

PRE-OPERATIVE SCREENING FOR HEPATITIS B & C IN GENERAL SURGICAL POPULATION AND THEIR RISK FACTORS

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ABSTRACT:

OBJECTIVES:

To determine prevalence of hepatitis B and C Viral infections and risk factors in patients undergoing general surgery.

METHODS:

This descriptive case series was carried out in

436 patients who attended out-door patient and emergency departments and undergoing general surgery at West Surgical Ward, Mayo Hospital Lahore using a pre-tested self-administered questionnaire. Data for demographic variables for frequencies and associations between variables were analyzed on SPSS version 12.0. Significance level was $p < 0.05$.

RESULTS:

Out of total 436 respondents, 117 (26.8%) were positive for HCV and 46 (10.55%) for HBV infections. *Out of 117, 64 (54.7%) respondents were males and 53 (45.3%) were females.* Mean age of respondents was 33.3 ± 3.8 with the highest number (30.3%) were in the age group between 30 to 40 years of age. (Table 1) The seropositivity for HCV differ by gender, is more in males ($p < 0.004$).

CONCLUSION:

Prevalence of Anti-HCV is more common than HBsAg in our study population. Shaving faces and armpits from barber, previous history of transfusion and surgery, nose/ear piercing were observed as common risk factors among anti-HCV and HBsAg positive patient in General surgical procedure.

KEY WORDS:

HBsAg (hepatitis B surface antigen), ELISA (enzyme linked immunosorbant assay), Anti-HCV, Cirrhosis, hepatocellular carcinoma.

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INTRODUCTION:

Viral hepatitis is an inflammation of the liver and a major health problem world-wide. According to World Health Organization (WHO) 12 to 15 million people are being affected each year by this chronic life threatening disease. A National survey conducted by Pakistan Medical Research council (PMRC) estimated prevalence of HBsAg positivity 2.4% and anti-HCV 4.9% in general population of Pakistan. The overall positivity for both these viruses is 7.3% which means about 12 million population of Pakistan is affected by these viruses which is quite alarming. The spectrum of disease range from sun-clinical(silent) to mild and life threatening decompensate liver disease and hepatocellular carcinoma^[1,2,3] Globally two billion people are infected with HBV and 350 million have chronic (long life) infection are at risk of death due to cirrhosis and hepatocellular carcinoma.^[4]

It is caused mainly by hepatitis virus A B C D and E and rarely by other viruses included cytomegalovirus (CMV) and Epstein-Barr virus (EBV) amongst them hepatitis B & C are the viruses which need extensive studies. Both these viruses are mainly transmitted through parenteral route and transmission risk of these viruses increases among person who are given unsterilized injections, unsafe transfusion, IV drug abusers, patients on hemodialysis, having unsafe sex and sharing of common items like tooth brush/Miswak, razor, infected combs and particularly poor knowledge and unsterilized instruments used in dental procedure included endoscopies done with unsterilized instruments and self-infliction as a part of religious activity (maatam) and persons who shaved their armpits or faces by street barbers.^[5,6] New cosmetic trends like tattooing and nose piercing included infected tweezers are major contributor for hepatitis transmission. Sexual transmission of both hepatitis B & C has also been reported. In USA hepatitis B is

transmitted heterosexually in 39% adults^[7] and other countries who have changed their social values still don't have noticed this threat.

The infection is rapidly spreading in developing countries like Pakistan due to poverty, poor health education system, literacy and lack of vaccination with lack of information on their prevalence.^[8] Doctors, especially surgeons and the paramedical staff have a high risk of acquiring HBV and HCV infection from the infected patients. About 500,000 percutaneous blood exposures occur among hospital base health care provider in USA each year.^[9]

Lack of precaution and vaccinations amongst health care provider (against HBV) may lead to transmission of infection from patients to them and vice versa.^[10,11] This has now become standard pre-operative lab investigation in developed countries, so that precautions can be taken to curb the further transmission of this lethal infection.^[12,13,14,15] With this concern, the study was carried out to evaluate prevalence of hepatitis B and C infection in patient admitted for general surgery.

METHODOLOGY:

The study was a non-interventional, descriptive case series. The sample techniques was non probability purposive sampling type. We conducted this study at West Surgical Ward, Mayo Hospital, Lahore from 1st May to 30th October, 2013. All patients undergoing General Surgery either in emergency or elective operation theatre lists were selected as target population. A sample size of four hundred patients equally acquired from emergency and ward were included in the list.

Data was collected on a pre-tested questionnaire. The questions were designed after extensive literature research on a topic of hepatitis B & C keeping in view the objectives of the study. The researchers were properly trained for filling the right responses in the

questionnaire. The questionnaire was pilot tested and all ambiguities were removed before finalization and administration in the study population. Permission was sought from the concern patients. The respondents were informed verbally about the purpose of the study and participation in the study was taken as their consent. Confidentiality of the data and anonymity of participation was ensured to all respondents of the study who had the right to withdraw at any stage of data collection. History was taken regarding risk factor for hepatitis B and C virus. All patients undergoing emergency and elective procedures were first screened for HBsAg and HCV by kit method. The ELISA for HBsAg and HCV was sent which was followed and reviewed after 48 to 72 hours, whenever the reports were available in given duration. The reports were read as 'Reactive' or 'Non-Reactive' by ELISA only.

Inclusion criteria of our study included all patients of either sex undergoing general surgical operations. In hospitals, patients attending out-patient and emergency department and admitted for general surgery were included. Attendants of the patients and patients not willing to participate were excluded from in the study.

