The Professional Medical Journal
www.theprofesional.com

DOI: 10.29309/TPMJ/18.4766

ORIGINAL PROF-4766

HEPATITIS B AND HEPATITIS C;

HEPATITIS B AND HEPATITIS C FREQUENCY OF HEPATITIS B AND C AMONG BLOOD DONORS REPORTING AT BLOOD BANK OF IBNE- SIENA HOSPITAL MULTAN, PAKISTAN

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Article received on:
05/03/2018
Accepted for publication:
20/06/2018
Received after proof reading:
00/00/2018

ABSTRACT… Objectives: To determine the frequency of HBV and HCV among blood donors coming voluntarily at the blood bank of Ibne- Siena hospital and research centre, Multan, Pakistan, to ascertain the disease burden in the community for their future prevention and control. **Study Design:** It was a descriptive, cross- sectional study on blood units donated by healthy individuals coming voluntarily for blood donation, and willing to get their blood tested for HBV, HCV. **Setting:** Community medicine department of Multan medical and dental college Multan, and blood bank of affiliated tertiary hospital, Ibn-e- Siena hospital Multan. **Period:** Six months period from Jan 2016 to June 2016. **Materials and Methods:** Data of the blood donors was collected. Present study was based on previous well maintained records of hospital blood bank. During the reported period, a total of 1195 blood donors attended the blood bank, and they all were screened for HBsAg and anti-HCV. SPSS- 16 was used to analyze the data, for determination of frequencies of Hepatitis- B, and C according to the age and gender. **Results:** Total numbers of blood donors were 1195. 1191 were males, and 4 were females. All the females were negative for both HBV, and HCV. Males positive for HBV were 18 (1.5 %), and those Positive for HCV were 27 (3.2%).

Key words: Anti-HCV, Blood Donors, Frequency, HBV, HCV, HBsAg, Transfusion.

Article Citation: Billah M, Shah SMR, Hashir MM. Hepatitis B and hepatitis C; hepatitis B and hepatitis C frequency of hepatitis B and C among blood donors reporting at blood bank of Ibne- Siena Hospital Multan, Pakistan. Professional Med J 2018; 25(8):1245-1251. **DOI:**10.29309/TPMJ/18.4766

INTRODUCTION

Blood donation is an essential part of the primary, secondary, and tertiary health care system, and used as a life-saving measure for all types of medical, surgical, and other patients who are in need of blood transfusion during their illness or during emergency. The person who donates blood with missionary zeal having inner sense of passion, motivation and persuasion, without any urge of demanding anything in return, can be called a voluntary blood donor. Donating ones 'own blood voluntarily even as a replacement donor to ensure continuous blood supply is a sacred social responsibility and a great contribution towards community and humanity. Additionally, rehabilitative, supportive, and all types of care can effectively be given to all types of patients through blood transfusion. However, diseases transmitted by blood transfusion still remain a major area of concern for administrative authorities, who are directly involved in the provision of safe blood supply for transfusion worldwide. The most common viral infections transmitted via blood transfusion are human immunodeficiency virus (HIV), HBV and HCV, due to their high incidence and prevalence rates.[1] HBV, and HCV have become one of the most important community health problems around Globe. More than two billion people (one third of the population) are infected with HBV and those having chronic liver disease range between 350 and 400 million people due to hepatitis B surface antigen (HBsAg).[2] Individuals with chronic infection of hepatitis B are at greater risk of developing liver cirrhosis, and hepatocellular carcinoma.[3] According to WHO, approximately 350 million people have chronic infection of HBV, and 170 million with HCV at the global level.[4] Hepatitis C virus (HCV) was detected in 1989, being major cause of non A and non B hepatitis.[5] Transmission of HCV occurs parenterally, through blood, blood products, and through sexual

intercourse,[6] which is considered an important mode of transmission for HCV.

MATERIALS AND METHODS

The main objective of this study was to determine the frequency of Hepatitis-B and Hepatitis-C among the blood donors with the rationale to ascertain the disease burden in the community for their future prevention and control. For this purpose, a descriptive cross- sectional study was planned, and carried out by carefully examining the profiles of 1195 blood units from the voluntary blood donors at the blood bank of Ibne- Siena hospital Multan, Pakistan. Data of the blood donors was collected for six months period from Jan 2016 to June 2016.The present study was based on meticulously well maintained records of blood bank of Ibn-e-Siena Hospital. Donors were healthy, and fit up to the standing operating procedures for donating blood according to their record of clinical histories, and physical examinations. A profile of all blood donors was entered in to spss-16 in accordance their age, sex and other variables, and was analyzed accordingly.

