

## Incidence of Hepatitis B among Malarial Patients in Islamabad

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### Abstract

The chronic nature of hepatitis B infection influences the clinical approach and management of this disease. The current study was conducted to determine prevalence of hepatitis B among malarial patients in Islamabad. A total of 50 malarial patients were studied by HBsAg assay. Higher prevalence of HBV was found in the 46-60 years age group for both males and females. Among male patients, rate of infection was 25% while in females rate was 23%. The lowest infection rate was recorded in malarial patients older than 60 years. Overall, ratio of infection in males was higher than females. Expected reason of higher infection rate in this age group 46-60 years is the weakness of immune system to fight the environmental as well as pathogenic conditions. Other causes may include the hygienic conditions and residential area responsible for developing malaria. The residential area and hygienic conditions are the necessary components for the health of the residents. Heredity components are also considered in this case. The increasing rate of the disease may decrease with awareness about the disease, its early diagnosis, importance of personal and environmental hygiene and proper maternal checkup.

**Keywords:** HBV in Islamabad, Transmission, Incidence, Blood transfusion, Malaria.

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## INTRODUCTION

Five hepatitis viruses (hepatitis A to E) are responsible for liver disease worldwide. Among them, approximately 350 million chronic infections are caused by hepatitis B virus (HBV) and over one million annual deaths, mostly as a result of end-stage liver disease and liver cancer (Park and Rehmann, 2014). Hepatitis B virus (HBV) and hepatitis C virus (HCV) are risk factor for Hepatocellular Carcinoma (HCC) and cirrhosis (Ali *et al.*, 2015). It is reported that elevation of liver enzymes responsible for liver disorders (Toor *et al.*, 2016). Lead acetate alters the serum AST and ALT levels by affecting the liver (Khanam *et al.*, 2016). Hepatitis (HBsAg) positive individuals are considered to be hepatitis B carriers and are at high risk of getting chronic hepatitis B infection (Lok and McMahon, 2007). The major route of transmission of hepatitis B is through body fluids (Travasso, 2014). Malaria is a major health problem worldwide. Most regions endemic for malaria are also endemic for other communicable diseases (Boraschi *et al.*, 2008).

Prevalence of hepatitis B in Pakistan is 2.5% according to a study by Pakistan Medical Research Council (Farhat *et al.*, 2014). For screening of HBV infection, HBsAg detection assays are the most commonly used assays in most of the public hospitals in Pakistan. Several efforts including vaccination of newborns and high risk groups, patient safety, use of auto-disposable syringes, public health education, blood screening for donation and free treatment of needy patients are being done to stop infection (Qureshi *et al.*, 2010), but it is necessary to take more steps to stop the growing infection due to high infection rate and prevalence.

There is an astonishing dearth of facts about hepatitis occurrence, although more is known about its risk factors. Therefore the present study was conducted to determine the prevalence of Hepatitis B among malarial patients in Islamabad.

## MATERIALS AND METHODS

### Study Area

The present study was carried out in Islamabad which is located in northern part of Punjab. It has occupied an area of 50160 Sq.Km and has total population of 3.5 million. Most of rain fall occur during summer rainy season (July-September) and winter rain fall (December-February). However, hot climate is prevalent during May to June.

### Study Period

A cross-sectional study was carried out in adult patients with malarial disease attending tertiary care hospital in Islamabad. The present study was carried out from September, 2015 to January, 2016. During this period 50 samples of malaria positive patients were examined. The required data on the age, sex, area of the patient was sought on the prescribed questionnaire.

### Blood Analysis

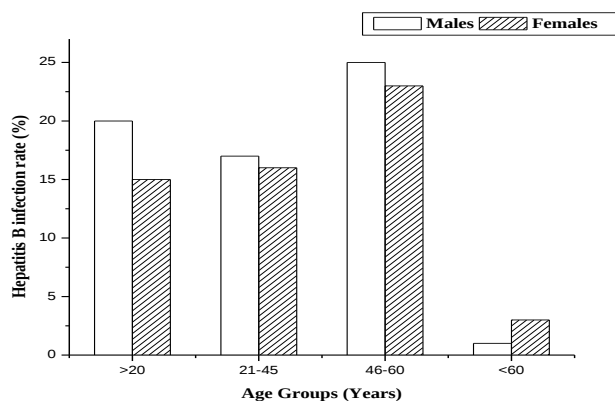
The blood samples (5ml) were obtained from anticubital vein inn EDTA coated vaccinator and the serum was used to perform HBsAg assay. ELISA kits (Merck) were used for in vitro detection of HBsAg in serum (Muhammad *et al.*, 2013).

### Statistical Analysis

The data obtained was subjected to appropriate statistical analysis using Statistical Package for the Social Sciences version 16.0 (SPSS, Chicago, IL).

## RESULTS AND DISCUSSION

The results of the present study revealed that higher prevalence of HBV was found in the 46-60 years age group for both males and females. Among male patients, rate of infection was 25% while in females rate was 23%. The lowest infection rate was recorded in malarial patients older than 60 years. Overall, ratio of infection in males was higher than females (Figure 1). A previous study reported 2.5% prevalence of hepatitis B in Pakistan (Farhat *et al.*, 2014). In Pakistan HBV genotype D predominates among other genotypes (Mumtaz *et al.*, 2011).



**Fig. 1. Prevalence of Hepatitis B viral infection among males and females group having different age groups from Rawalpindi/Islamabad.**

Various studies have reported the prevalence of hepatitis in different areas of world. Kamat *et al.* (2014) reported that mean age of patients in the study group was 41 years in Mumbai, India. A study by Sharif *et al.* (2015) demonstrated that 4.5% of the total population had co-infection of hepatitis and malaria with higher prevalence observed among the males with 3.0% in Nigeria. Similarly the percentage of co-infection HBV with diabetes was reported to be 12.80% (Muhammad *et al.*, 2013).

In this study malarial patients with conformed Hepatitis B viral infection were studied for clinical as well as necessary lab finding and risk factors for HBV during six weeks period. Close monitoring of young patients with the HBV especially susceptible to nosocomial infection may lessen case fatality. Chronic diseases like liver infection, sickle cell anemia etc. are also suggested as risk factor for hepatitis B viral infection. In this study majority of Hepatitis B viral infection patients have these preexisting diseases. There is no robust evidence that the clinical status of primary hepatitis B-related liver disease is affected during malaria infection. In addition, the influence of HBV infection on malaria signs has not been addressed (Andrade *et al.*, 2011). In order to check HBV infection and its related diseases, many Asian countries have started vaccination programs (Hennessey *et al.*, 2013). Although the program has not yet stretched some rural areas, HBV vaccination has diminished the rate of HBsAg positivity 10% to 1% (Kane *et al.*, 2013). This venture has surely required a robust political, social and economic obligation, but the results achieved to date are really striking.

## CONCLUSION

It is concluded that education of clinicians is essential for the recognition of risk factor of Hepatitis B Viral infection for early diagnosis and management. In elderly patients, blood group and cross matching and blood transfusion should be carried out in routine precautions which may be helpful in emergency. This study provided information about the status of HBV among the inhabitants of Islamabad. Moreover, based on this study the preventive measure may be recommended to control the disease in local population.

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## CONFLICT OF INTEREST

There is no conflict of interest.

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