Risk factors for Hepatitis B
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Abstract

Background: To evaluate the risk factors for Hepatitis B infections

Methods: In this cross sectional descriptive study patients presenting to medical OPD and emergency room with confirmed diagnosis of hepatitis B, were included. Any patient with concomitant Hepatitis C and D were excluded. Information related to presence of risk factors like dental procedures, intravenous drug abuse, occupational risk, blood transfusions, multiple sexual contact, tattooing and haemodialysis was recorded.

Results: 141 patients presented with Hepatitis B in study period. Majority (70%) were males. Out of these (33%) were Intravenous drug abusers, (27%) had history of dental procedures, (9%) had sexual contact history with an infected individual as most likely source of infection, 5% had a history of blood transfusion, 3% were health workers and 2% were barbers.

Conclusions: Majority (83%) had at least one risk factor present for hepatitis B. The most common risk factor was IV drug abuse and dental procedure. With proper prevention and awareness this can be overcome and will significantly reduce the burden of disease.

Key Words: Hepatitis B, Risk factors

Introduction

Chronic hepatitis B is defined as the persistence of HBsAg (Hepatitis B surface antigen) in serum for at least 6 months.¹ Hepatitis B Virus (HBV) infection contracted early in life may lead to chronic hepatitis, then to cirrhosis, and finally to hepatocellular carcinoma (HCC), usually after a period of 30 to 50 years. HBV occurs worldwide. The highest rates of Hepatitis B surface antigen (HBsAg) carrier rates are found in developing countries with primitive or limited medical facilities. Global estimate put 350 million people chronically infected with HBV.³ There is significant disease burden with estimated 5-8% people have Hepatitis B in Pakistan and is termed a shadow epidemic.⁴ A weighted average of hepatitis B antigen frequency among healthy adults in Pakistan was 2.4% (range 1.4–11.0%). This shows a significant disease burden in Pakistan. Given its large population (165 million) and intermediate to high rates of infection, Pakistan is among the worst afflicted nations.⁴ Hepatitis B has a spectrum of risk factors; each of them includes contact with blood or blood products of an infected person. Some of the risk factors include; infected pregnant mothers, health care workers, intravenous drug use, use of unsterile surgical or dental equipment, tattooing, travel to Hepatitis B endemic areas, hemodialysis, heterosexuality and HIV infection.⁶

Heterosexuality is also a documented risk factor for acquiring hepatitis B infection and in 1986 was documented to be more prevalent in those with increased number of partners by upto four times.⁷ It shows that greater the number of sexual partners, greater is the risk for getting the infection. Lack of the adequate vaccination among high risk groups like doctors, dentists and hospital personnel is a risk factor.⁸ A study in Iran concluded that a history of endoscopy, major surgery, and tattooing were major risk factors for developing chronic Hepatitis B infection. In Pakistan the important contributors for different types of hepatitis were blood transfusion, surgical procedures and history of piercing in last six months.²

Patients and Methods

This cross sectional descriptive study was conducted at Holy Family Hospital (HFH) during the period of January 2013 to December 2013. Patients Presenting to medical OPD, Emergency room with confirmed diagnosis of hepatitis B, were included. All patients had confirmed diagnosis of Hepatitis B. Any patient with concomitant Hepatitis C and D were excluded. Information related to presence of risk factors like dental procedures, IV drug abuse, occupational risk, blood transfusions, multiple sexual contact, tattooing and haemodialysis was recorded.

Results

One hundred and forty one patients presented with Hepatitis B in Holy family hospital. Majority (70%) were males and 30% were females. Amongst these 141
patients at least one risk factor was found to be positive in 83%. IV drug abusers and dental work done with unsterilized equipment were the most commonly prevalent risk factors (Table 1). When intra-familiar risk of Hepatitis B was assessed it was found out the 38% had a intra-familial risk factor (Table 2).

Table 1: Hepatitis B- Risk Factors (n=141)

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>No</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV drug abuse</td>
<td>51</td>
<td>36</td>
</tr>
<tr>
<td>Dental Procedures</td>
<td>39</td>
<td>28</td>
</tr>
<tr>
<td>Sexual contact</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>Blood transfusions</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Barbers</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Health Care workers</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>None</td>
<td>24</td>
<td>17</td>
</tr>
</tbody>
</table>

Table 2: Hepatitis B and Intra-familial risks

<table>
<thead>
<tr>
<th>Intra-familial risk</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>25</td>
</tr>
<tr>
<td>Spouse</td>
<td>20</td>
</tr>
<tr>
<td>Brother</td>
<td>16</td>
</tr>
<tr>
<td>Sister</td>
<td>11</td>
</tr>
<tr>
<td>Father</td>
<td>2</td>
</tr>
<tr>
<td>Children</td>
<td>2</td>
</tr>
<tr>
<td>Other relatives</td>
<td>24</td>
</tr>
</tbody>
</table>

Discussion

Review of Pakistani literature verifies liver pathology as a frequent cause of admission in our local hospitals. A study in Morocco showed the frequency of HbsAg was 2.29% and 0.93% in male and female subjects respectively in general population of Morocco showing a higher occurrence in males as compared to females which is agreement with our study. The same study in Morocco revealed dental extraction procedure as the leading cause of Hepatitis B whereas our study showed IV drug users as the most common risk factor of Hepatitis B followed by dental procedures. In Pakistan syringes are reused and sterility of injections is often not maintained due to financial restrictions and lack of awareness among the healthcare providers and the population in general. These injections appear to be the single most significant factor in the spread of HBV and HCV in the general population of Pakistan.

There are about 1.5 million units of blood products transfused each year in Pakistan. Our research shows that at least 5% of the presenting population had a blood transfusion as cause of Hepatitis B. Data on the proper processing and safety of blood transfusion is not available. Poor management in this regards contributes significantly to the disease burden.

Certain professions like healthcare workers, sex workers, and barbers may be at increased risk of getting HBV and HCV. The best studied amongst them in Pakistan are healthcare workers, showing a relatively higher frequency (weighted average 6% and 5.5% for HBV and HCV, respectively) than in general population. Our study showed 3% were Health care workers and 2% were barbers.

Some studies have shown a relatively higher frequency in the household members of patients with HBV and HCV, other studies in the spouses of index cases have shown rates similar to controls. Pasha et al. showed the frequency of HCV in household members of HCV patients to be 2.5 times that of the general population, but no routes of transmission within the household were associated. The international literature suggests that the sexual transmission of HCV is very low. It is likely that the high frequency reported in household contacts in Pakistan may be due to the fact that they are exposed to the same community risk factors as the index patient, rather than intra-household transmission per se. In contrast, HBV intra-familial transmission is well documented outside of Pakistan, and HBV is far more infectious as compared to HCV or HIV.

It is estimated that approximately 2 billion people have serological evidence of past or current HBV infection. And more than 350 million are chronic carriers of HBV. Among them around 75% of chronic carriers live in Asia and western pacific. It was reported that 15-40% of HBV infected patients would develop cirrhosis, liver failure or HCC and 500,000 to 1.2 million people die of HBV infection annually.

Conclusion

1. The frequency of risk factors was found to be very high (83%). High prevalence of Hepatitis B patients suggests that the disease burden is substantial globally, and steps must be taken for its prevention and control.
2. Hepatitis B vaccination strategy must be prioritized for its prevention

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References