The Frequency of Hepatitis B and C Among Volunteer Blood Donors in Balochistan

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Introduction

Viral hepatitis is one of the major causes of chronic liver disease, including chronic hepatitis, cirrhosis, and hepatocellular carcinoma (HCC). Two main causes of this group of illnesses are hepatitis B and C viruses. More than 350 million people worldwide are affected with chronic hepatitis B and thus pose a serious threat to public health, although it is prevalent all around the world but Asian region remains an area with high hepatitis B endemicity (1, 2), more than 75% of these 350 million people are from South East Asia and the Western Pacific region. Hepatitis B infection claims the lives of 1-2 million people every year and thus represents an important public health challenge (1).

Similarly Hepatitis C virus (HCV) infection is also an important worldwide public health problem. It is believed that 2-3% of the world’s population is persistently infected with HCV and up to 170 million individuals may be infected, all of them are at risk of developing cirrhosis and primary liver cancer. Unsafe injections, use of blood-contaminated implements for surgery, traditional scarification, injecting drug use, acupuncture, tattooing, body piercing, mother-infant transmission, and sexual transmission are few sources of viral hepatitis transmission but in undeveloped countries or in countries where laws for safe blood transfusions are not implemented blood and blood products transfusion are the most common sources of viral hepatitis transmission (3), therefore its prevalence is expected to be higher in larger urban centers, where there is easy access to complex medical care, including blood therapy and also a higher concentration of injected drug use.

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Received: 12 Oct 2006 Revised: 17 Feb 2007
Accepted: 18 Aug 2007

Hep Mon 2007; 7 (2): 73-76
Several epidemiological studies on hepatitis B and C have been conducted, mostly on blood banks (4, 5), and some of them analyze specific subpopulations, usually at a higher risk for blood-borne or sexually-transmitted infections, such as patients infected with HIV (6, 7), sex workers (8), dialysis patients (9, 10), intravenous drug users (11), prisoners (12), hemophiliacs (13), and populations in hyper endemic regions (14-16). In Pakistan both these infections are common with considerable variation in different parts of the country because of variability in the ethnicity and geography (17, 18). Despite the clinical and epidemiological importance and the impact of these diseases, no nationwide study on hepatitis B and C has been conducted in Pakistan. The objective of our study was to evaluate the seroprevalence of hepatitis B and C among the blood donors in Quetta city and its suburbs.

Materials and Methods

This cross-sectional study was carried out in Quetta from January 2006 to June 2006. 1474 blood donors presenting to the blood banks of Sandeman Provincial and Lady Duffren hospitals, Quetta for blood donation who were not professional blood donor were selected. Questions regarding frequent blood donation, surgical procedure in past and other risk factors about hepatitis B and C transmission were asked. Informed consent obtained, physical examination was done and then blood drawn for test. They were tested for HBsAg and anti-HCV antibodies in the laboratory; the collected data analyzed by SPSS 12.0 and results shown in frequencies and percentages.

Results

Out of 1474 blood donors selected by random sampling 1284 (87.1%) were males and 190 (12.9%) were females. The mean age was 25 (range: 16-49) years. 71 (4.8%) were positive for HBsAg (63 males & 8 females), 26 (1.8%) for anti HCV (21 males & 5 females) and 4 (0.27%) were positive for both (3 males & 1 female). Most of them (84.8%) belonged to ages 21-40 years. Among 71 positive cases of HBsAg, the mean age was 23 (range: 18-44) years. In 26 cases of hepatitis C, the mean age was 29 (range: 21-44) years; while in combine hepatitis B and C positive group total number of cases were 4 with mean age of 28 (range: 23-44) years (Table 1 and 2).

