

Hepatitis B and C Virus Infection in Surgical Practice

Rafaqat Bota, Mushtaq Ahmed, Adnan Aziz, Naheed Sultan

ABSTRACT

Objective To determine frequency of hepatitis B and C virus infection in surgical patients and its relation to already reported risk factors.

Study design Case series.

Place & Duration of study Department of Surgery Civil Hospital Karachi, from May 2012 to September 2012.

Methodology All patients who were scheduled for surgical procedures were screened for HBsAg and anti-HCV using immunochromatography (ICT). The variables already known for the possible transmission were also inquired. The data was entered into a Performa and entered into SPSS version 17. Descriptive statistics were used for computation of the results.

Results Out of the total 662 patients, 325 (49.1%) were males and 337 (50.9%) females. Mean age of patients was 37.52 year. Hepatitis B surface antigen (HBsAg) was positive in 19 (2.9%) patients of whom 12 (63.15%) were males. Hepatitis C (anti-HCV) was found in 45 (6.8%) patients of whom 24 (53.33%) were females. Among HBsAg positive patients, 17 (89.47%) had history of intravenous injections; similar history was found in 44 (97.77%) anti-HCV positive patients.

Conclusions Frequency of hepatitis B was slightly more than hepatitis C in surgical patients. Routine serological screening prior to surgery should be made mandatory so that health care workers especially surgeons can take precautions before surgery.

Key words Hepatitis B, Hepatitis C, Surgical patients, Preoperative screening.

INTRODUCTION:

It is estimated that approximately 2 billion people are infected with hepatitis B virus.¹ It is one of the major causes of morbidity and mortality as an outcome of related acute and chronic liver diseases, cirrhosis and hepatocellular carcinoma.² According to WHO more than 170 million people are infected with Hepatitis C virus and about 3-4 million people get infected each year. Hepatitis C is the leading cause of chronic liver disease with worldwide prevalence of 3%.³ National Survey on Prevalence

of Hepatitis B and C in General Population of Pakistan was conducted from 2007 to 2008, and HBs Ag was found positive in 2.5% and anti HCV in 4.9% people. It is estimated that almost 12 million people in Pakistan are living with these viruses.⁴

A study conducted in surgical patients reported that HBsAg was positive in 5.0% patients and anti-HCV antibody in 12.0% patients.⁵ Thus there are increased chances of transmission of these infections from patients to health care providers and surgeons. Health care workers like surgeons are at higher risk of contracting HBV and HCV infections during surgical procedures which may result in serious complications. In this regard it should be recommended that every case undergoing surgery should be screened for both hepatitis B and C virus. This study was carried out to find the frequency of hepatitis B and C and its

Correspondence:

Dr. Rafaqat Bota
Surgical Unit 1
Dow University of Health Sciences &
Civil Hospital Karachi
E-mail: rafaqatmartin@live.com

relation with already known associated risk factors in patients admitted in surgical departments as a part of periodical surveillance.

METHODOLOGY:

This case series was conducted in the Department of Surgery Civil Hospital Karachi, from May to September 2012. The study was started following approval from institutional review board of Dow University of Health Sciences. All surgical patients were included in the study regardless of the age, gender, ethnicity and residential characteristics. All patients were screened for HBsAg and anti-HCV using immunochromatography (ICT-kit method).

The performa was designed to gather information about demographic characteristics like age, gender, educational status and socioeconomic status etc and information about seroprevalence for HBsAg and anti-HCV antibody. Another part of the data collection form had closed ended questions for risk factors like infection in family members, history of receiving intravenous injections, blood transfusion, blood donation, shaving from barber, ear nose piercing and tattooing etc. The data were entered and analyzed on Statistical Package for the Social Sciences (SPSS) version 17.0 for Windows (SPSS Inc. Chicago, IL, USA). Descriptive statistics of socio-demographic variables like age, sex, education and other characteristics of the population were computed.

RESULTS:

Six-hundred-sixty-two patients admitted in surgical departments during the study period were the subject of the study. Out of the total 325 (49.1%) were males and 337 (50.9%) females. The age of the patients ranged from 8 year to 90 year, with mean age of 37.52 years. The majority of the patients were illiterate and belonged to low socioeconomic status. The details of demography are illustrated in table I.

