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Research Article

**PERVASIVENESS OF BLOOD BORNE DISEASES  
(HEPATITIS B & C) AND PLAN TO GUARD HEALTH CARE  
WORKERS FROM THESE INFECTIONS**Dr Dania Noor<sup>1</sup>, Dr. Sadia Nazir<sup>2</sup>, Dr Maryam Iqbal<sup>3</sup><sup>1</sup> King Edward Medical University, Lahore<sup>2</sup> Al Nafees Medical College and Hospital Islamabad<sup>3</sup> Peoples's University of Medical and Sciences, Nawabshah

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**Abstract:**

**Aim:** To determine the frequency of blood-borne infections, in particular hepatitis B and C, in our hospital, and to develop a strategy for protecting healthcare workers against these infections.

**Study design:** This is a descriptive study.

**Study Location and Duration:** In the Medicine Unit-II of Jinnah Hospital Lahore for one-year duration from May 2019 to May 2020.

**Methods:** The study was targeted at low to middle and low-middle socioeconomic groups which covers 80% to 85% of the population. All patients underwent ELISA analysis to detect hepatitis B surface antigen and hepatitis C virus.

**Results:** A total of 1,891 people were tested for hepatitis B and C viruses. Of the 1,891 subjects, 340 (17.9%) were positive for hepatitis B or C viruses. Of these, 27 (7.94%) were positive for HBsAg, 309 (90.8%) were anti-HCV, and 4 were both positive for hepatitis B and C (1.17%). 125 (36.76%) are men and 215 (63.24%) are women. The female to male ratio is 1.7: 1. The age range was 12-90 years, and most patients were 40-49 years old, followed by 20-29 years of age.

**Conclusion:** HCV is more prevalent than HBV infection, which indicates a worrying situation in which women are more prevalent than men.

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

**Corresponding author:****Dr. Dania Noor,**

King Edward Medical University, Lahore

QR code



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**INTRODUCTION:**

Hepatitis B and C are the most common causes of chronic liver disease in several regions of the world. The global rate of HBV carriers is over 350 million. At one point in his life, he infected over 2 billion people alive<sup>1-2</sup>. One million people die each year from HBV-related chronic liver disease. The hepatitis C virus infected approximately 270-300 million people worldwide by 2011<sup>3-4</sup>. Healthcare workers are at greatest risk of developing these diseases because so many HBV and HCV infected populations report to healthcare facilities<sup>5-6</sup>. Transmission of HBV and HCV has been well documented in healthcare settings from patient to healthcare professional, healthcare worker to patient and patient to patient. Common ways of transmitting the disease are needle prick, spraying, injury from contaminated sharp instruments, and direct contact of blood with open wounds of support personnel<sup>7-8</sup>. Healthcare workers in places such as operating theaters, delivery rooms, emergency departments and laboratories are at greater risk. Cleaners and waste collectors for handling blood-contaminated items are even more at risk. The universal precautions recommended by the WHO should be followed. These are good basic hygiene practices, including regular hand washing before and after wearing gloves<sup>16</sup>. Double gloves significantly reduce the perforation rate of the inner glove by at least 70% compared to single gloves. It is also helpful to wear double gloves when working, especially when wearing the indicator under the gloves as it will change color if punctured. Healthcare professionals should avoid contact with blood and body fluids in the presence of open skin wounds. They should cover all cuts and abrasions with waterproof dressings. Disposable gloves and

gowns should be worn when dressing, performing aseptic techniques, or when handling blood or body fluids. Surgeons and all staff involved in operational procedures should avoid the use of sharp tools, if possible, protect eyes, mouth and nose from blood spatter by wearing safety glasses, and in case of sharp injury or blood spatter, they should follow WHO guidelines immediately. The risk of disease transmission can be further reduced by using laparoscopic surgery, staplers instead of stitches, and blunt needles whenever possible. Needle guard devices also reduce the incidence of contaminated percutaneous needle stick injuries. Medical personnel should be trained in the safe disposal of soiled linen and contaminated sharps. Do not overfill sharps containers. Cleaning, disinfecting and sterilizing the equipment is mandatory after use.

**MATERIALS AND METHODS:**

The study was conducted at the Medicine Unit-II of Jinnah Hospital Lahore for one-year duration from May 2019 to May 2020 which serves patients in the lower or middle socioeconomic class. All patients of both sexes were included in the study from the inpatient and outpatient medical ward. The age range was 12-90 years. Children under 12 are not included as they are entertained by the teaching department. They were screened for hepatitis in the hospital laboratory by ELISA to detect the surface antigen of hepatitis B virus and hepatitis C virus.

