

# Prevalence of patients infected with HIV, Hepatitis B and C virus visiting the outpatient department of Islamic International Dental Hospital, Islamabad

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## Abstract

**Introduction:** Incidence of serious liver illnesses including cirrhosis and hepatocellular carcinoma are increasing in patients chronically infected with hepatitis B virus (HBV) and hepatitis C virus (HCV). The aim of this study was to assess the prevalence of hepatitis B,C and HIV in patients presenting to the outpatient department of Islamic International Dental Hospital.

**Material and Methods:** 104 patients visiting the outpatient department of Islamic International Dental Hospital were consecutively selected. Blood sample was drawn from the patients and was screened through strip test method to evaluate presence of disease conditions.

**Results:** Out of one hundred and four patients (49 females and 55 males) 4 (8%) were HbsAg positive and 8 (7%) were HCV positive. No patients were detected to be HIV positive.

**Conclusions:** For the safety of doctors and patients, it is paramount to know the incidence of such serious diseases and policies must be made in every institute to take action against them.

**Keywords:** HIV; hepatitis; liver illness

## Introduction

Viral hepatitis is the major cause of the liver diseases. According to the world health organization (WHO) millions of people worldwide have been affected by hepatitis B (HBV) and hepatitis C (HCV) virus having economic and social implications on individuals and their families. It is more frequent in developing countries including Pakistan.<sup>1</sup> HBV and HCV causes chronic infections which may lead to serious and life threatening conditions including decompensated Cirrhosis and Hepatocellular carcinoma.<sup>2,3</sup>

Human immunodeficiency virus (HIV) is also common in Pakistan and it is prevalent among drug users and their sexual contacts including male and transgender workers. HIV

is epidemic amongst injection drug users (IDU's) of whom 20% are infected with HIV.<sup>4</sup> HBV virus was first discovered by Blumberg and HCV by Choo, which helps and plays an important role in diagnosis, prevention and treatment of Viral liver diseases.<sup>5</sup> The pattern of infection varies from country to country but have high carrier rate in developing countries.<sup>6</sup> Almost 1.5 million new cases of HCV infection are the reported yearly in USA.<sup>2</sup> The reported prevalence of HCV in blood donors is 15.6% in Africa, 1.5% in Japan, 0.6% in USA, 0.24% in Canada, 0.24% in Finland and 0.07% in the UK.<sup>6,7</sup>

According to Shah and Shabbier the prevalence rate of hepatitis B surface antigen (HbsAg) in the general population is estimated to be from 3.6-18.66%, while HCV antigens ranges from 4.25-7.13%.<sup>8</sup>

The aim of our research is to assess the prevalence of hepatitis B, C and HIV in patients presenting to the outpatient department of Islamic International Dental Hospital Islamabad and strive to propose cross infection protocols in line with the occupational safety and Health administration recommendations.

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## Material and Methods

This was a cross sectional study carried out at outpatient department (OPD) of Islamic International Dental Hospital Islamabad. Consent for serological tests was taken. Information was presented in a simplified manner that could be easily understood by patients. All the data acquired for research purpose was kept confidential to safeguard patient's identity. Proper care and caution was taken in order to prevent the patient from any harm and adverse events. The infected persons were provided appropriate information about the progression, prevention of the disease and were referred to the respective hospital for further evaluation. The samples were collected on four consecutive Thursdays of the same month, one hundred and five patients were screened for HBV, HCV and HIV by the below mentioned procedure. Consent was taken from the patient before proceeding with the study and permission was sought prior to the commencement of study from the ethical review committee of Islamic International Dental Hospital (IIDH). Subjects above 20 years of age with no known history or any infection of HBV, HCV and HIV were included in the study. The drawing of blood procedure was as follows. The patient was asked to sit on a chair upright with his one arm extended. A tourniquet was applied on the patient's arm and he was asked to close his fist tightly, one of the trained personnel then drew the blood sample. The sample was then transferred to a test tube and was centrifuged for 4 minutes which lead to the separation of plasma from the blood cells. Three test specific strips of Hepatitis B, Hepatitis C and HIV of (CTK biotech USA) were placed on the table along with their specific buffer bottles. Two drops of plasma were picked up with a disposable dropper from the test tube and was transferred to a labeled test strip's well. One drop of buffer was also added to this strip's well. The same process was carried out for the three test

specific strips using their specific buffers by the investigator. After waiting for 2 minutes the result appeared in the form of lines on the strip. Single line on the strip showed negative result (Fig 1) while two lines on the strip indicated positive result (Fig 2).



**Figure 1: Single line showing negative result**



**Figure 2: Double line showing positive result.**

## Results

Data analysis was done through SPSS version 10.0 (IBM, USA). In this study, 104 patients participated. There were forty nine females (47%) and fifty five males (53%).

