

# Seroprevalence of Hepatitis B Virus (Hbs) In Southern Punjab

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## ABSTRACT

**Objective:** To find out the seroprevalence of Hepatitis B Virus Antigen (HBs Ag) detected during blood screening in the candidates of recruitment in Armed forces of Pakistan from Southern Punjab.

**Study Design:** Observational study

**Place and Duration of Study:** This study was carried out at the Department of Pathology, Combined Military Hospital (CMH), Multan from January to December 2013.

**Materials and Methods:** Serological blood screening of blood donors and candidates coming for recruitment in armed forces of Pakistan at CMH Multan was performed. Test was performed with rapid screening kit initially and suspected cases were confirmed with third generation ELISA technique. Bio-data of Hepatitis B virus Antigen (HBs Ag) positive cases was collected, analyzed and compared with national and international literature.

**Results:** A total of 10666 persons were screened out, 388 (3.63%) were HBs Ag positive.

**Conclusion:** Seroprevalence of HBs Ag in this region is also high like rest of the world. Public awareness about the disease, prophylactic vaccination against hepatitis B, blood screening before transfusion, use of disposable syringe, proper disposal of contaminated material and prevention from sexual transmission are required to decrease the incidence and its spread.

**Key Words:** Hepatitis B (HBs Ag), Blood Screening, Southern Punjab.

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## INTRODUCTION

Hepatitis B is an infectious disease of the liver caused by the hepatitis B virus also known as "serum hepatitis",<sup>[1]</sup> the disease has caused epidemics in parts of Asia and Africa, and it is now only endemic in China.<sup>[2]</sup> About a third of the world population has been infected at one point in their lives,<sup>[3]</sup> including 350 million who are chronic carriers.<sup>[4]</sup> The virus is transmitted by exposure to infectious blood or body fluids such as semen and vaginal fluids, while viral DNA has been detected in the saliva, tears, and urine of chronic carriers. Perinatal infection is a major route of infection in endemic (mainly developing) countries.<sup>[5]</sup> Other risk factors for developing HBV infection include working in a healthcare setting, transfusions, dialysis, acupuncture, tattooing, sharing razors or toothbrushes with an infected person, travel in countries where it is endemic, and residence in an institution.<sup>[3][6][7][8]</sup> However, hepatitis B viruses cannot be spread by holding hands, sharing eating utensils or drinking glasses, kissing, coughing, sneezing, or breastfeeding.<sup>[8][9]</sup> The acute and chronic consequences of hepatitis B virus infection continue to be a major

public health problem worldwide and only in United annual infections occurring over the past 2 decades.' However, because the majority of children and adults infected with hepatitis B virus do not develop clinical disease,<sup>[10]</sup> seroepidemiologic studies provide a more comprehensive picture of the distribution of this infection than does acute disease surveillance.<sup>[11]</sup> Trends in hepatitis B virus infection are important in evaluating the effectiveness of recommended routine vaccination of infants and younger adolescents, along with older adolescents and adults at high risk of infection.'

## MATERIALS AND METHODS

This is an observational study carried out between January 2013 to December 2013 at Haematology unit of Department of Pathology, Combined Military Hospital (CMH) Multan. All the persons coming for blood screening were included in the study. Majority were the blood donors and other were the candidates for recruitment in Armed Forces of Pakistan appearing at Multan Center from different areas of Southern Punjab. Among the Blood donors, majority consisted of volunteers of Armed forces, relative of patients requiring blood at CMH, Departments of Paediatric Surgery, Nishtar Medical College and Hospital, and Institute of Child Health Multan. The study protocol consisted of the informed consent, age, address, occupation, education, marital and socio economic

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status. Five ml blood was taken from each candidate and screened for various serologically positive infective diseases including Hepatitis B (HBs Ag) by rapid kit screening technique. Seropositivity was confirmed by third generation ELISA technique. All the informations were collected on a predesigned performa. Results regarding various infective diseases as Hepatitis B, C and HIV were noted. Bio-data of Hepatitis B (HBs Ag) was separated, analyzed and compared with national and international literature.