Hepatitis B surface antigen (HBsAg) was positive in 19 (2.9%) patients. This included 12 (63.15%) males and 7 (36.84%) females. Hepatitis C (anti-HCV) was found in 45 (6.8%) patients of whom 21 (46.66%) were males and 24 (53.33%) females. Among HBsAg positive patients, 17 (89.47%) had history of intravenous injections; similar history was found in 44 (97.77%) anti-HCV positive patients. The details of related known risk factors is given in table II.

DISCUSSION:

The frequencies of HBsAg and anti-HCV positive patients in this study were 2.9% and 6.8% respectively. This is comparable to a study conducted

Table I: Demographic Characteristics

Characteristics	Frequency n (%)
Gender	
Male	325 (49.1%)
Female	337 (50.9%)
Age Range (Year)	8 - 90
Marital Status	
Single	158 (23.9%)
Married	504 (76.1%)
Educational Status	
No education	374 (56.5%)
Primary	124 (18.7%)
Secondary	99 (15%)
Higher secondary	65 (9.8%)
Socioeconomic Status	
Low	488 (73.7%)
Middle	171 (25.8%)
High	3 (0.5%)

in Jamshoro Pakistan where frequency was reported as 2.5% for HBsAg and 9.04% for anti-HCV.⁶ Another study among blood donors showed that frequency of HBsAg was 3.9% and anti-HCV was 5.9%.⁷ The frequency of hepatitis B in general populations of Lahore was 8.06% as reported by Nafees et al.⁸ Frequency of hepatitis C was 4.9% and 4.95% respectively in a study by Anwar MI et al and Yasir W et al.^{9,10} The results for hepatitis B is almost three times greater than our study. From Larkana the frequency of hepatitis B was reported as 4.8%.¹⁰ Khokhar et al found 5.31% prevalence for hepatitis C virus in general population.¹¹ These figures are comparable with our study. In another city of Punjab, the Rawalpindi, 3% prevalence for HBsAg was reported by Farooq et al.¹² This figure is similar to our results though in a previous study from Karachi the frequency of hepatitis B was reported as 4.5%.¹³ Overall from the province of Punjab a higher prevalence of HCV was reported in comparison to Sindh.¹⁴

One of the major factors responsible for transmission of these infections in Pakistani hospitals is the lack of proper pre-operative screening of these viruses.¹⁵ The transmission of these infections from patients to others can be prevented by pre-operative screening. The study conducted in Karachi found that health care personals were 5-6% positive for anti-HCV and 2.4% for HBsAg.¹⁶

Table II: Risk Factors Present in HBsAg and Anti-HCV Positive Patients

Reported Risk Factors	Hepatitis B n=19	Hepatitis C n=45
History of IV Injections	17 (89.47%)	44 (99.77%)
History of Blood Transfusion	6 (31.57%)	22 (48.88%)
History of Sexual Contact	2 (10.52%)	12 (26.66%)
History of Blood Donation	3 (15.78%)	8 (17.7%)
Tattooing	0	1 (2.22%)
Imprisonment	2 (10.52%)	2 (4.44%)
Drug Addiction	4 (21.05%)	8 (17.77%)
History of Dental Procedure	5 (26.31%)	16 (35.55%)
Ear-nose piercing	7 (100%)	24 (100%)
Shave from Barber	9 (75%)	13 (61.90%)

It has been identified that the contaminated syringes used for therapeutic purposes by untrained non-medical personnel have become a major risk factor for HCV transmission in interior Sindh.¹⁷ The history of therapeutic intravenous injections was more frequent in our study as it was present in majority of cases of Hepatitis B and C positive patients which is comparable to study conducted in interior Sindh.

Injections in healthcare settings have become a major mode of transmission of HBV and HCV in developing countries.¹⁸ Blood transfusion is one of the most important risk factors for both HBV and HCV transmission. Developed countries have made strict guidelines for blood transfusions which must be done after proper screening. This helped in reducing the infection rate. On the other hand in developing countries monitoring is lacking. Thus infection rate is high.

Many risk factors have been identified in literature for the transmission of hepatitis B and C. In our study same factors were reported though these are not put to statistical verification as it was a descriptive study. Other limitations of this include being hospital based so generalization can not be made. The serology in this study was done by Immunochromatography and none of the results were confirmed by ELISA which is more authentic test.

