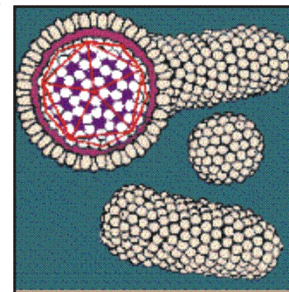


ORIGINAL

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## HEPATITIS B SURFACE ANTIGEN; SCREENING IN YOUNG PAKISTANI MALES



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**ABSTRACT ...** [riznajmi2001@hotmail.com](mailto:riznajmi2001@hotmail.com) Hepatitis B is one of the most common infectious diseases in the world with over 350 million chronic carriers worldwide. In Pakistan, most of the studies have been done in high risk groups such as health care workers, voluntary blood donors etc. Few studies have been reported in general population so far. Therefore, there is dearth of knowledge regarding prevalence of HBV infection in young males seeking employment in various sectors of society. **Objective:** To investigate the prevalence of hepatitis B surface antigen (HBs Ag) in a population-based sample of healthy young males that were drawn from various regions of Pakistan for recruitment. **Place & Duration of Study:** Combined Military Hospital, Attock, from Jan 2001 to Mar 2002. **Design:** Cross-sectional observational **Subjects and Methods:** A total number of 4552 healthy young males who reported for pre-recruitment physical examination, belonging to all the provinces of Pakistan, Northern areas and Azad Kashmir were screened for HBs Ag by immunochromatographic technique. The positive result was confirmed using Enzyme Immunoassay kit. **Results:** Out of the total of 4552 healthy young males; HBsAg was positive in 190 subjects (4.2%). Prevalence of HBs Ag in individuals from Sindh was significantly higher than those from other regions. Major risk factors for HBV infection were sharing of razors (56.8%), history of intravenous injections (39.5%), jaundice in the subject (18.4%) and jaundice in family (18.9%). In HBs Ag positive subjects, 11.1% revealed no identifiable risk factor. **Conclusion:** There is more than two fold reduction in the HBs Ag prevalence over the last ten years. Major risk factors in the population are exposure to contaminated blood and use of needle sticks. However, a sizeable number of HBV infection do occur in our young healthy males which go undetected and are only detected on screening at the time of employment. Despite the already detailed knowledge about the transmission of hepatitis B, more work is required to search other mode of transmission on Hepatitis B.

**Key Words:** HBV infection. Hepatitis B surface antigen. Blood screening. General population

## INTRODUCTION

The last two decades have witnessed an explosion in the knowledge of viral hepatitis, a major public health problem throughout the world. Hepatitis B is one of the most common infectious diseases in the world with over 350 million chronic carriers worldwide, out of which about 10% die of cirrhosis and hepatocellular carcinoma<sup>1</sup>. It spreads 100 times faster than HIV<sup>2</sup>.

The countries have been divided into low (<2%), intermediate (2-8%) and high incidence (>8%) areas on the basis of hepatitis B surface antigen (HBs Ag) and anti HBs positives. Developed countries are considered to have low prevalence while areas with tropical / subtropical climate and low standard of living tend to have higher rates<sup>3</sup>. Pakistan falls in the category of intermediate prevalence for HBV infection. About 8% people are harbouring HBV in Pakistan<sup>4</sup>.

The natural history of acute HBV infection varies according to age of the patient at the time of infection. In adults, 95% of cases resolve spontaneously with varying degrees of severity of the acute illness; the remaining 5% of adults develop chronic hepatitis B. In contrast, 90% of infected neonates develop chronic hepatitis B<sup>5</sup>.

Although many studies have been conducted in the country but most have been done in high risk groups such as health care workers, voluntary blood donors etc<sup>6,7,8</sup>. Previous studies carried out in this country have shown a prevalence rate of 4%-10% for HBsAg<sup>9,10</sup>.

As prevention of HBV and Hepatitis C virus (HCV) infection is a priority in health policy, it is necessary to assess the burden of disease in various regions of the country. The purpose of this study was to assess the prevalence of HBs Ag in a population based sample of healthy young males that were drawn from various regions of Pakistan for army recruitment.

## SUBJECTS AND METHODS

This cross-sectional observational study was conducted from Jan 2001 to March 2002 at the Department of

Pathology, Combined Military Hospital, Attock. A total number of 4552 healthy prospective recruits drawn from all the provinces of Pakistan, Northern areas and Azad Kashmir were screened for HBs Ag. All were males between the ages of 17-21 years. Minimal education level was matriculation.

Blood was collected in disposable syringes and was screened for HBs Ag using Immunochromatographic technique. For final confirmation, the reactive samples were retested in duplicate by Surase B-96 (TMB) Enzyme Immunoassay kit supplied by General Biologicals Corp. Taiwan. The reactive and non-reactive controls of HBs Ag were run in duplicate along with the samples.

