

Prevalence of Blood Borne Diseases (Hepatitis B & C) and Strategy to Protect Health Care Workers

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ABSTRACT

Objective: To determine the prevalence of blood borne infections particularly hepatitis B and C in our hospital and devise a strategy to protect health care workers from these infections.

Study design: It is a descriptive study.

Place & duration of study: We conducted study at Akhtar Saeed Trust Teaching Hospital, attached with Akhtar Saeed Medical and Dental College, Lahore for eight months from April to November 2011.

Methods: The study targeted the low to middle socioeconomic group that comprises 80% to 85% of the population. All the patients were analyzed by ELISA for detection of Hepatitis B surface antigen and hepatitis C virus.

Results: Total 1891 subjects were screened for hepatitis B and C viruses. Out of 1891 subjects, 340(17.9%) were positive either for Hepatitis B or C viruses. Out of these, 27(7.94%) were positive for HBsAg, 309(90.8%) were anti HCV positive and 4 were both hepatitis B & C positive (1.17%). 125(36.76%) were males and 215(63.24%) were females. Female to male ratio is 1.7:1. The age range was 12-90 years, and majority of patients were between 40-49 years, followed by 20-29 yrs age group.

Conclusion: Higher prevalence of HCV than HBV infection, highlighting an alarming situation of female preponderance than males.

Key words: Hepatitis B, Hepatitis C, health care workers, universal precautions.

INTRODUCTION

Hepatitis B and C are the commonest causes of chronic liver disease in several regions of the world. The worldwide carrier rate of HBV is more than 350 million¹. It has infected over 2 billion individuals alive today at some point in their lives. One million people die each year from HBV related chronic liver disease. Hepatitis C virus has infected about 270–300 million people worldwide till the year 2011².

Health care workers are most exposed to these diseases, as such a large number of HBV and HCV positive population reporting to health care facilities. Transmission of HBV and HCV has been well-documented in health care settings from patient to health care worker, from health care worker to patient, and from patient to patient³. The common modes of transmission are needle stick injury, splash injury, injury with contaminated sharp instruments and direct blood contact with open wounds of HCWs. Health care workers in areas such as operating theatres, labour rooms, emergency departments and laboratories have a higher risk of exposure. Cleaners and waste collectors handling blood contaminated items are even at higher risk⁴.

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MATERIALS AND METHODS

This study was conducted at Akhtar Saeed Trust Teaching Hospital, attached with Akhtar Saeed Medical and Dental College Lahore, which caters patients belonging to low to middle socioeconomic class. All patients of either sex were enrolled in the study from inpatient and outpatient surgery department for a period of 8 months, from April to November 2011. The age range was 12-90 years. Children under 12 years were not included as they are entertained by Paeds Department. They underwent Hepatitis screening in hospital laboratory by ELISA for detection of Hepatitis B surface antigen and hepatitis C virus.

RESULTS

1891 subjects were analyzed for hepatitis B and C viruses, 340 were positive (17.9%) for Hepatitis B or Hepatitis C virus. Out of 1891, 27(7.94%) were positive for HBsAg, 309(90.8%) were anti HCV positive and 4 were both hepatitis B & C +ve (1.17%)

Table 1: HBsAg and anti HCV prevalence (n=1891)

Serological Marker	Seropositive	%age
HBsAg	27	7.94
Anti HCV	309	90.88
Both	4	1.17