CONCLUSIONS:

Frequency of hepatitis B and hepatitis C in surgical patients was similar to that reported in general population. Routine serological screening must be made mandatory before undertaking any surgical

procedure.

REFERENCES:

1. Fact sheet N°204 July 2012 WHO. [Internet] Available at: <http://www.who.int/mediacentre/factsheets/fs204/en/> accessed on January 10, 2015.
2. Sood S, Malvankar S. Seroprevalence of hepatitis B surface antigen, antibodies to the hepatitis C virus, and human immunodeficiency virus in a hospital-based population in Jaipur, Rajasthan. *Indian J Community Med.* 2010;35:165-9.
3. Memon MR, Shaikh AA, Soomro AA, Shah QA. Frequency of hepatitis B and C in patients undergoing elective surgery. *2010;22:167-70.*
4. National Survey of Pakistan. [Internet] Available at <http://www.pmr.org.pk/hepatitisbc.htm> accessed on January 11, 2015.
5. Todd CS, Abed AMS, Strathdee SA, Scott PT, Botros BA, Safi N, et al. HIV, hepatitis C, and hepatitis B infections and associated risk behavior in injection drug users, Kabul, Afghanistan. *Emerg Infect Dis.* 2007;???
6. Rajput MR, Shaikh MA, Solangi AR, Bano R, Rind A, Rind S. Risk factors and frequency of hepatitis B & c viruses at Liaquat University Hospital Jamshoro Sindh

- Pakistan. Medical channel. 2010;16:514-6.
7. Shaikh ZA, Ali G, Makhdoom PA. Analysis of blood donors at a major tertiary-care hospital of Karachi and seroprevalence of blood-borne hepatitis and HIV. Medical Channel. 2010;16:630-2.
8. Nafees M, Farooq M, Jafferri G. Frequency of hepatitis B and C infections in the general population of Lahore, Pakistan. Biomedica. 2009;25:106-11.
9. Anwar MI, Moazur R, Hassan M. Prevalence of active hepatitis C virus infections among general public of Lahore, Pakistan. Virology J. 2013;10:351.
10. Yasir W, Talha S, Sher ZS, Ishtiaq Q. Hepatitis C virus in Pakistan: A systematic review of prevalence, genotypes and risk factors. World J Gastroenterol. 2009;15: 5647–53.
11. Khokhar N, Gill ML, Malik GJ. General seroprevalence of hepatitis C and hepatitis B virus infections in population. J Coll Physicians Surg Pak. 2004;14: 534-6.
12. Farooq MA, Iqbal MA, Tariq WZ, Hussain AB, Ghani I. Prevalence of hepatitis B and C in a healthy cohort. Pak J Pathol. 2005;16:42-6.
13. Noorali S, Hakim ST, McLean D, Kazmi SU, Bagasra O. Prevalence of Hepatitis B virus genotype D in females in Karachi, Pakistan. J Infect Dis. 2008; 2:373-8.
14. Alia SA, Donahueb RMJ, Qureshi H, Vermunda SH. Hepatitis B and hepatitis C in Pakistan: prevalence and risk factors. Int J Infect Dis. 2009;13: 9-19.
15. Ali M, Idrees M, Ali L, Hussain A, Rehman IU, Saleem S, et al. Hepatitis B virus in Pakistan: A systematic review of prevalence, risk factors, awareness status and genotypes. 2011;8:102.
16. Aziz S, Memon A, Tily HI, Rasheed K, Jehangir K, Quraishy MS. Prevalence of HIV, hepatitis B and C amongst health workers of Civil Hospital Karachi. J Pak Med Assoc. 2002;52:92-4.
17. Fida HS, Hakim AA, Mumtaz AC, Parvez AA, Abdul W S, Sheeraz AB. Hepatitis C: frequency and risk factors associated with sero-positivity among adults in Larkana city. J Ayub Med Coll Abbottabad. 2009;21:
18. Simonsen L, Kane A, Lloyd J, Zaffran M, Kane M. Unsafe injections in the developing world and transmission of blood borne pathogens: a review. Bull World Health Organ. 1999; 77:789-800.