RESULTS

It was a descriptive cross- sectional study. Total numbers of blood donors were 1195. 1191 were males, and 4 were females. All the females were negative for HBsAg, and Anti-HCV, while males positive for HBsAg were 18(1.5%), and for HCV were 27(2.3%) respectively. It is shown in Table-I and II below. Prevalence of hepatitis-B and hepatitis-C according to the age group is shown in Table-III,IV and V, which reveals that Hepatitis-B is mostly prevalent among the age group 18 to 45 years, while hepatitis-C is mostly prevalent among the age group 21 to 45 years. This is the period when the people are active in all aspects of their life including sex.

Gender	HBs Ag		Total	Percentage
	Positive	Negative		
Male	18	1173	1191	
Female	0	4	4	
Total	18	1177	1195	1.5%

Table-I

Gender	Anti-HCV		Total	Percentage
	Positive	Negative		
Male	27	1164	1191	
Female	0	4	4	
Total	27	1168	1195	2.3%

Table-II

HBsAg			Anti-HCV		
Age Range	Positive	Negetive	Age Range	Positive	Negetive
14 - 20	3	154	14 - 20	0	157
21 - 25	5	413	21 - 25	6	412
26 - 30	3	294	26 - 30	12	285
31 - 35	2	180	31 - 35	4	178
36 - 40	3	81	36 - 40	3	81
41 - 45	2	43	41 - 45	2	43
46 – 50	0	11	46 – 50	0	11
51 - 55	0	1	51 - 55	0	1

Table-III. Showing HBsAg & Anti-HCV (both positive & Negative according to age range)

Count				
	HbsAg			Total
	Positive	Negative		
Age	14	0	1	1
	15	0	1	1
	18	2	32	34
	19	0	24	24
	20	1	96	97
	21	0	54	54
	22	2	97	99
	23	0	64	64
	24	3	87	90
	25	0	111	111
	26	0	52	52
	27	1	38	39
	28	1	112	113
	29	0	30	30
	30	1	62	63
	31	0	21	21
	32	0	44	44
	33	0	27	27
	34	0	33	33
	35	2	55	57
	36	1	22	23
	37	1	6	7
	38	0	17	17
	39	0	4	4
	40	1	32	33
	41	0	9	9
	42	1	9	10
	43	0	9	9
	44	1	4	5
	45	0	12	12
	46	0	1	1
	47	0	1	1
	48	0	4	4
	49	0	1	1
	50	0	4	4
	55	0	1	1
Total		18	1177	1195

Table-IV. SPSS 16 result age * HbsAg Cross tabulation

Count				
		AntiHCV		Total
		Positive	Negative	
Age	14	0	1	1
	15	0	1	1
	18	0	34	34
	19	0	24	24
	20	0	97	97
	21	1	53	54
	22	0	99	99
	23	0	64	64
	24	2	88	90
	25	3	108	111
	26	4	48	52
	27	0	39	39
	28	5	108	113
	29	1	29	30
	30	2	61	63
	31	1	20	21
	32	1	43	44
	33	1	26	27
	34	0	33	33
	35	1	56	57
	36	1	22	23
	37	0	7	7
	38	0	17	17
	39	0	4	4
	40	2	31	33
	41	1	8	9
	42	0	10	10
	43	0	9	9
	44	1	4	5
	45	0	12	12
	46	0	1	1
	47	0	1	1
	48	0	4	4
	49	0	1	1
	50	0	4	4
	55	0	1	1
Total		27	1168	1195

Table-V. SPSS 16 result.
age * AntiHCV Crosstabulation

DISCUSSION

Continuous scrutiny of the causative factors in terms of screening, surveillance, and monitoring of community is mandatory to dig out the cases, and carriers of hepatitis B and hepatitis C, to measure the magnitude of disease burden in terms of incidence, prevalence, and to ascertain the modes of transmission from reservoir or source of infection to the susceptible host. This is a scientific fact that information about epidemiology of any disease plays an important role in the assessment, and evaluation of base line disease levels, and its dynamics, and routes of transmission. These epidemiological information's are essential before starting any intervention programme or strategy, so that eventual outcome of success or failure could be predicted. HBV, and HCV infections are transfusion- transmissible diseases in addition to having other modes of transmission.

