Epidemiological Study of Seropositive Infection HBV, HCV and HIV in Male healthy blood donors of Gadap Town, Karachi

SHAZIA AZHAR¹, MUHAMMAD IFTIKHAR², MUHAMMAD USMAN³, SOBIA ZEESHAN⁴, MUNAZZA SALAHUDDIN

ABSTRACT

Aim: To determine the prevalence ratio of seropositive infection of HBV, HCV, and HIV in healthy males of low socioeconomic areas of Gadap town Karachi.

Methodology: The Epidemiological study was conducted on 2400 healthy blood donors. Blood samples were collected in a free camp organized by the Fatimid Blood Foundation at Gadap town Karachi. Only male volunteers were selected for this study, whose age criteria were between 18-50 years. After collection of blood samples, the prevalence ratio of HBV, HCV, and HIV was analyzed by Architect-I analyzer. Whereas estimation of haemoglobin was determined by a Sysmex machine, and estimation of BMI was performed by a National Heart Lung Institute of Karachi.

Results: In our cross-sectional study, we observed that out of 2400 male blood donors, 40 were seropositive for HBV, 5 were seropositive for HCV, and 12 were seropositive for HIV. Their BMI was 31.68±0.53 and waist hip ratio was 1.16±0.14.

Conclusion: We concluded that the prevalence of HBV, HCV, and HIV infections in Gadap town, Karachi, is mostly common in male healthy blood donors as compared with those in healthy blood donors in other areas.

Keywords: Cross-sectional study, Seropositive blood donors, HCV, HIV, HBV.

INTRODUCTION

Infectious diseases can be transmitted by blood transfusion. These infectious diseases caused by, hepatitis B (HBV), hepatitis C (HCV), and human immunodeficiency virus (HIV). The prevention of these infections in the blood donors, they can easily spread in community. Blood can transfuse many types of infections which can be classified into viral, bacterial, and parasitic infections. These viral infections like Hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV) are blood-borne pathogens. The transmission route by blood, sex, transmission from infected mothers to their babies, intravenous drug use, needle stick injury, haemodialysis, tattooing, multiple sexual partners, parenteral routes like un-sterilized needles, syringes. Moreover, in low socio-economic areas, transmissions of these infections by the infected family member have also been identified. Hepatitis B virus (HBV) is responsible for hepatitis, liver cirrhosis and hepatocellular carcinoma. Approximately 2 billion people are infected with HBV worldwide. In Pakistan, transmission of HBV, HCV, and malarial infection may be reduced by public awareness programmes like health education programmes on safe sex, blood transfusions, injection, and standardized and ensured safety in blood banks. Whereas in local areas of Pakistan where absence of appropriate blood screening and lack of public awareness, prevalence ratio of these infections is decreases. In develop countries have been successful to prevalence of these blood borne infections like HBV, HCV, HIV infections through vaccination. Pakistan also initiated universal HBV, HCV vaccination for neonates through its expanded program of immunization with the assistance of Global Alliance for Vaccines and Immunization. The number of volunteer blood donors increases as compared with healthier donors in our communities. We can differentiate between healthy blood donors and volunteer blood donors on the basis of blood screening test like Hb, HBsAg, HCV, HIV, and malarial parasites. If donors have positive status they cannot fulfill our requirement they rejected. The purpose of this epidemiological study to determine prevalence ratio of HBV, HCV, HIV in male volunteer blood donors in low socio economically area of Gadap town Karachi, because these low socio-economic areas is effected than other developing areas, in these areas prevalence ratio decreases due to lack of public awareness and health facilities.

MATERIALS AND METHODS

This study was carried out by arranging free camp for blood donation in Gad town Karachi Pakistan. A predesigned questioner was used to gather data, various exposures to blood and blood products exposure to harmful chemical or drug abusers. We selected 2400 donors for this purpose of study. These donors belongs the age groups of 25–40 years. Among 1600 donors was serological positive in out of 2400. BMI and waist hip ratio was determined by following criteria of the national heart and lung blood institute. Whereas estimation of haemoglobin was determined by Sysmex machine, and estimation of BMI was performed by Architect-I analyzer. It is totally automated instrument which works...
HIV, waist hip ratio and HCV.

