ABSTRACT

OBJECTIVES: To determine the frequency of major transfusion-transmissable infections (Hepatitis B, Hepatitis C, Human Immunodeficiency Virus and Syphilis) among blood donors in Rahim Yar Khan.

STUDY DESIGN: Cross Sectional Study.

PLACE & DURATION OF STUDY: Blood bank of Sheikh Zayed Medical College/Hospital Rahim Yar Khan. Three months, from 5th November 2015 to 28th January 2016.

METHODOLOGY: Immunochromatographic technique (ICT) was used to analyze the frequency of HBV, HCV, HIV and Syphilis in all the blood donors.

RESULTS: The study included 5.3% females and 94.67% males. Out of 1500 subjects, 3% individuals were within the age of 18-30 years, 16% were 41-50 years and 1% were within 41-50 years. Subjects positive for HCV, HBV, Syphilis and HIV were 4.1%, 1.47%, 0.46% and 0.13% respectively.

CONCLUSION: Current study showed that the most frequent infection was HCV followed by HBV, Syphilis and HIV among the healthy blood donors. To decrease the future burden of these major transfusion transmissible infections in the Pakistani population, awareness programs are suggested.

KEYWORDS: Blood donors, Transfusion-transmissible Viral Infections, Prevalence, HBV, HCV, Syphilis

INTRODUCTION

Blood transfusion is a remedial practice, since no genuine alternative, having potential of transmitting fatal infectious diseases. Each blood transfusion carries a potential danger for communicable diseases. Transfusion of safe blood is the cornerstone of a successful health system quality. Hepatitis B (HBV), hepatitis C (HCV), Human Immunodeficiency Virus (HIV) and Syphilis are the main fatal agents in transfusion transmitted infections (TTI) and still a main burden for health care in the world. Their frequency rate in the world is hard to assess due to the latent and asymptomatic disease before the clinical appearance.

In Pakistan more than 1.5 million units of blood are collected per annum, majority from replacement donors and about 10% from professional paid donors. The hidden paid donors are professionals and are awfully a major risk for hepatitis B, C and HIV. Provision of safe blood and its components possesses a series of processes with potential risk of error in every step of this "transfusion chain", inaccuracy in any phase can have serious consequences for the recipients. The intravenous drug users, needle injuries, hemodialysis, persons with multiple sexual partners and tattooing were identified as the regular modes of transmission in the developed world. According to World Health Organization (WHO) recommendations safe blood transfusion means the supply of cross-match compatible blood which should be screened for at least five transfusion transmitted infections i.e. HBV, HCV, HIV, Syphilis and Malaria.

The potential consequences of these transfusion transmitted infections to the recipients and paucity of evidence regarding its magnitude in rural agricultural areas of Pakistan, compelled to determine the frequency of major transfusion-transmissible infections (Hepatitis B, Hepatitis C, Human Immunodeficiency Virus and Syphilis) in blood donors of Rahim Yar Khan.

METHODOLOGY

This was a cross sectional study which included 1500 blood donors of 18 to 50 years of age group, who fell in WHO blood donation criteria, selected by convenient sampling technique. This study was conducted in Blood bank of Sheikh Zayed Medical College/Hospital Rahim Yar Khan, from 5th November 2015 to 28th January 2016. Inclusion criteria followed was; age from 18-50 years of either sex. The individuals who refused to give informed verbal consent were excluded. The demographic data was obtained directly from the blood donors and a questionnaire was observed which contained the information about age, gender, blood group, weight, blood pressure and date of last donation. Samples were collected in the blood bank of Sheikh Zayed Medical College/Hospital Rahim Yar Khan.
TABLE - I: DESCRIPTIVE STATISTICS OF STUDY SUBJECTS

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>80</td>
<td>5.3%</td>
</tr>
<tr>
<td>Male</td>
<td>1420</td>
<td>94.7%</td>
</tr>
<tr>
<td>Total</td>
<td>1500</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age groups (Years)</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>1245</td>
<td>83%</td>
</tr>
<tr>
<td>31-40</td>
<td>240</td>
<td>16%</td>
</tr>
<tr>
<td>41-50</td>
<td>15</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>1500</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table-I: Shows that female were 80 (5.3%) and male were 1420 (94.7%). Out of 1500 donors, 1245 (83%) were within age of 20-30 years, 240 (16%) within 31-40 years and 15 (1%) within 41-50 years.

TABLE - II: FREQUENCY OF INFECTION (n=1500)

<table>
<thead>
<tr>
<th>Infections</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCV</td>
<td>62</td>
<td>4.1%</td>
</tr>
<tr>
<td>HBV</td>
<td>22</td>
<td>1.47%</td>
</tr>
<tr>
<td>HIV</td>
<td>2</td>
<td>0.13%</td>
</tr>
<tr>
<td>Syphilis</td>
<td>7</td>
<td>0.46%</td>
</tr>
</tbody>
</table>

Table - II shows that out of 1500, 62 (4.1%) were HCV positive, 22 (1.47%) were HBV positive, 7 (0.46%) were positive for Syphilis and 2 (0.13%) were HIV positive.

DISCUSSION

Blood transfusion is a proficient mode of transmission of Transfusion Transmissible Infections TTI. Blood transfusion services and blood banks not only play their role in blood screening but also give a frequency rate of TTI in an area. 

In current study, all the study subjects were screened for HBV, HCV, HIV and Syphilis. Out of 1500, 4.1% were HCV positive, 1.47% were positive for HBV, 0.46% were positive for syphilis and 0.13% were HIV positive. Female donors in present study were 80 and male donors were 1420, percentage of women was 5.3% and the males was 94.67%. Blood donors within the age of 18-30 years were 83 % (all were 20 years and above), 41-50% blood donors were over 20 years and 1% between 41-50 years of age. A study conducted in 2004, by Naiila Asif et al on 3187 voluntary blood donors, showed that the prevalence of HBSAg, anti-HCV and HIV is 2.51%, 5.14% and 0.25% respectively. Hakim et al predicted that the collective prevalence of HBV and HCV in different areas of the country is 8-10% and the substantial fall in HBV was due to mass vaccination program against HBV while the prevalence of HCV is increased due to the non-availability of its vaccine. The results of present study are in good accord with these similar studies.

Farooqi et al reported the prevalence 2.54% for HBV and 3.21% for HCV. The results showed a high frequency of HBV which is in contrast to the current study. HIV frequency among blood donors was anticipated as 0% and 0.0086% in 2002 while present study reported the presence for HIV as 0.13%. Donors of blood cannot be considered the representative of the common populace thus the prevalence may be misjudged. The selection of donors and their proper screening are major factors to ensure the safety of blood transfusion.

CONCLUSION

Current study showed that the most frequent infection was HCV followed by HBV, HIV and syphilis among healthy blood donors. It is recommended that blood banks should strictly follow the guidelines for safe blood transfusion and awareness programs are needed to reduce the burden of transfusion-transmissable
Infections in the country.

Contribution of Author:
Dr. Muhammad Bilal Ghafoor: Theme concept, designing the study and drafting the paper
Dr. Mazhar Hussain: Analysis and interpretation of the data
Dr. Abdul Rauf Leghari: Expert research opinions and literature review
Aqsa Mehwish: Collection and interpretation of data
Shamraiza Zulfiqar: Collection and interpretation of data
Dr. Ghulam Mustafa: Statistical expertise and data analysis

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8. World Health Organization: Hepatitis B. Fact sheet 2000. WHO/204. HBsAg positivity in developed countries varies from 0.6 percent in Wales, England, to 1.2 percent in Texas. Website: [www.who.int/factsheet2000/hbsag.]