

Characteristics of hepatitis B and C positive blood donors

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Abstract

Background: Viral Hepatitis B and C is a public health problem and is spreading at intense speed in all the population strata.

Objective: To assess the characteristics of hepatitis B and C positive blood donors.

Methodology: This cross sectional descriptive study was conducted at blood transfusion centre, Bahawal Victoria Hospital, Bahawalpur, from January 1, to June 30, 2018. Blood screening was done by ICT-kit and PCR test methods. Both voluntary and replacement donors who were declared as positive from the blood bank were taken for interview through predesigned questionnaire after informed consent. The sample size of 220 blood donors was taken including both genders. The variables concerned with their personal profile, educational status, vaccination status, medical treatment receiving in the past, living habits, quackery practice in the area, family history of hepatitis B and C were included. The data was collected and analyzed.

Results: It was found that 170 (77.27%) were male, 134 (60.90%) respondents were belonging to the rural area and 104 (47.27%) were from 31-50 years age group. The study revealed that 106 (48.18%) subjects were illiterate and (52.72%) were laborer. The majority 184 (83.63%) replied to be never vaccinated against Hepatitis B and about half, 112 (50.90%) respondents were having known history of Hepatitis C case in their family. There was considerable number of blood donors 172 (78.18%) who do not bring their own new disposable syringes for injection therapy at quacks clinics.

Conclusion: The blood donors who were detected to be positive for hepatitis B or C were having following characteristics. Majority belonging to rural areas, <50 years unmarried males, poor social class, no hepatitis B vaccination, not using new syringes for treatment by quacks very frequently

Keywords: Hepatitis, Illiteracy, Vaccination, Blood donors, Quacks.

Introduction

Infections caused by Hepatitis B and C viruses are common now all over the world.¹ However, these are highly prevalent in poor countries especially Asian Subcontinent and African regions.² Hepatitis B virus was discovered in 60s and is strictly hepatotropic while Hepatitis C virus has multiple genotypes.³ Blood transfusion without proper screening is one of the most common sources of spread in sub Saharan Africa.⁴ There is high demand of blood transfusion services due to increased prevalence of malnutrition, accidents, surgical and obstetrical emergencies where blood loss is life threatening complication.²

The hepatitis B virus (HBV) prevalence has been observed to be decreasing but the prevalence for Hepatitis C Virus (HCV) has been found increasing which indicate that HCV is potentially more dangerous blood transfusion transmissible pathogen, which require urgent effective treatment at mass level.⁵ The prevalence of HBV

infections is high among male population of Northwest region of Saudi Arabia.⁶ It requires community based detection, investigation, treatment and implementation of public awareness strategy at mass levels.⁶

The safety of blood transfusion can be monitored by using the prevalence of viral markers in any community.^{7,8} The effective and stable vaccine against Hepatitis B virus (HBV) is available.⁹ Its compulsory use at all levels of population is the best strategy to prevent this disease at mass level. Hepatitis B infection is highly endemic in rural area of Veitnam involving almost half of the population of this country.¹⁰⁻¹² This is because of symptomless carriers who are silent source of spread. These fatal viral diseases have window period and long incubation period so these remain highly occult behind the curtain.^{13,14} The objective of this study was to assess the characteristics of hepatitis B and C positive blood donors.

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Methodology

This cross sectional descriptive study was conducted for the period of six months from January 1, to June 30, 2018, at blood transfusion center, Bahawal Victoria Hospital, Bahawalpur, which is a teaching hospital having 1800 beds of this area. Both voluntary and replacement donors are properly tested by ICT- kit and PCR methods for Hepatitis B & C viral markers. Those who were declared positive for either hepatitis B or C were taken for study purpose. This center was incorporated for study purpose because blood donors are concentrated at large numbers to donate blood for the admitted patients as well as thalassemic children. The respondent's selection and study was easy to conduct here. The positive declared respondents were taken for face to face interview with predesigned questionnaire, after informed consent. All those respondents who were not willing for interview or came at private sector, were excluded from our study. The help of tetra lingual local auxiliary medical staff was taken during interview to mitigate the language bias. Both genders were included. The sample size of approximately 220 blood donors was estimated by Cochran's formula $n = z^2(pq)/e^2$ using $z=1.96$, $p=15\%$, margin of error 5% and adding 10% more respondents to minimize attrition bias. They were included on daily basis to achieve purposive