## RESULTS

A total of 10666 persons were screened for Hepatitis B (HBs Ag). Among these, 6216 persons were blood donors and 4450 were candidates for recruitment in Armed forces of Pakistan at Combined Military Hospital (CMH), Multan. In blood donors, 5990 (96%) were males and 226 (4%) were females. All the candidates for recruitment were male. This means that out of 10666 persons, 10440 (98%) were male and 226(2%) were female. Age range was between 18-40 years in blood donors while candidates for recruitment were 18-24 years old. Out of 6216 blood donors, 204(3.28%) were positive. While out of 4450 candidates for recruitments in armed forces of Pakistan 184(4.13%) were positive for HBs Ag. Overall, 10666 persons were screened and 388 (3.63%) were found positive for HBs Ag. Out of 10440, males, 381 (3.64%) and out of 226 females, 7(3.09%) were found positive.

**Table No.1: Prevalence in Blood Donor Group**

| Total number Screened | HBs Ag + | Percentage |
|-----------------------|----------|------------|
| 6216                  | 204      | 3.28%      |

**Table No.2: Prevalence in Recruits Group**

| Total number Screened | HBs Ag + | Percentage |
|-----------------------|----------|------------|
| 4450                  | 184      | 4.13%      |

**Table No.3: Prevalence as a whole**

| Gender | Number Screened | HBs Ag + | Percentage |
|--------|-----------------|----------|------------|
| Male   | 10440           | 381      | 3.64%      |
| Female | 226             | 7        | 3.09%      |
| Total  | 10666           | 388      | 3.63%      |

## DISCUSSION

This study was an attempt to define the seroprevalence of HBs Ag in relatively healthy and young population in Southern Punjab. Data consisted of analysis of the results of blood screening in candidates of recruitment in armed forces of Pakistan and blood donors at CMH, Multan during a year from January to December 2013. The testing method consisted of third generation ELISA technique which is used by the majority of the screening centers. As minimum age limit for blood

donation and recruitment in Armed Forces is 18 years, so it was not possible to access the minimum age of acquisition of hepatitis B in this study. Result of our study showed that prevalence of HBs Ag in blood donors is 3.28%, in candidates for recruitment in armed forces is 4.13% .Overall, prevalence is 3.63%. HBV infection has significant morbidity and mortality worldwide. The global prevalence of HBsAg varies from 0.1% to 0.2% in Britain and USA, 3% in Greece and southern Italy and up to 15% in Africa and Asia <sup>[12]</sup>. In Pakistan, a prevalence of 10% has been estimated <sup>[13]</sup>. Different reports have estimated the prevalence of HBsAg in voluntary blood donors from 0.82% to 5% <sup>[14-17]</sup>. An estimated one-third of the world's population has serologic evidence of past infection, and the virus causes more than 1 million deaths annually <sup>[18]</sup> [14]. In the USA, the incidence of HBV infection declined from about 0.014% to about 0.003% during the last two decades <sup>[19]</sup> [15]. However, there are still 1.25 million adults and children in the USA with chronic HBV infection. In South-East Asia, China, and Africa, HBV infection has high prevalence of chronic infection (5% to 20%). In contrast, 80% of infections in the USA, Canada and western Europe occur in adults via sexual contact or intravenous drug use, leading to a much lower baseline prevalence (0.1%). In the USA, groups at increased risk for HBV infection have been identified <sup>[20]</sup>

## CONCLUSION

In this study, prevalence of HBs Ag is comparatively high and still increasing. Certain steps should be taken to stop the increasing trend of Hepatitis B like monitoring disease incidence and determine the sources of infection and modes of transmission. Certain control measures should be taken like immunization; the most effective and cost saving means of prevention, along with education of high risk groups and health care personnel to reduce the chances for transmission to other. Ensuring the safety of patients by reducing the residual risk of transfusion-transmitted hepatitis is the concern of every transfusion center. Pre-donation counseling, donor self-exclusion and ensuring 100% voluntary blood donation will be effective. Use of disposable syringes for injections and incineration of contaminated material is mandatory

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