# FREQUENCY AND RISK FACTORS OF HEPATITIS B & C IN AFGHAN PATIENTS PRESENTING TO TERTIARY CARE HOSPITAL IN PESHAWAR

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## ABSTRACT

***Objective:*** To document the frequency and risk factors of Hepatits B and C in Afghan patients presenting to a tertiary care hospital in Peshawar.

***Study Design:*** Descriptive study.

***Place and Duration of Study:*** Rehman Medical Institute (RMI), Peshawar from 1st January, 2012 to 31st December, 2012.

***Patients and Methods:*** A total of 2166 Afghan national were included in the study who underwent surgery in RMI through consecutive, non-probability sampling. Hepatits B surface antigen (HBsAg) and anti-HCV antibody tests were performed by ELISA method. All patients who were positive for either of the two or both were investigated by a researcher-administered questionnaire to find the risk factors for seropositivity of hepatitis.

***Results:*** Out of a total of 2166 patients, 104 patients (4.8%) were found to be positive. Seventy-eight patients (75%) were HepBsAg positive while 24 patients (23%) were anti-HCV antibodies positive while 2 patients were positive for both viruses. Re-use of unsterilized syringes (23%) and history of previous surgery (19.2%) were the most common risk factors whereas no risk factor could be identified in 15 patients (14%). Seventy-nine patients (76%) were newly diagnosed at time of test while 25 patients (24%) were known cases of either HBV or HCV. Only one patient had clinical/laboratory features of chronic liver disease while no patient had underwent Hep B vaccination or had hepatocellular carcinoma.

***Conclusion:*** A high seroprevalance of HBV and HCV was found in this study. Reuse of unsterilized syringes, history of previous surgery and tattoos piercing were found to be the most common risk factors.

**Keywords:** Hepatitis, HBV, HCV, ELISA, Hospitalized patients.

## INTRODUCTION

Hepatitis B virus (HBV) and Hepatitis C Virus (HCV) are amongst the leading causes of liver pathologies, with a very broad clinical spectrum ranging from asymptomatic carrier state to cirrhosis and hepatocellular carcinoma[1]. Early detection and treatment of these diseases can lead to disease prevention to others and cure for the patient themselves.

There are a number of studies regarding the seroprevalance of HBV and HCV amongst the various population groups including healthy blood donors, general public and hospitalized patients but majority of them are from Pakistani population[2]. There is limited data regarding the seroprevalance of both HBV and HCV amongst Afghan patient population. Some studies done on Afghan refugees have shown high seroprevalance. Whereas few studies conducted in urban areas of Afghanistan have shown low seroprevalance[3].

A number of different risk factors have been implicated for spread of HBV and HCV by various authors. Blood transfusions and reuse of various sharp instruments like razors and needles have been identified as the leading causes of spread of these blood borne infections.

The objectives of this study were to document the frequency of HBV and HCV in Afghan patients presenting to a tertiary care hospital in Peshawar and to identify the risk factors for their seropositivity.

## PATIENTS AND METHODS

This descriptive study was conducted in Rehman Medical Institute (RMI), Peshawar, from 1st January, 2012 to 31st December, 2012. RMI is a 300-beded tertiary care hospital, which is the largest private sector hospital in KPK

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province and receives patients from all over the province and from Afghanistan. The study was approved by the hospitals' Institute Review and Ethics Board (iREB).

The inclusion criterion was Afghan patients who underwent surgery in all surgical specialities (general surgery, plastic surgery, orthopedics, gynecology and obstetrics, pediatric surgery) and gave informed consent to participate in the study. All hepatitis B surface Antigen (HBsAg) tests were performed using third generation Electro-chemiluminescence Immunoassay (ECLISA) Cobas E 4 11 System. All anti-HCV antibodies (anti-HCV) tests were done using Electro-chemiluminescence Immunoassay (ECLISA) Hitachi E170 System. A cutoff value of 1.0 was used for both HBsAg and anti-HCV.

All reading less than 1 were taken as negative and values above 1 were considered as positive. Value of 1 was considered as indeterminate and advised testing after 6 weeks. We did not had any patient with indeterminate value. These are part of routine pre-operative investigation done at our institute for all patients undergoing surgery. All pakistani patients were excluded from the study.

Consecutive, non-probability sampling was done. Data was collected from all patients by a single investigator using a researcher-administered questionnaire which was made after literature search and included patient demographics, HBV/HCV seroprevalance status, features of chronic liver disease, hepatocellular carcinoma and various risk factors.

### Data Analysis

Data was recorded and analyzed using Statistical Package for Social Sciences version 20.0 (SPSS, Inc., Chicago, IL, USA). Chi Square Test was applied to test the association. Results were recorded as frequencies, means ± standard deviations (SD) and p-values. For all purposes, a *p*-value of <0.05 (95% confidence level) was considered as the criteria of significance.

## RESULTS

There were a total of 2166 patients included in the study. One hundred and four patients (4.8%) were found to be seropositive for HBsAg and/or anti-HCV. Seventy-eight patients (75%) were HBsAg positive while 24 patients (23%) were anti-HCV antibodies positive while 2 patients were positive for both viruses. There were 55 male patients and 49 female patients. The mean age of patient with positive viral seroprevalance was 41.5 years ± 18 years. (Range: 8years – 82 years).

Seventy-nine patients (76%) were newly diagnosed at time of test while 25 patients (24%) were known cases of either HBV or HCV. Only one patient had clinical/laboratory features of chronic liver disease while no patient had underwent hepatitis B vaccination or had sign/symptoms of hepatocellular carcinoma.