Discussion

Pakistan remains in the intermediate HBV and HCV prevalence area (19, 20). The important risk factors identified world wide for the spread of hepatitis B and C are transfusion of blood and blood products, I/V drug abuse, therapeutic injections, re-use of syringes and needles, high risk sexual behavior,

<p>| Table 1. Frequency according to age groups |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Percent</th>
<th>Positive anti-HCV</th>
<th>CI*</th>
<th>Positive HBsAg</th>
<th>CI*</th>
<th>Positive HBsAg &amp; anti-HCV</th>
<th>CI*</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 to 20 years</td>
<td>120</td>
<td>8.1%</td>
<td>0 (0%)</td>
<td>0</td>
<td>7 (5.8%)</td>
<td>2.3-11.6</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>21 to 40 years</td>
<td>1250</td>
<td>84.8%</td>
<td>24 (1.9%)</td>
<td>1.2-2.8</td>
<td>62 (5%)</td>
<td>3.8-6.3</td>
<td>3 (0.2%)</td>
</tr>
<tr>
<td>41 to 50 years</td>
<td>104</td>
<td>7.1%</td>
<td>2 (1.9%)</td>
<td>0.2-6.7</td>
<td>2 (1.9%)</td>
<td>0.2-6.7</td>
<td>1 (0.06%)</td>
</tr>
</tbody>
</table>

*CI: 95% Confidence Interval

<p>| Table 2. Collective case summery for hepatitis B, C and both |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Mean age (yrs)</th>
<th>Minimum age (yrs)</th>
<th>Maximum age (yrs)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive HBsAg</td>
<td>71 (4.8%)</td>
<td>23.2</td>
<td>18</td>
<td>44</td>
<td>63 (4.9%)</td>
</tr>
<tr>
<td>Positive anti-HCV</td>
<td>26 (1.8%)</td>
<td>29.9</td>
<td>21</td>
<td>44</td>
<td>21 (1.6%)</td>
</tr>
<tr>
<td>Positive HBsAg &amp; anti-HCV</td>
<td>4 (0.27%)</td>
<td>28.2</td>
<td>23</td>
<td>44</td>
<td>3 (0.2%)</td>
</tr>
</tbody>
</table>
mother to child etc. Local studies suggest that risk factors for HBV and HCV infections in this part of the world differ from those in Europe and United States. High poverty with low education level, unnecessary use of injections, re-use of syringes and lack of knowledge about the transfusion of unsafe blood and blood products has lead to increased frequency of hepatitis B and C in this region with parenteral mode of transmission as common source (21-23).

Scott Gottlieb (24) showed that almost 2% of US and 1% of UK population is infected with hepatitis C which in our study is 1.8% which is very close to those studies the low frequency in our study could be due to fact that this region is lacking in basic health facilities and use of both blood and blood products and reuse of syringes is thought to be one of the common cause of hepatitis B and C transmission in our region (21, 23). In Shame’s (25) study prevalence of HCV antibodies were 37% and hepatitis B was 8.7% in prisoners of Ireland which is much higher then our study in which it is 1.8% and 4.8% for hepatitis C and B respectively this major difference could be due to the fact that the study by Shame was conducted in prisoners which is a high risk group because most of them are sexually active and are prone to drug abuse.

Amin et al. (26) in Lahore and Tanwani and Ahmad (27) in Islamabad showed high prevalence for hepatitis B and C in their studies much higher then our study, the much more chances of blood transfusion, use of unsterilized syringes should be kept in mind as theses are common problems in big cities like these two. Study by Ali et al. (28) showed frequency of HCV antibodies 1.87% in Quetta CMH which is very close to the frequency that is observed in our study for hepatitis C. In an other study by Ally (29) showed that the frequency of HBsAg was 4.36% and anti HCV antibodies was 5.84% which is decreasing with the passage of time and the reason for this reduction in prevalence is due to better awareness and knowledge about these diseases and their mode of transmission. Toledo et al. (30) showed that the prevalence of hepatic c antibodies was 1.5% and that of hepatitis was 2.6% these frequencies for both the infection are very close to the one which we have observed in our study the brazil being and under develop country like us could be having similar problems as we have in basic health facilities this could be one of the reason.

Conclusion

The overall prevalence of HBsAg observed 4.8% which is similar as in the rest of the country contrary to the belief that it is very high in Balochistan the vaccination program implementation in this province will stop it from rising high. The frequency of HCV is 1.8% which is much less then the frequency noted in other studies in the country better education regarding mode of transmission and safe blood transfusion will prevent the spread of these disease further.

References