Table2: Age prevalence of HBV and HCV

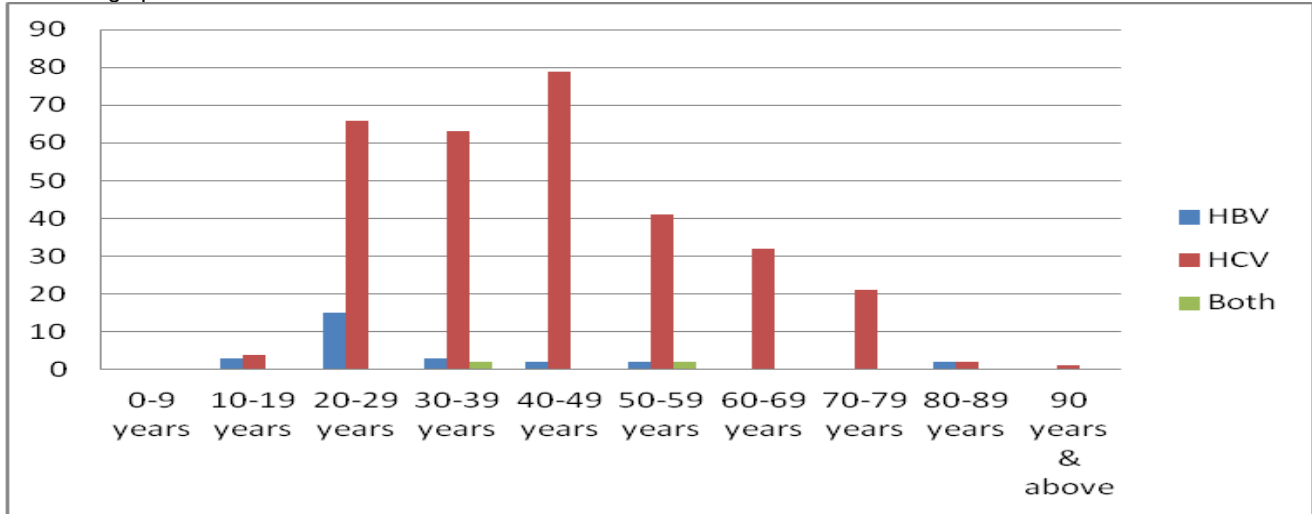
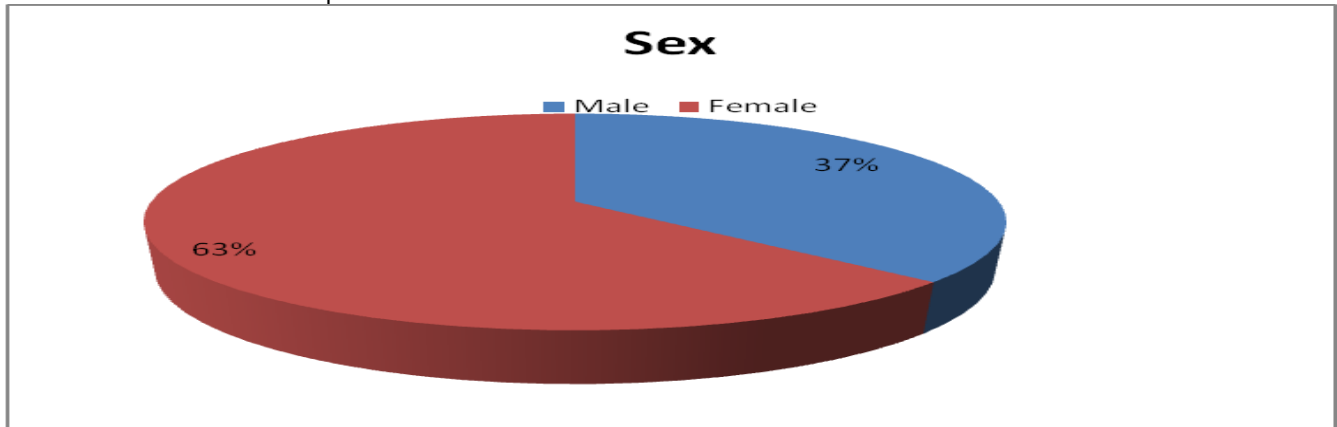


Table 3: Sex distribution of Hepatitis B & C viruses



DISCUSSION

In this study 17.9% of patients were positive for HCV and HBV. HCV (90.8%) is more common than HBV (7.94%) as also reported by studies in other parts of country^{5,6}. However in India prevalence of HCV in general population is reported to be lower (7.8%)^{7,8}.