It has been proved that transmission of these infections can be prevented, and controlled by screening of donated blood for HBsAg, and anti-HCV prior to transfusion.[7] This Prevention and control programme for viral hepatitis has the historical background of being started during early seventies. One of the important component of such programme is to test blood for HBsAg, and anti- HCV prior to donation. Main laboratory of Ibne- Siena hospital and research centre at Multan had started to test donated blood for HBsAg and anti- HCV as a routine procedure since its inception.

Present study was carried out retrospectively on donated blood units of the healthy blood donors from Jan 2016 to June 2016 on the basis of records present in the laboratory. During this period, frequency of HBV has been found to be 1.5% and HCV 2.3%. One such study was carried out at Hyderabad Pakistan in 2013, in which data of 2696 blood donations from Jan 2012 to June 2012 showed that 3.45% donors were positive for HCV and 1.82% blood donors were positive for HBV.[8] Results of another study showed that HBsAg was present in 3.8% of blood units while anti-HCV had the lowest prevalence (0.41%).[1] Another study carried out at Hyderabad showed that 3.65% of the donors were HBsAg reactive while 8.68% were positive for Anti- HCV antibodies.[10] In another study from Karachi showed 1.71% prevalence of HBsAg, and 2.68% Anti-HCV.[11] A yet another study on the same subject documented 6659 blood donors from Lahore, and reported 7.69% prevalence of Hepatitis C and 1.70% of Hepatitis B.[12] All these studies show the low prevalence of HBV as compared to HCV except one study which shows the high prevalence of HBV as compared to very low prevalence of HCV.[1] This variable trend in the prevalence of these viral infections among general population is due to differences in the implementation, and execution of preventive, and control programs at different locations by the community, and the health care system. However continuous transmission of this infection in the incidence of new cases is transmission from chronically infected cases which exist in the form of source and reservoir of infection. Therefore there is a continuous endemic transmission in occurrence of Hepatitis B and C in the community. This source and reservoir of infection always results in to higher risk of morbidity, and mortality and its long term complications result into a state of chronic active hepatitis, liver cirrhosis and hepatocellular carcinoma.[9] Additionally, Variations in the results by the different researchers may be due to differences in the demographic profiles, and sanitary conditions of particular environment.

Results of our present study at Ibn-e-Siena Hospital at Multan, are in conformity with most of the previously published data showing high prevalence of HCV and comparatively low prevalence of HBV.[12,13,14] A possible explanation and rationale for the decrease in the HBV prevalence as compared to HCV in most of blood donors could be due to the reason that in 95% of the cases, having HBV infection, have good prognosis to recover completely, whereas if exposed to HCV infection, remain infected in 85% of the cases, having low prognosis and recovery.[15]

RECOMMENDATIONS

Due to insufficient and meagre resources in terms of financial, material, and technological, in developing countries like Pakistan, it is extremely cumbersome to prevent the transmission of infectious diseases through blood transfusion

despite presence of effective policies, strategies and programmes at different levels. HBV and HCV infections are still endemic, and regarded as a major threat to the community as well as a major challenge to the administrative authorities in the provision of safe blood. Effective measures such as the use of highly sensitive screening tests, modern and improved methods of donor selection, and health educational measures about prevailing risk factors, along with availability of all types of resources, can ensure elimination, or at least decrease the occurrence of transfusion-transmitted infections up to the bare minimum. In addition to these, control of intravenous drug abuse, development of efficient hospital waste management system, safety of sanitary work force through protective measures across the board, vaccination of sanitary workers such as doctors, nurses, and lower sanitary staff, and community members against Hepatitis-B, and all out public health measures to cut down the transmission routes of Hepatitis-B, and C, by the primary, secondary, and tertiary health care system through community participation at the cost which the community and the country can afford. Therefore, best answer is the prevention, and control of hepatitis- B, and hepatitis-C by strengthening of primary health care system at the gross root level, and effective implementation of its both elements, and principles as envisioned by the Alma-Ata Conference in 1978.[16]

CONCLUSION

Due to high incidence, and prevalence of the two main transfusion transmitted infections of Hepatitis B virus, and Hepatitis C virus in third world countries like Pakistan, it is mandatory to screen all blood donors for both these important infections and to advise the authorities for execution of preventive measures strictly. We must continue our efforts to discover new methods of donor selection, and new strategies of imparting effective health education, and adoption of sanitary measures in true sense of their implementation. All these measures will go in the long way towards keeping the incidence, and prevalence of these two endemic diseases up to the bare minimum.

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The chains of habit are too light to be felt until they're too heavy to be broken.

– Unknown –

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
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