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RISK FACTORS FOR HEPATITIS;

FREQUENCY OF RISK FACTORS FOR HEPATITIS B (HBV) AND HEPATITIS C VIRUS (HCV) in LAHORE. A HOSPITAL BASED STUDY

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ABSTRACT... Background: Infections with Hepatitis B Virus (HBV) and Hepatitis C virus (HCV) are worldwide public health problem. This is related to the continued occurrence of new infections and the presence of a large reservoir of chronically infected persons. **Objective:** To determine the frequency of risk factors (causes of transmission) for HBV and HCV infections in hospitalized patients of CMH, Lahore and Sheikh Zayed hospital, Lahore. **Design:** Descriptive (cross sectional). **Setting:** The study was carried out in CMH, Lahore and Sheikh Zayed hospital, Lahore from January, 2012 to July, 2012. **Methods:** The patients were selected by consecutive (non-probability) sampling technique. The data was collected through questionnaire. Informed written consent was obtained SPSS version 16.0 was used to calculate the descriptive statistics. **Results:** Out of total of 100 subjects, 50 were cases and 50 were controls. Out of 50 cases, 26% were HBV positive and 74% were HCV positive with female preponderance. The history of injections was very high in both the groups, making a total of 64% (14% HBV; 16% HCV) the important contributors for different types of hepatitis were blood transfusion (HBV = 10%; HCV = 28%; controls = 14%). Surgical procedures (4% HBV, 28% HCV; 8% controls). History of piercing in the last six months (HBV = 6%; HCV = 22% and control = 8%). History of dental procedures in the last six months was higher in HCV patients (18% HCV and 4% HBV). History of HBV or HCV positive patients or relatives at home. (HBV 18%; HCV 36%; control 30%). **Conclusions:** In Pakistan there is an urgent need to raise the public awareness about importance of properly screened blood transfusion, use of disposable needles and using new blades for shaving and haircuts especially at barber shops. In our study, the important contributors for different types of hepatitis were blood transfusion, surgical procedures and history piercing in the last 6months.

Key words: Hepatitis B virus, Hepatitis C virus, controls, Blood Transfusion, injections.

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INTRODUCTION

Viral hepatitis has emerged as a major public health issues and posed enormous burden over health systems in Pakistan. Hepatitis B and hepatitis C infections are the major blood transmitted infections in the country. Worldwide, 2 billion people have been infected with the hepatitis B virus (HBV) and more than 350 million have chronic lifelong infections, a virus 100 times more infectious than HIV[1]. As estimated, more than 180 million people worldwide are infected with hepatitis C virus and 3-4 million are newly infected each year[2]. Hepatitis B and C are amongst the world's greatest infectious disease health problems[3]. Lack of Health education and information about the safe surgery and dental treatments appear as major risk factors for the transmission of hepatitis B and C in the community. Massive health care awareness drives need to be done for both health care providers and the public to reduce this menace[4]. Hepatitis C has taken over from Hepatitis B as the single most important cause for cirrhosis and hepatocellular carcinoma. The prevalence of hepatitis B (4-5%) and hepatitis C (3-7%) is high in Pakistan and both these combined are affecting almost 10% of the population. Nationwide efforts are required to identify people who may have been infected with HBV and HCV. The important message of 'Get tested' the focus of world hepatitis Awareness Day 2007, encouraging the public to assess their risk factors and seek diagnosis. Facility-base data have shown higher prevalence of viral hepatitis in Pakistan[5].

Another study conducted in Egypt showed that out of 5909 patients evaluated, 4189 (70.9%) showed positive antibody markers for hepatitis. Out of those, 40.2% had evidence of hepatitis A virus (HAV) infection, 30.0% hepatitis B virus (HBV) and 29.8% hepatitis C virus (HCV) infection. This surveillance

system was useful in identifying the variable endemicity of acute HAV infection in different regions and for better understanding the epidemiology of HBV and HCV infection[6]. The magnitude of chronic infection with HBV varies substantially between the countries. A better understanding of incidence and/or prevalence of HBV infection and associated risk factors provides insight into the transmission of this infection in the community[7]. Though both HBV and HCV are blood borne diseases, it appears that the virus is coming from the community to the house hold members and the possible sources are treating physicians using a reused syringe, dentists and barbers[8].