None of the young males refused testing and none had been vaccinated in the past for hepatitis B. The history of intravenous injections, blood transfusions, surgery, jaundice in the young males, jaundice in wife or family and sharing of razors was sought in all subjects in order to understand mode of transmission. Results were analyzed by chi-square test.

## RESULTS

The distribution of HBs Ag seropositive men drawn from various regions of Pakistan is given in Table I. Out of the total of 4552 young males; HBs Ag was positive in 190 subjects (4.2%). The prevalence of HBs Ag was the lowest in the subjects drawn from Northern Areas and NWFP; whereas it was highest in men belonging to Sindh Province. Prevalence of HBs Ag in males from Sindh was significantly higher than those from other regions.

The history of various risk factors for HBs Ag in the study population is shown in Table II. Major risk factors for HBs Ag positivity were sharing of razors (56.8%), history of intravenous injections (39.5%), jaundice in the subject (18.4%) and jaundice in family (18.9%). In HBsAg positive subjects its, 11.1% revealed no identifiable risk factor.

Table I . Region-wise Distribution of Hepatitis B Surface Antigen in Young Pakistani males

Region	No. screened (n=4552)	Positive for HBs Ag	
		No	% age
Punjab	2894	84	2.9%
Sindh	1080	96	8.8%
NWFP	37	0	0.0%
Baluchistan	96	5	5.2%
Azad Kashmir	361	5	1.3%
Northern Areas	84	0	0.0%
Total	4552	190	4.2%

Table II. Risk Factor Identification in Study Population

History of	No of patients (n=4552)	HBs Ag Positive Cases n=190 %=4.2	
		n-190	%age =0
Past Surgery	57	08	4.2
Jaundice in family	27	36	18.9
Jaundice	25	35	18.4
Intravenous injections	785	75	39.5
Blood transfusion	38	05	2.6
Jaundice in Wife	316	08	4.2
Sharing of razors	2643	108	56.8
No identifiable factor	1885	21	11.1

## DISCUSSION

HBV is one of the major causes of chronic liver disease. The prevalence of infection varies from country to country and depends upon a variety of behavioral and host factors<sup>11</sup>. Each year more than 2 million people die as a result of HBV<sup>12</sup>. The prevalence of HBV is highest among the developing countries of Asia, Africa and the Pacific Islands and lowest among the developed countries of America, Europe and Australia. Pakistan being part of the developing world, viral hepatitis is a major public health problem.<sup>3</sup>

The overall prevalence of HBs Ag in young prospective army recruits was 4.2% in our study with Sindh showing the highest rate (8.8%). According to previous studies, range of prevalence in our country varies from 1.4 to 10.7% in general population<sup>8</sup>. Pakistan Medical Research Council reported a prevalence of 3%-4% of apparently healthy Pakistanis during 1983-88.<sup>13</sup> Zuberi and Lodhi<sup>14</sup> reported a carrier rate of 3.4% in blood donors of Karachi while two studies conducted in health care workers<sup>15,16</sup> reported the prevalence rate of 3.7% and 7.1%. The variability in HBs Ag prevalence in these

studies may be due to difference in method of analysis, different selection criteria and difference in social and host factors, therefore, it is difficult to compare our results with them. The prevalence in our study is slightly lower than the prevalence of 6.3% and 6.7% recorded earlier in two studies from Lahore<sup>10,17</sup> however a study carried out in rural population of Okara<sup>18</sup>, a district of Punjab have reported similar prevalence as ours. A recent study from Islamabad reported a lower prevalence of HBs Ag (2.6%) in healthy men and women seeking overseas employment<sup>19</sup>. Other local and international studies have reported variable rates of prevalence of HBsAg<sup>20,21,22,23</sup>.

A study similar to ours in 1991<sup>24</sup> reported that about 9.97% of healthy males were positive for HBs Ag. Our study shows a reduction in the overall prevalence of hepatitis B in the past 13 years. The prevalence of HBs Ag appears to be declining. There is more than two fold decrease in the prevalence of HBs Ag in the past decade. It probably reflects the greater awareness and wider acceptance of health care measures, use of effective vaccine and disposable syringes.

In our study, we found sharing of razors (56.8%), history of intravenous injections (39.5%), jaundice in the subject (18.4%) and jaundice in family (18.9%) as major risk factors for HBV infection. About 11% of HBs Ag positive subjects revealed no identifiable risk factor. These factors are similar to recorded in other studies<sup>17,18</sup>. Researchers have recorded drug addiction, occupational and sexual exposure and sharing of tooth brushes as mode of transmission besides intravenous injections, blood transfusions and sharing of razors<sup>25</sup>. With supportive data and the studies quoted, it could be argued that a sizeable number of HBV infection do occur and their mode of transmission needs further research.

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a working man.**

**Anonymous**