Data was checked, cleaned and entered into the computer and was analyzed with the help of SPSS software version 12.0 Frequencies were tabulated for demographic variables and associations between variables were tested for statistical significance using Student's Chi-square with differences regarded to be significant at 5% level.

RESULTS:

Our study was conducted in hospitalized patients who were admitted for general surgical procedures. Out the total 436 screened General surgical patients interviewed, 255 (58.5%) were male and 181 (41.5%) were females. All these patients opted General surgical procedures. Amongst the

respondents 78% were married. Mean age of respondents was 33.3 ± 3.8 with the highest number (30.3%) were in the age group between 30 to 40 years of age.(Table 1) The seropositivity for HCV and HBsAg differ by gender, is more prevalent in males ($p < 0.004$). (Table 2)

Amongst the total 436 respondents, 117 (26.8%) were positive for HCV and 46 (10.55%) for HBV infections using ELISA. Among 117 HCV positive patients, 64 (54.7%) were male and 53 (45.3%) were female. Out of total 117, 10 (8.5%) male and 7 (5.9%) females had previous history of jaundice in their life time while 2 (1.7%) had illegal sexual contact with multiple partners. Nine (7.6%) men and 13 (11.1%) females had dental procedure. Ten (8.5%) male and 12 (10.2%) females received blood transfusion in the past. Tattooing was seen only in males was 3 (2.5%). A large proportion of male 23 (19.6%), visited barber shop for shaving their face and armpits which is quite alarming as they are high risk for spreading disease to other people. In contrast 15 (12.8%) females had history of ear and nose piercing. (Table 3)

A total of 46 patients were HBV seropositive. There were 28 (60.8%) males and 18 (39.1%) were females among HVB positive patients. They had risk factors in common including previous history of jaundice in 9 (19.5%) male patients and 5 (10.8%) female patients. Male 6 (13.04%) and 6 (13.04%) female received transfusion with only 1 (2.1%) female had history of illegal sexual contact with multiple partners. Additionally 13 (28.2%) male had visited roadside barbers' for shaving their faces and armpits is quite significant in our study for both hepatitis B and C in males while 6 (13.04%) females had pierced their nose and ear were positive for hepatitis B.

DISCUSSION:

Prevalence studies in Countries like Pakistan are not easily conducted due to lack of awareness and high cost. We put our effort

prospectively to estimate prevalence of hepatitis B and C in population visited and operated for general surgery at Mayo hospital Lahore.

The prevalence of HBV was higher (10.55%) in our studied population than that previously reported studies in Pakistan and neighboring countries, the overall prevalence is quite significant in our study. [12, 16, 17, 18] The prevalence of HCV infection is quite high (26.8%) in this study and it is more than published data from Egypt, Cameroon and other countries. [19,20,21] It alarms us to bring our efforts for public health measures including health education, poverty alleviating program and illiteracy to limit the burden of the problem. In study like ours, the seroprevalence did differ by gender with a high (30.3%) increase in the age group between 30 to 40 years. The data in our study was not comparable to the studies of Sampietro et al [21] and Njouom et al. [22] In United States, 65% of the persons with HCV infection were aged 30 to 49 years. [23]

According to different studies, most of the cases of hepatitis B or C occurred in developing countries due to limited resources, steps in prevention and treatment [16, 22] Even in Pakistan [24] the screening facility for HBV and HCV is being provided and used as a pre-operative screening tool. It is an available tool in few tertiary care hospital and not provided at primary and secondary levels due limited funds for health care and poor infrastructure and lack of awareness in general public. [12, 13, 14, 16]

It also helped us to examine a pre-operative cost effective strategy for the diagnosis of hepatitis B and C virus infections in clinical laboratory by Elisa in terms of sensitivity (99.1% and specificity (99.9%). This study also reveals that effective planning and administration of vaccine for HBV and medication are not the answer to the solution and more important is the setting of aid program for the training of local health worker

as well provision of health care facilities and health education and diagnostic facilities to primary and secondary level, to curb the spread of this lethal disease.

CONCLUSION:

Prevalence of Anti-HCV is more common than HBsAg in our study population. Shaving faces and armpits from barber, previous history of transfusion and surgery, nose/ear piercing were observed as common risk factors among anti-HCV and HBsAg positive patient in General surgical procedure. We also observed that prevalence is related to gender and it was noted more common in males than females.

Table 1: Demographic data of the respondents

Variables	N=436	%
Sex		
• Male	255	58.5
• Female	181	41.5
Age (in years)		
• 10-20	63	14.4
• 20-30	87	19.9
• 30-40	132	30.3
• 40-50	95	21.8
• >60	59	13.5
Mean Age (SD)	33.3 ± 3.8	
Marital Status		
• Married	340	78
• Unmarried	96	22
• Widow/Divorced		

Table 2: Prevalence of Hepatitis B and C in both gender

	Male n=92	Female n=71	Total N=163 (%)	p-value
Sero-Positive (both Males & Females)				
• HBsAg	28	18	46(28.2)	0.04
• Anti-HCV	64	53	117(71.8)	

Table 3: Risk factors among HCV positive patients.

Variables	Male	Female	N=117
History of jaundice in past	10 (8.5%)	07 (5.9%)	17
Illegal sexual contact	2 (1.7%)	00	02
Dental procedure	09 (7.6%)	13 (11.1%)	22
Blood transfusion	10 (8.5%)	12 (10.2%)	22
Hospital admission in past	06 (5.1%)	06 (5.1%)	10
Tattooing	03 (2.5%)	00	03
Visited barber shop	23 (19.6%)	00	23
Ear & Nose piercing	00	15 (12.8%)	15
No risk factors	01 (0.85%)	00	01
	64	51	117

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