Hepatitis B and Hepatitis C in Blood Donors: Analysis of 2-years data

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Objective: The aim of the study was to know the prevalence and sex difference in the prevalence of Hepatitis B and Hepatitis C among healthy blood donors at Ghurki Trust Teaching Hospital which is a teaching hospital situated in periphery of Lahore, admitting patients mostly from rural population. **Materials and methods:** All blood donors from September 04, 04 to August 11, 06 were enrolled. **Results:** In total, there were 7431 donors. The over all prevalence of Hepatitis B was 1.52% and Hepatitis C was 5.34%. **Conclusion:** Prevalence of Hepatitis C was greater than Hepatitis B in healthy blood donors. Hepatitis B and Hepatitis C are nearly as prevalent in rural population of Lahore as in the urban population. Females in the rural population donated blood infrequently and data of female donors was too small to comment on sex difference between the prevalence of the two viruses.

Key words: Hepatitis B, Hepatitis C, Healthy Blood Donors, Prevalence

Gastrointestinal and liver diseases inflict a heavy burden on the health and well being of the nations. Compelling economic data indicate that liver disease in general and Hepatitis B, and Hepatitis C, in particular, is major public health problem. WHO estimates the total number of hepatitis C infected people to be approximately 160 million, the large majority of whom resides in the developing countries[1]. In South East Asia and Africa, Hepatitis B and Hepatitis C are the major cause of chronic liver disease (CLD) which is about 75 %[2]. Out of these two, Hepatitis C Virus is the leading cause of CLD. In Pakistan, Hepatitis B and Hepatitis C account for the major portion of CLD and the burden of HCV related CLD is increasing with time. Earlier studies showed that of all patients presenting with CLD, 16.6% were anti-HCV positive[3]. Recent data show nearly 60-70% patients with CLD to be positive for Anti HCV[4,5].

The number of admissions into hospital of patients with chronic HCV infection also shows a nearly linear increase over time[6]. Reported carrier state of Hepatitis B virus (HBV) is as high as 10-16% while 2-3% carrier state has been reported for Hepatitis C virus (HCV)[7,8]. These infections spread mainly through contact with the blood and body secretions of the infected persons. All these patients acquire infection during childhood or adulthood, common modes of transmission being unscreened blood transfusions and non sterilized surgical instruments.

In the suburbs of main cities and in other not-so-developed parts of the country, quackery barbers and use of non-sterilized instruments by non-qualified practitioners is much more rampant. This is a potential source of spreading Hepatitis B and Hepatitis C viruses in rural public. People in the urban areas have more awareness. Consequently, the prevalence of Hepatitis B and C should be high in the rural areas compared with the prevalence in urban areas. Similarly, the practice of dilatation and curettage for abortion by nonqualified mid-wives (Daees) is common in rural areas. These Daees use non sterilized instruments and are a major source of spreading Hepatitis B and C in women.

The presumed healthy blood donors are a representative sample of the population. It would be interesting to know the difference between the prevalence of Hepatitis B and Hepatitis C in the blood donors in urban areas and rural areas. It would also be interesting to know any sex differences as well in the prevalence of Hepatitis B and Hepatitis C in blood donors.

Ghurki Trust Teaching Hospital is a tertiary care hospital affiliated with Lahore Medical and Dental College Lahore. It is a 400 bedded hospital providing 24 hour emergency cover and is located in the suburbs of Lahore. It attracts patients from the surrounding rural areas who make up the most of the patient population of this hospital.

Aims and Objectives

1. To determine prevalence of HCV and HBV among blood donors in rural population coming to a teaching hospital.
2. To determine which is more common of the two infections in healthy blood donors
3. To determine any male to female difference in prevalence of HCV and HBV among healthy blood donors.

Materials and methods

The study was carried out at Ghurki Teaching Hospital. Every body coming for the blood donation was screened for Hepatitis B and Hepatitis C along with other routine screening tests for blood transfusion. The screening test used was the routine kit used in all the blood banks. Total 7431 consecutive blood donors were screened for Hepatitis B and C with screening method.

Results

397 people tested positive for HCV and the % prevalence of the disease is 5.34%. Only 113 persons were positive for HBV and the prevalence of this infection is 1.52%. 10 patients had both Hepatitis B and Hepatitis C infections.

Table 1: Prevalence of hepatitis B

Sex	Total donors	Positive cases	Prevalence
Male	7400	113	1.52 %
Female	31	Zero	0 %
Total	7431	113	1.52 %

Table 2: Prevalence of Hepatitis C

Sex	Total donors	Positive cases	Prevalence
Male	7400	396	5.35 %
Female	31	01	3.22 %
Total	7431	397	5.34%

Table 3: Prevalence of dual infection (Hepatitis B and Hepatitis C together)

Sex	Total donors	Positive cases	Prevalence
Male	7400	9	0.121 %
Female	31	01	3.22 %
Total	7431	10	0.13 %

Discussion

Our study shows 1.52% prevalence for Hepatitis B which is lower compared to other studies done at other areas. Mumtaz et al reports 5.85 % prevalence of Hepatitis B at Rawalpindi[9]. Ryas et al reported 6.4% prevalence of Hepatitis B in Northern Pakistan[10]. Other studies report a less prevalence[11,12,13]. While prevalence at Karachi was reported to be around 3%[14]. Prevalence in India is reported to be between 1-2 %[15]. This corresponds closely to our results.

The prevalence rate for Hepatitis C in our study was 5.34%. In Karachi, 5-6% adults were positive for Hepatitis C[16]. While a study carried out in India showed a prevalence of 1.57% -4.8% in a hospital based general population[17]. Most European countries have reported a prevalence of 0.5% to 2% in general population[18]. Prevalence of Hepatitis C in our study is nearly the same as the prevalence in the urban areas of Pakistan. Dual infection of Hepatitis B and Hepatitis C is very low. It is around 0.13% in our study.

This low prevalence in rural population is not what we anticipated at the beginning of the study. This low prevalence could be due to the fact that blood donors are not the true representative sample of the population. Blood donors are always the selected ones who apparently are healthy, leaving aside the population which is diseased ones. So prevalence in the blood donors does not reflect the true prevalence in the society. Secondly, our data does not contain any female donor. This might lead to low prevalence because ladies in rural population might be having higher prevalence than the males. We screened 400 persons in Hafizabad for Hepatitis C and found 34% males while 40% females tested positive for Hepatitis C[19]. The explanation for this higher prevalence is the extra probability of getting infected during dilatation and curettage.

Prevalence of Hepatitis C is higher than that of Hepatitis B in our study. This is in contrast to many other studies which show higher prevalence of Hepatitis B in our country. This should be further studied as to whether this is the pattern in other rural areas as well and what is the possible explanation.

Most of the studies are based on screening of donors at blood banks. There are two drawbacks in applying these results to general population. First, the screening tests are not 100% sensitive[20, 21]. This might lead to low prevalence. Secondly, the prevalence in blood donors should be lower than the general population for the very obvious reasons. Finding very low number of female donors reflects the social thinking and male dominance not allowing the females to participate in such activities. Though females did donate blood in urban areas, it would be interesting to note if they were students, working ladies or house wives. The data of female donors is small to be compared with the data of male donors.

It can be concluded that in the given set of population, prevalence of Hepatitis C is greater than that of Hepatitis B. Prevalence of Hepatitis B is lower than the prevalence reported in other studies.

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