RESULTS

In our study we selected 2400 donors. These donors belong the age groups of 25-40 years. The study was carried out by arranging free camp for blood donation in Gad town Karachi Pakistan. Among 1600 donors was serological positive in out of 2400. In our study we also noted that BMI (31.68±0.53) and waist hip ratio (1.16±0.14)of donor subjects shows in (table1), it was noted that donors are nearly obese whereas estimation of haemoglobin (14.16±0.556) was determined by symsmachine, it was also noted that haemoglobin of donors subjects and estimation of seropositive samples was performed by Architect I-2000 system.

Table 1: Comparative study of body mass index, waist hip ratio

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Donors (n=2400)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>31.68±0.53</td>
</tr>
<tr>
<td>Waist/Hip</td>
<td>1.16±0.14</td>
</tr>
<tr>
<td>Haemoglobin</td>
<td>14.16±0.556</td>
</tr>
</tbody>
</table>

Table 2: Positive cases of HBV, HCV and HIV

<table>
<thead>
<tr>
<th>Parameter screening for</th>
<th>Positive patients (n=1600)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>HBV</td>
<td>800</td>
</tr>
<tr>
<td>HCV</td>
<td>500</td>
</tr>
<tr>
<td>HIV</td>
<td>300</td>
</tr>
</tbody>
</table>

Table 3: Positive cases of HBV, HCV and HIV in various age groups

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>HBV (%)</th>
<th>HCV (%)</th>
<th>HIV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-30 (n=600)</td>
<td>300 (50%)</td>
<td>200 (33%)</td>
<td>100 (16%)</td>
</tr>
<tr>
<td>31-35 (n=900)</td>
<td>600 (66%)</td>
<td>200 (22%)</td>
<td>100 (11%)</td>
</tr>
<tr>
<td>36-40 (n=900)</td>
<td>500 (55%)</td>
<td>400 (44%)</td>
<td>-</td>
</tr>
</tbody>
</table>

Fig. 1: Graphic representation of percentage of HBV, HCV and HIV

DISCUSSION

Hepatitis B, Hepatitis C, and Human immunodeficiency virus are one of the major causes of death, because it is the major cause of hepatotoxicity. These infections are transmitted by infected blood transfusion, infected needle, semen, breast milk, body piercing tattooing, street garbage picking alcohol of drugs, sexual transmission, poor hygiene and infected instruments like shaving brush and hair cutting. We should educate people even globally is through social media whether Face book, twitter, instagram or through development of a detailed website with information on these disease.

According to National Hospital of Tropical Diseases (NHTD) is located in Hanoi, Viet Nam, is working since the year 2003, they are working under the guidelines of WHO. They find out infection of HBV were 53.2%, HCV was 51.6%, and HIV was 50.5% in male healthy donor. Our study correlates with Vietnam study we find out HBV 50%, HCV 31% and HIV 18.5%, but in our country HCV and HIV is uncommon. In our study which was conducted in Gadap area we also find out that these infections mostly spread by infected needle and injection.because in our society there is no concept to use needle and blades in laboratories and barber shops, their waste disposal not up to the mark. Drug added persons use these discarded needles, and in the same ways barber shops they don’t care proper hygene’s they used blades infected person to person, which is responsible for spreading HBV, HCV and HIV infections. HBSAgdestroy immune system’s B cells, which produce antibodies to eradicate HBV’s antigens. When young children and healthy person are infected, these B-cells become paralyzed or exhausted HBSAg engulfing them and they don’t have antibodies to fight against infection. There is currently no vaccine to protect

Fig. 2: Graphic representation of percentage of HBV, HCV and HIV in various age groups
against hepatitis C and HIV. Unlike hepatitis A and B, those persons who having hepatitis C and HIV can be re-infected after completed successful treatment[31].

CONCLUSION
We concluded that HBV infection is mostly common in Male healthy blood donors as compares with HCV and HIV infections in Gadap town Karachi.

REFERENCES