Prevalence studies for infections and there risk factors are important because these give us an idea of the magnitude of the disease in a community and enable us to understand the dynamics of its transmission on which are based the control and prevention strategies. Frequency of risk factors about the modes of spread of Hepatitis B and C among the study population will be determined so that emphasis could be stressed on awareness and health education for prevention. We designed a cross sectional study to determine the frequency of the different risk factors for Hepatitis B and C in hospitalized patients of CMH, Lahore and Sheikh Zayed hospital, Lahore. There was no conflict of interest regarding this study.

PATIENTS AND METHODS

It was a hospital-based cross sectional study and was carried out in three hospitals of Lahore namely, CMH, Sheikh Zayed and SIMS hospital, Lahore from January, 2012 to July, 2012. The data was collected through questionnaire. Informed consent was obtained from all study participants. The detailed information about each patient was entered on a pre-designed questionnaire, ID number, name, age, gender, occupation, monthly income, qualification, marital status, HBV and HCV laboratory/screening test results and presence of risk factors like history of drug addiction, blood transfusion, family history of hepatitis, tattooing, previous surgery, dental procedures, hemodialysis etc. Patients with known liver disease as well as metastatic cancer were excluded from the study. Similarly, patients who were already on interferon treatment or who had treatment induced leucopenia were also excluded.

Keeping P (taken from literature review) = 96%[8]. Confidence interval = 95%, Absolute precision = 0.04%, using the formula for calculating sample size, n = 100 patients but keeping in mind the missing data and errors; we selected 50 cases and 50 controls for our study. Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) version 16.0. Descriptive statistics was used to calculate the frequencies for qualitative information and mean with standard deviation for quantitative data in HbsAg and Anti-HCV positive cases.

RESULTS

There were 55% men and 45% women in the study. It was found that there were 64% female cases (i.e.,14% Hepatitis B positive and 50% hepatitis C positive) while 36% male cases (i.e., 12% Hepatitis B positive and 24% Hepatitis C positive) which show a higher proportion of patients in the female community (Figure 1). The history of injections was very high in both the groups, making a total of 64% (14% HBV; 16% HCV) the important contributors for different types of hepatitis were blood transfusion (HBV = 10%; HCV = 28%; controls = 14%). Surgical procedures (4% HBV, 28% HCV; 8% controls). History of piercing in the last six months (HBV = 6%; HCV = 22% and control = 8%). History of dental procedures in the last six months was higher in HCV patients (18% HCV and 4% HBV). History of HBV or HCV positive patients or relatives at home. (HBV 18%; HCV 36%; control 30%) (table-I).

DISCUSSION

The magnitude of chronic infection with hepatitis B virus (HBV) varies substantially between the countries.

Risk factors		Hepatitis		Controls (%) 50%
		HBV (%) 13%	HCV (%) 37%	
Patient of HBV or HCV in relatives		9	18	15
History of injections in last 6 months		7	25	21
History of ex-marital sex in last 6 months		*	*	*
Blood transfusions in last 6 months		5	14	7
Surgical procedures in last 6 months		2	14	4
Dental procedures in last 6 months		2	9	11
History of piercing in last 6 months		3	11	4
Tattooing on the body		*	*	*
Shave by barbar or at home	Himself	3 3 7	6 7 23	17 21 12

Table-I. Comparison of different risk factors of HBV, HC and Controls

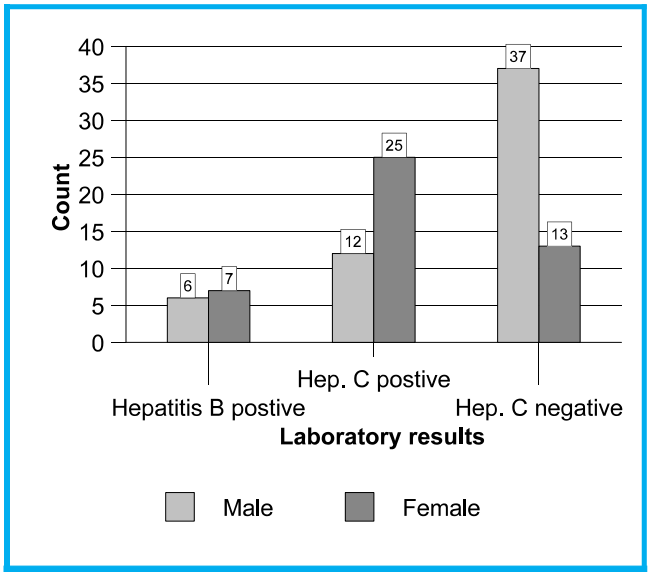

Fig-1. Cross tabulation of gender with laboratory results

A better understanding of frequency of HBV infection and associated risk factors provides insight into the transmission of this infection in the community. Therefore, educational intervention targeted on health care professionals about the importance of infection control measures may include safe injection practices and proper sterilization of medical and dental instruments. Education of barbers about the significance of sterilization of their tools may help in reducing community-acquired infection with HBV and other blood-borne pathogens in this and similar settings. Strict enforcement of legislation to ban unqualified dental practitioners may further help curb the HBV spread[7].