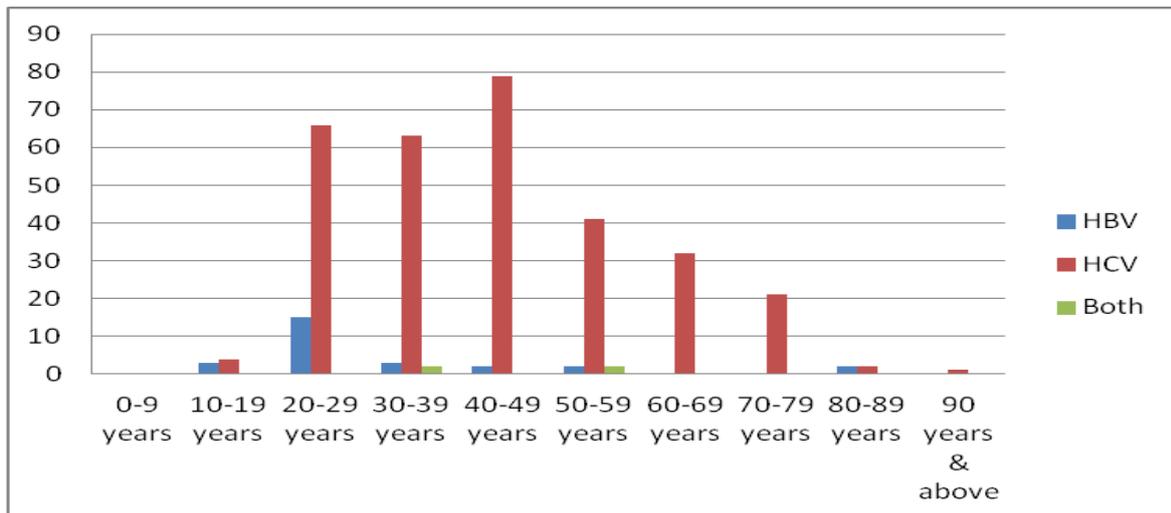
**RESULTS:**

1,891 people were analyzed for hepatitis B and C viruses, 340 were positive (17.9%) for hepatitis B or hepatitis C. Out of 1,891, 27 (7.94%) were positive for HBsAg, 309 (90.8%) were anti-HCV, and 4 both had hepatitis B and C + ve (1.17%)

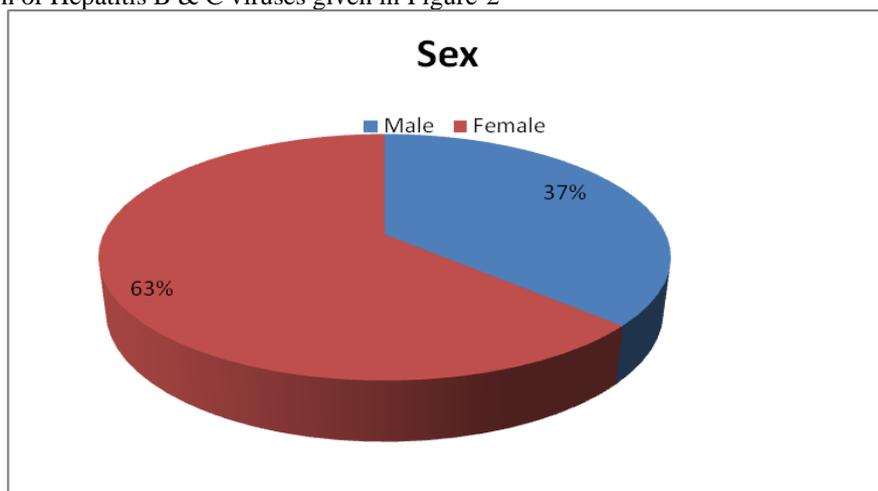
Table 1: HbsAg and anti HCV prevalence (n=1891)

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

Age prevalence of HBV and HCV given in Figure-1



Sex distribution of Hepatitis B &amp; C viruses given in Figure-2



### DISCUSSION:

In this study, 17.9% of patients were HCV and HBV positive. HCV (90.8%) is more common than HBV (7.94%), which is also confirmed by studies in other parts of the country<sup>9-10</sup>. However, in India, the prevalence of HCV in the general population is lower (7.8%). Prevalence in developed countries is low. Germany (0.6%), Canada (0.8%), France (1.1%) and Australia (1.1%) have low rates of HCV seroprevalence<sup>11-12</sup>. The reasons are health education, the practice of preventive and protective measures and immunization in these countries, while the causes of high frequency in this part of the world are lower socioeconomic status, uncontrolled quackery, and little or no awareness of preventive measures. HCV is more common in the 40-49 age group, followed by the 20-29 age group, and is comparable to another studies<sup>13-14</sup>. The reason for the high rate in women is that they are mainly of childbearing age and most pregnancies are performed through. podiums in rural areas that have little knowledge of sterilization and other protective measures. Men of this age work outdoors, so they are more prone to accidents and seek help from a quack doctor. HCV is more common in women

(64.9%) than in men (35.06%), while HBV is almost equally distributed among men and women. This is a difficult dilemma as the female population can transmit the disease to their children both vertically and horizontally due to the close relationship between mother and child. Since a large number of people are infected with HCV and HBV, health care workers, especially surgeons, are at greater risk of becoming infected. Chronic HBV infection among surgeons is 3 times higher than in the general population. The risk of transmitting infection after a single bite is 3% for hepatitis C and 6-30% for hepatitis B, and the risk multiplies with subsequent exposures. Given this scenario of high incidence of hepatitis B and C, what should our strategy be to screen patients and protect healthcare professionals from disease transmission? Ideally, each patient should be screened not only to understand the disease status and apply protective measures, but also to refer the patient to further Rx13. However, due to the high cost of the study, it is not feasible as most of our patients belong to the low socioeconomic class. Therefore, any patient undergoing surgery or interventional procedures, such as endoscopy and interventional radiology, with a prior

history of jaundice, blood transfusion, injection therapy, surgery, cesarean section, and repeated dialysis, with a known history of intravenous drug abuse, should follow a selective screening policy. and lack of prior immunization. Routine vaccination of health care workers against HBV and HCV infection is an effective way to protect them. Every healthcare professional should be vaccinated before starting work. It is the employer's responsibility to ensure the employee's vaccination status<sup>15</sup>.

### CONCLUSION:

Occupational hazards, such as hepatitis B and C infections, pose a serious risk to healthcare workers. Proper supervision, implementation of preventive measures, development and evaluation of new security devices and barriers, and routine vaccination can minimize the risk of exposure. Maximum protection of health workers will ensure better medical care for patients.

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