The incidence in developed countries is low. There are low rates of HCV seroprevalence in Germany (0.6%), Canada (0.8%), France (1.1%) and Australia (1.1%)⁹. The reason being, health education, practice of preventive and protective measures and immunization in these countries while reasons for high frequency in this part of world are lower socioeconomic status, unchecked quackery practice, and little or no awareness about the preventive measures.

HCV is more prevalent in age group 40-49 years followed by 20-29 years and it is comparable with the other studies¹⁰. The reasons of high rate in females is, mostly they are of reproductive age and majority of pregnancies are being handled by 'dais' in rural areas

who have little knowledge about sterilization and other protective measures. Males of this age are engaged in outdoor work so more prone to accidents and seek treatment by quacks.

HCV is more common in females (64.9%) than in males (35.06%) while HBV is almost equally distributed among males and females. It is a challenging dilemma because female population can transmit the disease vertically as well as horizontally to their children due to the close association between mother and child¹¹.

As large number of the population is positive with HCV and HBV, so healthcare workers, particularly surgeons are more exposed to transmission. Chronic HBV infection among surgeons is 3 times greater than that of general population¹². Risk of post exposure transmission after single prick injury is 3% for hepatitis C and 6- 30% for hepatitis B virus¹, and the risk multiplies with subsequent exposures.

Regarding this scenario of high prevalence of Hepatitis B & C, what should be our strategy to screen the patients and protect health care workers against transmission? Ideally screening should be done in every patient not only to know the status of disease and apply protective measures but also referring the patient for further Rx¹³. But due to high cost of test it is not feasible as majority of our patients belong to low socioeconomic class.

Therefore Selective screening policy should be adopted in every patient undergoing operative or interventional procedure e.g., endoscopy, and interventional radiology, with previous history of jaundice, blood transfusion, injection therapy, surgery, Cesarean section and repeated dialysis, known history of IV drug abuse and no previous immunization¹⁴.

Routine immunization of health workers against infection with HBV and HCV is an effective way to protect them. Every healthcare worker before starting job should be vaccinated. It is the responsibility of the employer to ensure the vaccination status of the employee¹⁵.

Universal Precautions recommended by WHO should be practiced. These are observing good basic hygiene including regular hand washing before and after donning gloves¹⁶. Double gloving significantly reduces the perforation rate of the inner glove by at least 70% compared to single gloving. Double gloving while operating is also helpful, particularly when wearing an indicator under gloves since it will change color if a puncture occurs¹⁷.

Health care workers should avoid handling of blood and body fluids while having open skin wounds. They should cover all cuts and abrasions with water proof dressings¹. Disposable gloves and aprons should be worn when attending to dressings, performing aseptic techniques, or dealing with blood or body fluids¹⁸.

Surgeons and all the staff involved in operating procedures should avoid using sharps if possible, protect eyes, mouth, and nose from blood splashes by wearing goggles and if there is a sharps injury or blood splash incident they should immediately follow WHO guidelines¹⁹.

The risk of transmission can be further reduced by utilizing laparoscopic surgery, stapling devices instead of sutures and use of blunt needles whenever feasible. Needle-protective devices also reduce the incidence of contaminated per-cutaneous needle stick injury²⁰.

Para medical staff should be trained to dispose soiled linen and contaminated sharp wastes safely. Sharps containers are not to be overfilled. Cleaning, disinfecting and sterilizing the equipment is mandatory after usage.

We recommend that every health institution should organize workshops for the training of its staff about prevention and protection against transmission of blood borne viruses. It should be mandatory for every health care worker to attend these workshops. Legislation should be done in this direction as early as possible.

CONCLUSION

Occupational hazards like hepatitis B and C virus infections are serious risks to health care workers. Proper surveillance, implementation of preventive measures, development and evaluation of new safety devices and protective barriers and routine immunization can minimize the risk of exposure. Maximum protection of Health Care Workers will ensure better medical care to patients.

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