On the basis of results of the study, it is obvious that females have a higher proportion in both types of hepatitis B & C. It might be because of the fact that females receive more blood transfusions due to their complications in pregnancy. Likewise, they receive various administrations of parenteral drugs in pregnancy and iron deficiency anemia. Rising trend of caesarian sections for baby delivery increases the risk of developing post-surgical hepatitis. Furthermore, it is the females who are subjected to ear and nose piercing.

In another study, it was shown that there was higher

prevalence of HCV and HBsAg among the group of patients who received transfusions before the systematic screening of blood donors. So exposure to blood transfusions was the main risk factor for HCV and HBV infection. The systematic serological screening of blood donors was highly effective in reducing transfusion transmitted infections[9]. In the absence of effective screening programs, hepatitis B virus (HBV) is responsible for a substantial proportion of cases of post-transfusion hepatitis, liver cirrhosis and hepatocellular carcinoma[10]. An estimated 2 billion people are infected with HBV worldwide, among them 350 million are chronic carriers; HBsAg positive[11].

In this study majority of patients both hepatitis B and C,belonged to 46 and above, age group. The age of patient was not considerably related with type of hepatitis.

For the prevention of HBV a potent vaccine is available which has over 95% protection rates. No vaccine is available for HCV. In Pakistan the frequency of HCV appears to be increasing and the possible sources include frequent injections for minor ailments, shaving by barbers, dental treatments and blood transfusions along with surgeries. Improper sterilization of medical devices and reuse of syringes has been reported to be the major factor for this high increase in uncontrolled studies[12,13].

Intravenous drug use, needle stick injuries, hemodialysis, tattooing and multiple sexual partners have been identified as common modes of HBV transmission in the developed world[14]. Parenteral routes implicated as the most likely factors for HBV transmission include un-sterilized needles and syringes in health-care settings. A number of studies have shown the relationship between therapeutic injections using non-sterile needles and the transmission of HCV[15,16].

To assess the frequency of different risk factors for HBV and HCV, information was taken from patients. The history of injection was very high in both groups of patients i.e., in HBV 14% and in HCV 50%.

The major contributors on the basis of results for different types of hepatitis were blood transfusion (HBV = 10%; HCV = 28%), surgical procedure (HBV = 44% ; HCV = 22%).

Blood transfusion is still the major cause of HCV transmission in the country; as a survey of blood banks in the large urban centers of the country showed that only about 25% of them tested blood and blood product donations for HCV infection to keep the cost down[17]. Pakistan lies between middle to low income countries with over one-twelfth of labor force unemployed, over one third of the population subsists in poverty and over half the population is illiterate, with parts of the country being worse than what the national average indicates[18].

History of dental procedure in last 6 months was higher in HCV patients (HCV = 18%; HBV = 4%). Similarly, type of hepatitis was also independent of way of shave i.e., shave at home or shave done by barber.

Various studies done in selected groups have shown variable prevalence of chronic infection with HBV: as assessed by HBsAg positivity' 2% to 14% in blood donors[19]. Facial shaving from barbers has been repeatedly documented as a risk factor for transmission of hepatitis B and C viruses in various countries. Barbers in this part of the world are mostly un-aware of the transmission of blood borne pathogens through shaving tools[20].

In our country, we have a great problem of quackery and street dentists, barbers and natural healers also contribute to the spread of HBV and HCV infections. Pregnant women, health care workers and sex partners of hepatitis B patients should be screened for

hepatitis B and subsequently vaccinated.

CONCLUSIONS

In Pakistan there is an urgent need to raise the public awareness about importance of properly screened blood transfusion, use of disposable needles and using new blades for shaving and haircuts especially at barber shops. In our study, the important contributors for different types of hepatitis were blood transfusion, surgical procedures and history of piercing in the last 6months.

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