VIRAL MARKERS	NUMBER OF POSITIVE PATIENTS(%)
HCV positive	8 (7.6%)
HBV positive	4 (3.8%)
HIV positive	0 (0%)

GENDER	HCV positive	HBV positive	HIV positive
MALE	3 (2.8 %)	4 (3.8 %)	0 (0 %)
FEMALE	5 (4.8 %)	0 (0 %)	0 (0 %)

## Discussion

To account for the progression and prevention of Hepatitis B, Hepatitis C and HIV we must know the etiology of the disease. The factors leading to Hepatitis B and C are contaminated syringes & blade, surgical instruments, alcohol abuse and cigarette smoking. Hepatitis B and C if left untreated may lead to liver cirrhosis and hepatocellular carcinoma, whereas HIV leads to acquired immunodeficiency syndrome (AIDS).<sup>2,3</sup>

In present study of 104 patients, 49 (47%) were females while 55 (53%) were males which makes the ratio 13:12 respectively. Similar age range has also been reported from a teaching hospital in Saidu Shareef Swat.<sup>9</sup> However, there were other studies which reported both younger and older age group patients.<sup>10</sup>

Out of 104 patients, 8 were HCV positive while 4 patients were HBV positive, whereas no HIV case was reported. Results reported by our study showed that HCV was more prevalent (8%) as compared to HBV (4%) in patients visiting the Outpatient Department of Islamic International Dental Hospital, Islamabad.

HBV was more prevalent in males as compared to females. The HbsAg positive males were 4 in number whereas no females

were detected with HbsAg. Similar results were obtained in a previous research conducted at Saidu Shareef Hospital (Swat).<sup>9</sup> HCV was more prevalent in females as compared to males. The anti HCV positive females were 5 in number whereas number of males were 3. This does not corresponds to the previous studies conducted in Pakistan. However there was a particular reason for HCV being positive in females i.e 4 out of 5 female patients with Anti HCV positive have undergone Caesarian section by Gynecologists. Each of them had a common complain that they have got infected with HCV after their C-section.

The other reasons being family history, contaminated syringes, use of unsterilized surgical and dental instruments, blood transfusion and drug abuses. Pakistan lies between middle to low income countries with over 112th of labor forces unemployed. Over 1/3rd of the populations subsist in poverty and over half the population is illiterate, with parts of country being worse than what the national average indicates.

In an earlier study, non sterile syringes were also the source of HBV and HCV infections in Karachi.<sup>11</sup> Patients who receive more injections were more likely to be infected with HCV. Pakistan HIV epidemic is fully established and expanding among injection drug users (IDUs) of whom 20% are infected with HIV. However no case of HIV was reported in present research. There were limited resources for PCR and ELISA. Another drawback of our study was that only patients visiting the OPD of IIDH rather than all the hospitals of the twin cities were screened.

### Conclusions

Hepatitis C is the major cause of cirrhosis followed by HBV. Standard operating protocols should be adopted to reduce the risk of infection. These protocols include vaccinations, health education, and use of sterilized surgical equipment for the prevention of these diseases. Screening of all

the patients visiting the hospital OPD should be done. Standard protocols including double masks, double gloves, eye protector and a protective gown should be worn while treating such patients. The infected patients should be treated on isolated dental units, which must be properly disinfected after the procedures. The instruments used, must also be sterilized separately to reduce the risk of cross-infection.

## References

1. Malik I, Tariq W. The prevalence and pattern of viral hepatitis in Pakistan. *J Coll Phys Surg Pak* 1995;5:2-3
2. Ahmad S, Malik I, Tariq W, Butt S, Luqman M, Ahmad N. Hepatitis B related chronic liver diseases in Rawalpindi-Islamabad area. *J Coll Phys surg Pak* 1997;7(2):43-6
3. Malik I, Ahmad N, Butt S, Tariq W, Muzaffar M, Bukhtiari N. The role of hepatitis B and C viruses in the etiology of hepatocellular carcinoma in Northern Pakistan. *J Coll Phy Surg Pak* 1995;5:26-8
4. Khan AA, Khan A. The HIV epidemic in Pakistan. *J Pak Med Assoc* 2010;60(4):300-7
5. Jafri W, Jafri N, Yakoob J, Islam M, Tirmizi SFA, Jafar T, et al. Hepatitis B and C: prevalence and risk factors associated with seropositivity among children in Karachi, Pakistan. *BMC Infectious Diseases* 2006;6(1):1
6. Durrani A, Rana A, Siddiqi H, Marwat B. The spectrum of chronic liver disease in Baloushistan. *J coll physical surg pak* 2001;11:95-7
7. Saeed A, Al-Admawi A, Al-Rasheed A, Fairclough D, Bacchus R, Ring C, et al. Hepatitis C virus infection in Egyptian volunteer blood donors in Riyadh. *The Lancet* 1991;338(8764):459-60
8. Shah N, Shabbeir G. A review of published literature on hepatitis B and C virus prevalence in Pakistan. *J coll phys surg pak* 2002;12(6):368-71
9. Khan P, Ahmad A, Muhammad N, Khan TM, Ahmad B. Screening of 110 cirrhotic patients for hepatitis B and C at Saidu Teaching Hospital Saidu Sharif Swat. *J Ayub Med Coll Abbottabad* 2009;21(1):119-21
10. Sherlock S, Niazi S, Fox R, Scheuer P. Chronic liver disease and primary liver-cell cancer with hepatitis-associated (Australia) antigen in serum. *The Lancet* 1970;295(7659):1243-7
11. Khan AJ, Luby SP, Fikree F, Karim A, Obaid S, Dellawala S, et al. Unsafe injections and the transmission of hepatitis B and C in a periurban community in Pakistan. *Bulletin of the World Health Organization* 2000;78(8):956-63