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ORIGINAL ARTICLE

Frequency of Hepatitis B and C virus infection in Emergency Surgical Patients in Jinnah Hospital, Lahore and Assessment of their Risk Factors

FOWAD KARIM[1], KAMRAN ALI[2], SHABBIR AHMAD[3], RUQAYYA SHAHID[4], SHAHBAZ AMIN[5]
[1]*Senior Registrar Surgery, Mayo Hospital, Lahore.*
[2]*Assistant Professor of Surgery, Allama Iqbal Medical College, Lahore,*
[3]*Assistant Professor of Surgery, Lahore General Hospital, Lahore.*
[4]*Dental Surgeon*
[5]*Professor of Pathology, Lahore Medical & Dental College, Lahore*
Correspondence to Dr. Fowad Karim, Email: drfowad789.33@gmail.com Cell: 0322-4264518

ABSTRACT

Background: Hepatitis B and C is a global health issue in developing countries because of multiple factors like lack of community health education, illiteracy and poverty.
Aim: To find the frequency of Hepatitis B and C virus infection among patients who present in Surgical Emergency and to correlate risk factors for these infections.
Study design: Cross sectional study.
Methodology: Patients (n=200) were included in present study through non-probability, convenient sampling technique. It was conducted in Accident and Emergency Department, Jinnah Hospital Lahore, following approval from Hospital Ethical Committee from Jan 2018 to Jun 2018. Both male and female patients (12-65 yrs) who underwent emergency surgical procedures, were included while unwilling subjects as well as patients having other medical issues were excluded. Data analyzed by SPSS 21.0v.
Results: Thirty four patients were found sero-positive for Anti-HCV Antibodies with prevalence rate of 17.0% and 9 patients (4.5%) were HBsAg positive. Among the sero-positive patients risk factors were IV injections, dental extraction, sharing of shaving razors, jaundice, history of previous surgical operations.
Conclusion: This study concluded that there was a declining attitude of HBV infection as compared to HCV. However, educational status of the patients was unsatisfactory. Hence, there is a need to educate the people regarding safety measures.
Keywords: Viral infections, HBsAg, Risk Factors and Emergency Surgeries.

INTRODUCTION

Viral Hepatitis (B & C) is a global health issue especially in developing countries because of many factors like lack of community health, education, illiteracy and poverty. Although most of them are asymptomatic but being carrier play a role in spreading these infections to community and health workers[1].

According to one estimate, hepatitis B virus (HBV) has tainted around 2000 million people globally while 350 million people are being their carriers[2]. However, World Health Organization (WHO) estimated that around 3% of the world's population have hepatitis C virus (HCV) and being chronic carrier add the risk of developing hepatic disorders like cirrhosis or cancer[3]. According to another estimate, almost four million people get infected with HCV/HBV each year. Chronic Hepatitis results in majority of cases (70%).

In surgical practice, the risk of viral infection transmission to others especially health workers is of prime importance. Unfortunately, large proportion of Pakistani population has hepatitis B and C infection with their prevalence around 10% and 7% respectively.[4] Their transmission is caused by factors like contaminated blood transfusion, used syringes and the surgical instruments, dental surgery, sexual contact, drug abuse, shaving razors, tooth brushes and shaving by barbers. It's a two way transmission so according to literature review, they have been transmitted from health care workers to patients.[4-6] Unfortunately, burden of patients having viral infections (HBV/HCV) for elective and emergency surgeries has raised drastically. Thus healthcare providers especially surgeons and operation theatre staff has significantly high risk of infectivity along with further transmission of the disease if pre-operatively screening and standard precautions are not followed strictly[4]. Injections by quacks, previous surgery, blood transfusion and shaving by barbers were found to be the risk factors[4].

Hepatitis B and C virus infection is associated with debilitating morbidity and mortality. However, not every patient is screened for the hepatitis B or C virus. There is a higher probability that health care professionals my get infected with Hepatitis B and C and may transmit this to other people. In an emergency setting, most of the patients are operated without knowing the hepatitis status of the patients for the sake of time. So, the probability for a surgeon being infected with hepatitis B and C virus infection and then transferring it to other patients is high. So, this study was carried out to know the frequency of Hepatitis B and C virus infection among patients who present in emergency settings.