sample size. Respondents earning ten thousand rupees or less were labeled as poor class, from ten to fifty thousand per month as middle class and monthly income above fifty thousands were taken as higher class group. The variables concerned with personal profile, educational status, medical treatment receiving in the past, living habits, quackery practice in the area, family history of hepatitis B and C and others were included. The data was collected and analyzed, by using SPSS version 20. Ethical approval was sought from hospital ethical committee.

Results

Total number of 220 respondents were interviewed. It was found that 134 (60.90%) were belonging to rural area as compared to 86 (39.09%) who were urban residents. The age was inquired and found that 98 (44.54%) were from 15-30 years, while 104 (47.27%) were from 31-50 years of age but 18 (8.18%) were belonging to age > 50 years showing that majority of respondents were from young age or working class group.

Males were 170 (77.27%) while females were 50 (22.72%) only. There were 116 (52.75%) laborer, 94 (42.72%) having technical job and 10 (4.45%) only having office work as shown in Table I. There were 94 (42.72%) married as compared to 126 (57.27%) unmarried.

Table I: Characteristics of hepatitis B & C positive blood donors (n= 220)

Residential Area		Age Group		
Urban	Rural	15-30 years	31- 50 years	>50 years
86 (39.09 %)	134 (60.90%)	98 (44.54%)	104 (47.27%)	18 (8.18%)
Gender		Occupational Status		
Male	Female	Laborer Job	Technical Job	Office Job
170 (77.27%)	50 (22.72%)	116 (52.75%)	94 (42.72%)	10 (4.54%)
Marital Status		Socio-economic Status		
Married	Unmarried	Poor Class	Middle Class	Higher Class
94 (42.72%)	126 (57.27%)	112 (50.90%)	100 (45.45%)	8 (3.63%)
Past H/O Hep.B Vaccination		Family H/O Hepatitis B or C		
Yes	No	Hep atitis B	Hepatitis C	Unknown
36 (16.36%)	184 (83.63%)	64 (29.09%)	112 (50.90%)	44 (20%)
H/O Frequent Treatment from Quacks		H/O Injections treatment frequently		
Yes	No	Yes	No	
147 (66.81%)	73 (33.18%)	138 (62.72%)	82 (37.27%)	
H/O using new syringes for injections		H/O Using new blade for every shave		
Yes	No	Yes	No	
48 (21.81%)	172 (78.18%)	91 (41.36%)	129 (58.63%)	
Educational Status				
Illiterate	Primary	Secondary	Higher	
106 (48.18%)	82 (37.27%)	26 (11.81%)	6 (2.72%)	

Socio-economic status revealed that 112 (50.90 %) were belonging to poor class, 100 (45.45%) from middle class and 8 (3.63%) only from Higher class. There were 184 (83.63%) persons who were never vaccinated for Hepatitis B as compared to 36 (16.36%) vaccinated respondents. It was evident that very large number of respondents, 64 (29.09%) and 112 (50.90%) were having history of Hepatitis B and or C cases within family respectively while 44 (20%) replied about history to be unknown as shown in Table I. The study revealed that 147 (66.81%) were receiving treatment from local quacks frequently while 138 (62.7%) were given injections therapy very commonly. It was unfortunate that only 48 (21.81%) respondents were using new syringes every time for new injection as compared to majority, 172 (78.18%) who never bring their new syringe. Similarly, the study revealed that 129 (58.63%) respondents do not use new blade for shaving purpose. The educational status showed that 106 (48.18%) were illiterate, 82 (37.27%) were Primary school educated, 26 (11.81%) were secondary school (matric) educated and only 6 (2.72%) were higher educated respondents as shown in Table I.

