCV genotype 1 was significantly more often in users of illicit drugs, while genotype 2 was more frequently found in women and old people. Sixty patients (31.4%) showed the CC, 97 (50.8%) CT and 34 (17.8%) TT IFNL3 genotypes (Table 1).

Some HCV genotypes have a restricted geographical distribution (genotypes 4-6), while others (genotypes 1-3) are more broadly disseminated. HCV genotype 1 is the most prevalent in the world.1 In the present study, genotype 1 was also demonstrated in the highest frequency, followed by genotypes 3 and 2, respectively. Other studies in Brazil have also shown the occurrence of these three genotypes, but genotype 1 with frequencies over 60%, while genotype 2 lower than 10%.3,4 This unusual high frequency of HCV genotype 2 confirms the results observed in a previous study.5 In the present report it was further demonstrated the high proportion of old women infected with this genotype. IFNL3 CC genotype, a good human prognostic factor of treatment outcome, was also found in a percentage similar to other Brazilian study.2

In conclusion, the data obtained in the present study have shown a high frequency of HCV genotype 2 in an urban center in Southern Brazil and suggest the HCV genotypes could have different transmission routes.
Table 1 – Distribution of socio-demographic and epidemiological characteristics in patients stratified according to HCV genotypes.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total (n = 191)</th>
<th>HCV genotypes</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>1 (n = 76)</td>
</tr>
<tr>
<td>Male gender</td>
<td>90 (47.1)</td>
<td>42 (55.3)</td>
</tr>
<tr>
<td>Age (years)</td>
<td>51.6 ± 11.4</td>
<td>50.0 ± 10.0</td>
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| Skin color
  White                         | 126 (66.0)     | 44 (57.9)     | 37 (80.4)     | 45 (65.2)     | 0.204  |
  Mixed/mulatto                  | 54 (28.2)      | 27 (35.5)     | 7 (15.2)      | 20 (28.9)     |       |
  Black                          | 11 (5.8)       | 5 (6.6)       | 2 (4.3)       | 4 (5.8)       |       |
| Educational level
  Complete primary education or less | 97 (50.8)   | 33 (43.4)     | 23 (50.0)     | 41 (59.4)     | 0.156  |
  Secondary or higher education  | 94 (49.2)      | 42 (56.6)     | 23 (50.0)     | 28 (40.6)     |       |
| Possible forms of HCV infectiona |                |               |               |               | 0.577  |
  Sex                            | 19 (9.9)       | 8 (10.6)      | 1 (2.2)       | 10 (14.5)     |       |
  Blood transfusion              | 75 (39.3)      | 26 (34.2)     | 23 (47.8)     | 27 (39.1)     |       |
  Infected material              | 51 (26.7)      | 19 (25.0)     | 15 (32.6)     | 17 (24.6)     |       |
  Hemodialysis                   | 2 (1.0)        | –             | 1 (2.2)       | 1 (1.4)       |       |
  Sharing needles                | 34 (17.8)      | 19 (25.0)     | 5 (10.9)      | 10 (14.5)     |       |
  Occupational exposure          | 7 (3.7)        | 2 (2.6)       | 1 (2.2)       | 4 (5.8)       |       |
  Smoking drug use               | 37 (19.4)      | 25 (32.9)     | 1 (2.2)       | 11 (15.9)     | <0.001 |
  Snorting drug use              | 28 (14.7)      | 19 (25.0)     | 1 (2.2)       | 8 (11.6)      | 0.001  |
  Injecting drug use             | 21 (11.0)      | 13 (17.3)     | 1 (2.2)       | 7 (10.1)      | 0.026  |
  Blood transfusion              | 92 (48.2)      | 33 (43.4)     | 25 (54.3)     | 34 (49.3)     | 0.491  |
  Hemodialysis                   | 4 (2.1)        | 1 (1.3)       | 1 (2.2)       | 2 (2.9)       | 0.831  |
  Tattoo                         | 343(17.3)      | 18 (23.7)     | 6 (13.0)      | 9 (13.0)      | 0.163  |
  Piercing                       | 4 (2.1)        | –             | 1 (2.2)       | 3 (4.3)       | 0.129  |
  IFNL3 – CC genotype            | 60 (31.4)      | 21 (27.6)     | 17 (37.0)     | 22 (31.9)     | 0.339  |

Variables expressed as number (percentage) or mean ± standard deviation.

* Totals do not coincide due to lack of data from certain participants in the study.

Conflicts of interest

The authors declare no conflicts of interest.

REFERENCES


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Received 25 July 2013
Accepted 5 December 2013
Available online 3 January 2014

1413-8670
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http://dx.doi.org/10.1016/j.bjid.2013.12.001