This study is to find the frequency of Hepatitis B and C virus infection among patients who present in emergency while undergoing emergency surgical procedures and to assess their risk factors.

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METHODOLOGY

Two hundred patients (n=200) were included in present study through non-probability, convenient sampling technique. It was conducted in Accident and Emergency Department, Jinnah Hospital Lahore, following ethical approval from Hospital Ethical Committee during Jan 2018 to Jun 2018. Both male & female patients (12-65 years) who underwent emergency surgical procedures were included while unwilling subjects as well as having other medical issues were excluded. Written informed consent was taken. All data was collected through questionnaire and data was entered in SPSS software 21.0v. The data was summarized and analyzed on SPSS version 21.0. Appropriate Descriptive inferential statistics were performed. Chi-square test was applied between categorical independent variables and outcome variables. P-value ≤ 0.05 was taken as significant.

RESULTS

General distribution of parameters among subjects in present study was presented as frequency and percentage (%) in table-1.

Risk factors associated with viral infections (HBV & HCV) were presented as frequency and percentage in table-2.

Relationship of anti-HCV status with various risk factors was shown in table-3 by applying chi-square test.

Relationship of HBsAg status with various risk factors was shown in table-4 by applying chi-square test.

Table-1: General Distribution of Parameters Among Subjects (n=200)

	Categories	**Frequency**	**%age**
Monthly Income (Rs)	< 5000	101	50.5
	5000-10000	72	36.0
	> 10000	27	13.5
Age Groups (yrs)	<20 year	45	22.5
	20-30 year	67	33.5
	31 -40 year	44	22.0
	41-50 year	24	12.0
	>50 year	20	10.0
Educational Status	Illiterate	44	22.0
	Primary	45	22.5
	Middle	41	20.5
	Metric	48	24.0
	Graduate	22	11
Operations	Major	97	48.5
	Minor	103	51.5
History of Jaundice	Yes	34	17.0
	No	166	83.0
History of Blood Transfusion	Yes	11	5.5
	No	189	94.5

Table-2: Frequency Distribution of Risk Factors Among Subjects (n=200)

	Categories	**Frequency**	**%age**
HBsAg status	Positive	9	4.5
	Negative	191	95.5
Anti HCV Antibody status	Positive	34	17.0
	Negative	166	83.0
History of Blood Transfusion	Yes	11	5.5
	No	189	94.5
Sharing Shaving Razor	Yes	95	47.5
	No	105	52.5
HX. of Dental Procedures	Yes	41	20.5
	No	159	79.5
Intravenous (IV) injection	Yes	129	64.5
	No	71	35.5

Table-3: Relationship of Anti-HCV Status with Various Risk Factors

Parameters	**Category**	**Positive**	**Negative**	***P-value***
Gender	Male	16 (12.3%)	114(87.7%)	
	Female	18 (25.7%)	52(74.3%)	0.02*
Education	Illiterate	8(18.2%)	36(81.8%)	0.27
	Literate	26(16.7%)	130(83.3%)	
Operations	Major	15 (15.5%)	82(84.5%)	0.07
	Minor	19(18.4%)	84(81.6%)	
History of Jaundice	Yes	13 (38.2%)	21(61.8%)	0.00*
	No	21 (12.7%)	145(87.3%)	
Hx. of Blood Transfusion	Yes	5 (45.5%)	6(54.5%)	0.02*
	No	29(15.3%)	160(84.7%)	
Intravenous (IV) injection	Yes	29(22.5%)	100(77.5%)	0.00*
	No	5 (7.0%)	66(93%)	

