Short Communication

The role of hematites (bloodstones) communally used in barbershops in the transmission of Hepatitis B virus

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In many countries, an apparatus called hematite (bloodstone) is used to stop bleeding caused by shaving in men in barbershops. One hematite may be used for more than one person. Till date, there are no studies that demonstrate the role of these stones in hepatitis B virus (HBV) transmission. The aim of this study was to show the role of hematites used for more than one person in barbershops in the transmission of Hepatitis B. The hematites were numbered and DNA of the Hepatitis B virus (HBV DNA) load was investigated by PCR. We could not detect HBV DNA in any of the 20 hematites. As a result, there was no scientific evidence of hematites transmitting HBV DNA.

Key words: Hematite, hepatitis B virus, barbershop.

INTRODUCTION

Hepatitis B disease is an infection caused by Hepatitis B virus from the family of Hepadnaviridae. Hepatitis B virus is transmitted mainly by blood, sex, and maternal pregnancy. Therefore, healthcare employees, other occupational groups dealing with injured people, patients exposed to surgical interventions due to various reasons, people having unsafe sex, babies born by mothers previously having the disease and by carrier mothers are the major risk groups. Today, approximately 5% of the entire world population is Hepatitis B virus carriers, and it is assumed that the number of carriers is about 350-400 million. It is accepted that each year, 50 million new cases are added up to this number (Hou et al., 2005; Chu and Lee, 2008; Hassan et al., 2008).

According to World Health Organization (WHO), even though a chronic Hepatitis B carrying person lives sufficiently long enough, he/she cannot avoid getting liver cancer (Ökten, 2003; Sharma et al., 2005). Though the rate of carriers varies in a range of 4 to 15% in Turkey, according to the studies performed in different sites, it is reported that the number of carriers is 5-6 million, and an annual average number of 150 thousand new cases is observed. Given the complications of chronic Hepatitis B virus infection and its impact on quality of life, protectiveness and prevention gain importance (Çadırcı, 2007; Tan et al., 2008; Ong et al., 2008).

Since no common vaccination program is available especially for adults, the prevention of modes of transmission is a significant strategy for being protected from the disease (prophylaxis). The largest group that has increased risk of contact with Hepatitis B virus among adults is the occupational risk group. One of the non-healthcare service groups with a high risk of contracting the disease is the coiffeurs, who provide manicure and pedicure services and who may form an appropriate setting of transmission mode for their clients during the supply of the services (Johnson et al., 2001; Chu and Lee, 2008). Hepatitis B incidence is generally

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high in developing countries. Especially, barbershops and coiffeurs are accused of hepatitis B transmission. In many countries including Turkey, an apparatus called hematite is used in barbershops to stop bleedings caused by shaving (Figure 1). Hematite contains aluminum sulfate and stops minor bleedings by causing vasoconstriction in capillary veins. One hematite may be used for more than one person. Therefore, HBV transmission by hematites is possible. What is the role of hematites in HBV transmission? In the literature review, we could not get any publications on this subject. To the best of our knowledge, this is the first time this study has been planned to demonstrate the role of hematites in Hepatitis B transmission.

MATERIALS AND METHODS

Collection of samples from barbershops

For this study, 150 barbers across the City in Sakarya were asked if they would volunteer to participate in the study. 20 (13.3%) of them gave their given consent for the study. Although we explained the purpose to the study to them, the barbers were afraid of and skeptical of any adverse consequence. One hematite was taken from each voluntary barbershop, and was stored at -20°C until the study day.

Performance of PCR test

These hematites were numbered, and Hepatitis B virus DNA (HBV DNA) load was investigated by PCR. Since no such study has been performed previously, validation study was performed first. The study procedure for hematites, including those contaminated at several concentrations due to validation study and direct test, is as follows; Firstly, hematite was placed in a tube (150 µl), 0.15 ml serum sample (or hematite sample tested directly) was added on top of it and was mixed by vortex. It was kept for 20 to 30 min for the penetration of the sample into the hematite. 1 ml phosphate buffer (pbs) was added into the tube with hematite sample and mixed by vortex; it was kept for about 1 h. Afterwards, it was centrifuged, isolated with other patients’ serum samples and studied immediately.

In HBV DNA measurement in eluate wash, Cobas TaqMan HBV system was used. In this system, HBV-specific complementary primaries were used and amplified by target DNA PCR; HBV measurement was performed by cleaved dual fluorescent dye labeled oligonucleotide detection probes. During the procedure, HBV quantitation standard DNA was amplified and detected together with samples. Viral load re-gain study in hematite samples with HBV-DNA is shown in Table 1.

RESULTS AND DISCUSSION

Under the 6 IU/ml (low positive) and more, HBV DNA gain was realized from hematites with HBV DNA viral load of 15000 IU/ml and over. In all the 20 hematites, HBV DNA could not be detected.

Hepatitis B is a global problem. Many methods have been studied for preventing the spread of the disease. The most effective one among these is vaccination study. Additionally, safe sex, safe drug usage, and limitation of medical devices contaminated by blood will increase protection from Hepatitis B infection. Usage of concomitantly used common syringe and device contaminated by blood (for example, tattoo, piercing, and...
Table 1. Viral load re-gain study in hematite samples with HBV-DNA.

<table>
<thead>
<tr>
<th>Study number</th>
<th>Blood contaminated HBV-DNA Viral Load (IU/ml)</th>
<th>Blood Stone HBV-DNA Regain (IU/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16 500 000</td>
<td>20 700</td>
</tr>
<tr>
<td>2</td>
<td>200 000</td>
<td>374</td>
</tr>
<tr>
<td>3</td>
<td>15 000</td>
<td>Low positive &lt;6</td>
</tr>
<tr>
<td>4</td>
<td>1 500</td>
<td>Negative</td>
</tr>
<tr>
<td>5</td>
<td>150</td>
<td>Negative</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>Negative</td>
</tr>
</tbody>
</table>

barber knives) are subjects studied (Waheed et al., 2010). The role of such devices has been demonstrated clearly in Hepatitis B virus transmission (Eroğlu et al., 2010). For the first time, we have studied HBV DNA in 20 hematites, which we could reach through this study. Currently, communal use of hematites is outdated. This is the most significant reason for not expanding the study further.

However, we could not detect HBV DNA in any of the samples we have studied. There might be several reasons for this. Firstly, none of the hematites we have taken may be transmitted by a HBV-contacted patient, and therefore we may find all negative. Secondly, perhaps HBV DNA was available in hematites; however our kit may not have been sensitive enough to detect this. The third possibility was that the chemicals in hematites may have damaged Hepatitis B virus DNA structure, and therefore we may have not detected the presence of viral material.

As a result, we proved HBV DNA transmission of hematites with our validation study. But, no scientific evidence has been reached for the HBV DNA transmission by hematites in this study and there is also a limited number of samples communally used in barbershops.

REFERENCES
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