Discussion

World Health Organization celebrate world Hepatitis Day on 28th July, every year and theme for year 2018 is “Test Treat Hepatitis”. However viral hepatitis B & C are rapidly spreading all over the world specially in Asian and African countries because it captures the prey and flourish in liver very silently without any symptoms at early stage especially in carriers.^{8,9,10} Unsafe blood transfusion, without proper and sensitive viral markers testing is one of the commonest tracks of jumping of disease to other people from occult infected person. The characteristics of these blood donors are important, to re-strategizing the interventions to mitigate epidemic like spread in our study area. It was found that 134 (60.90%) respondents were belonging to rural area showing that these diseases are more prevalent in rural population. It is concordant with the findings by Viet L and Lan NT¹⁴ who described that half of the rural population of Veitnam is involved with these diseases in any way. It requires more attention

/focus at rural area population by our policy makers to control it. We have found that 104 (47.27%) were from 31-50 years of age which is the maximum ratio of age group but Fouelifack Ymele F and Keugoung B⁷ depicted in their literature that majority of positive donors (55%) were having 20 to 29 years of age. Average age of 28 years for sero-positivity has also been mentioned by Khattak MP and Salamat N¹¹ which is lower than the minimum as mentioned in our study. However it is very similar to the other literatures,^{1,3} which mention the highest prevalence to be >46 years of age. This age group difference from our findings may be due to the difference of social and cultural habits among different societies. Socio-economic status revealed that 112 (50.90 %) were belonging to poor class. It was found that number of viral hepatitis positive persons in our area is inversely proportional to their socio-economic status which is concordant with findings depicted by Gulia S and Panda S.¹⁰ Higher class status respondents were having least number of positive blood donors which is the same as mentioned in other studies.²

There were 184 (83.63%) persons who were never vaccinated for Hepatitis B which shows very poor awareness about benefits of vaccination. It is consistent with findings by other medical researchers^{1,4} as depicted in their research work. Both genders were included in our study. It was found that 170 (77.27%) positive were males while females were 50 (22.72%) only. This difference itself may be due to tendency of males to donate the maximum blood as compared to females. Large number of males have been found to be hepatitis B & C positive which is very similar to the findings as mentioned in other literature. However Uneke CJ and Ogbu O⁸ described male to female ratio very close to each other which is contrary to our findings. The educational status was found showed that 106 (48.18%) were illiterate, and 82 (37.27%) were Primary school educated. This large number of blood donors found to be positive for viral hepatitis reveals that illiteracy is the major hurdle to eliminate this problem. The same has been quoted by other medical researchers^{2,4} in their literature also. There are multiple other factors as mentioned in our study which are augmenting the rapid spread of these diseases. This study can play an effective role to mitigate and reverse the escalation of epidemic like

spread of Viral Hepatitis B and C in our area. The limitation of this study are as under: The sample size is relatively small. Very large number of Hepatitis B & C positive blood donors is required to generalize the results upon whole population of a country.

There is window period in viral hepatitis infection in which detection of disease is difficult and blood donors who is donating blood is declared as negative by ICT-kit method. These false negative respondents have not been addressed in our study. There is co-existence of Hepatitis B & C in the same person in same case, which has not been clearly revealed in this study. Rapid expansion of quackery due to poor determination to control it, lack of using disposable syringes, disposable blades and lack of compulsory pre-marital viral marker testing are important factors to focus along with intensive Hepatitis B vaccination to mitigate their spread in our area. Limitation of the study including that ICT technique was used for screening.

Conclusion

This study showed that majority of hepatitis B or C positive blood donors belonged to rural area, of age less than 50 years, were male, unmarried, poor class, having no history of hepatitis B vaccination, and have history of hepatitis in family. Most of them also reported lack of new syringes used and treatment from quacks.

Authors Contribution: ASM: Interpretation of data, drafting and final approval. **MA:** Conception of work, drafting, revising and final approval. **MI:** Acquisition of data, revising and final approval. **ZN:** Conception of work, drafting, revising and final approval.

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