*Statistically significant

Table 4: Relationship of HBsAg Status with Various Risk Factors

Parameters	**Category**	**Positive**	**Negative**	***P-value***
Gender	Male	7(5.4.%)	123 (94.6%)	
	Female	2 (2.9%)	68 (97.1%)	0.33
Education	Illiterate	2(4.5%)	42 (95.5%)	0.41
	Literate	7(4.5%)	149 (95.5%)	
Operations	Major	3 (3.1%)	94(96.9%)	0.27
	Minor	6 (5.8%)	97 (94.2%)	
History of Jaundice	Yes	9 (26.5%)	25 (73.5%)	0.00*
	No	0 (0.0%)	166(100%)	
Hx. of Blood Transfusion	Yes	0 (0.0%)	11(100%)	0.59
	No	9(4.8%)	180 (95.2%)	
Intravenous (IV) injection	Yes	9(7.0%)	120 (93.0%)	0.01*
	No	0(0.0%)	71 (100.0%)	

*Statistically significant

DISCUSSION

The present study was conducted to know the frequency of hepatitis B & C among patients' undergoing emergency surgical procedures at accident & emergency department Jinnah hospital, Lahore. Screening test was applied for HBsAg & Anti-HCV. It was found during study that most of the patients were healthy but 4.5% had positive HBsAg status and 17% patient were having Anti HCV Antibody status positive. The result of this study is higher than the study conducted by Memon MR, et al, who found 12.8% for HCV & 3.61% for HBV infection[4].

Out of 130 males 16(12.3%) were anti HCV positive & 7(5.4%) were HBsAg positive. From 70 females, 2(2.9%) were HBsAg positive & 18(25.7%) were anti HCV positive. It is probably because females are more prone to develop hepatitis B & C because of pregnancy, pregnancy related procedures and inadequate obstetrics care through quacks. Secondly, females bare either reluctant to seek consultations or not taken to medical personals in certain communities because of social reasons thus leading to more morbidity and mortality. Our findings were in line with findings of many previous studies[8,9].

As far as past history of jaundice is concerned, there were 34 patients who had history of jaundice and among them 9(26.5%) were HBsAg positive and 13(38.2%) were anti HCV were positive. Statistically this difference is significant (P value =0.00). If the blood of such patients is given to the healthy people, they can also become sick and suffer from Hepatitis C. The study conducted by Ahmad et al. also confirmed that history of jaundice was found in 1.73% blood donors[10,11].

It is very unfortunate that patients get HBV and HCV infection after major or even with minor surgical procedures. This may be probably because of faulty sterilization of instruments against the standards or probably inadequate training of operation theater staff. It was found that 97 patients who had H/o major surgical operations 15.5% were anti HCV positive and 3.1% were HBsAg positive. Among 103 patients who had H/o minor surgical operations 18.4% were anti HCV positive and 5.8% were HBsAg positive. Among 15 patients who had history of previous surgical procedures 4(26.7%) positive for anti HCV. No patient was found for HBsAg positivity. Alavian et al. reported 50% of HCV positive cases had a history of surgical procedures.[12,13]

According to literature review, intravenous injections are a source of viral transmission.[14] Our results showed that 129 patients had history of I/V injections 9(7.0%) were HBsAg positive while 29 (22.5%) were anti-HCV positive having significant P-value <0.05. Our results were in line with many previous studies that showed intravenous drug abusers have viral infections as injections being the principal source of spread. Hence, proper disposal of syringes and use of new syringes can play a preventive role in stopping its spread.

Transmission through blood transfusion is more potent source of transmission of Hepatitis B and C as revealed by literature review[15]. Initially screening of blood transfusion for Hepatitis B and C was not used as a routine measure. Study revealed that 11 patients who had history of blood transfusion 5(45.5%) were anti HCV positive. Statistically this difference is significant (P value =0.02).

Limitations: Our limitations included financial constraints and limited resources. No genetic workup was done for enrolled subjects.

CONCLUSION

This study concluded that there was a declining attitude of HBV infection as compared to HCV. However, educational status of the patients was unsatisfactory. Hence, there is a need to educate the people regarding safety measures. So, the Government participation and health promotional campaigns could be useful to reduce the spread of Hepatitis B and C virus. Use of new needles/syringes should be ensured and hospital waste handling staff should be checked in this regard. The safety measures regarding blood transfusion & screening must be adopted.

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