## DISCUSSION

There was a high frequency rate of hepatits B in Afghan patient population participating in this study. HCV seroprevalance was considerably low as compared to Hepatitis B. A number of risk factors were identified in this study for causing these infections.

The frequency of hepatitis B was found to be 4.1% in this study. Quddus et al in their cross-sectional study on 301 Afghan refugee families living in Pakistan found HBsAg frequency rate of 8.3%[4]. In a meta-analysis reported by Ali et al on different factors associated with Hepatitis B infection, they found Afghan refugees living in Pakistan to have a high frequency rate[5] . One reason for this high frequency is increased sharing of needles especially among IDU's[6]. No patient in this study had received immunization against Hepatitis B. Quddus et al in their study observed that a child suffering from hepatitis B was more likely to have an infected parent than a child without hepatitis B, suggesting the need to include vaccination against hepatitis B as part of routine immunization for this population group[4]. Todd et al suggested education for both patient and health care providers regarding hepatitis and HIV

infections as patients are aware about these diseases but they lack comprehensive knowledge about these diseases[7].

Previous surgery and use of unsterilized instruments were the main identified risk factors for transmission of Hepatits B in this study. In study conducted by Quddus et al, they found unsafe injection practice as a cause of high frequency[4]. Five HBS positive patients in this study were previously imprisoned. In a study conducted by Kazi et al on imprisoned patients in Karachi, they found a frequency rate of 5.9% in 365 prisoners. In a study conducted by Majid et al in Bannu district of Khyber Pukhtunkhwa, they found use of unsterilized injections, shaving by barbers and previous surgical procedures as the main risk factors accounting for half of hepatitis B and C infections in their patients[8].

The frequency of hepatitis C in this study was 1.2%. Blood transfusion was the main risk factor for acquiring hepatitis C infection. In a study conducted by Khattak et al in different areas of north-western province of Pakistan, they found HCV frequency of 4% among healthy blood donors[9]. There was no patient in this series who was intravenous drug user (IDU). This is a major risk factor for HCV infection. In a cross sectional study in Afghanistan among IDU's, Todd et al found frequency of HCV and HBsAg to be 36.6% and 6.5% respectively[10]. One reason for no IDU's in this study is that this population belongs to a poor socioeconomic class and they cannot afford treatment in a private hospital in Pakistan.

In this study, 76% of patients were newly diagnosed as positive for either of the two infections. Pre-operative screening is essential to diagnose these infections in asymptomatic patients. Few authors have recommended performing these tests as prerequisites for every patient undergoing any surgery[11]. These tests are also essential as it makes health care provider more vigilant and helps prevent infections to health care provider. Attaullah et al in their study amongst health care providers in tertiary hospitals in Peshawar found that nurses and technicians are more prone to occupational exposure and HBV infection. The most common risk factor was taking blood from patient and recapping / disposing of syringes[12].

There were a number of limitations in the study. There was no correlation with HBV / HCV seropostivity and ELISA value. Risk factors were not studied in patient not suffering

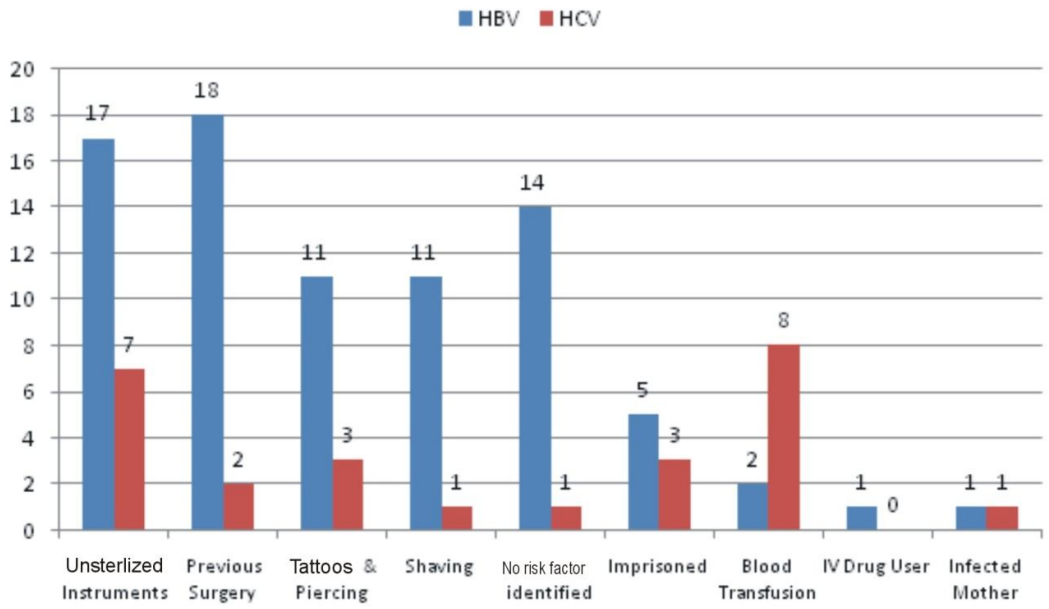


**Figure: Risk factors for HBV and HCV positive seroprevalance.**

from hepatitis. No correlation was done with seroprevalance and aminotransferase levels. There was no comparison between seropositive and seronegative patients and Pakistani patient population was excluded.

## CONCLUSION

A high frequency of HBV and HCV was found in this study. Reuse of unsterilized syringes, history of previous surgery and tattoos piercing were found to be the most common risk factors.

## CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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