

## FREQUENCY OF HEPATITIS B & C IN YOUNG MALE RECRUITS FROM RURAL PAKISTAN

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### ABSTRACT

**Objective:** To know the frequency of HBV and HCV amongst male recruits.

**Study Design:** Cross-sectional descriptive study.

**Place and duration of study:** Pathology laboratory CMH Malir Cantt over a period of six months (June to December 2005).

**Materials and Methods:** Recruits from rural areas of all provinces of Pakistan reporting to Pathology laboratory CMH Malir Cantt for screening of HBV and HCV before enrollment in army.

**Results:** During the period of this study a total of 3320 recruits were screened for hepatitis B and C viral infections. Overall Seropositivity of anti HCV was found to be 3.2% while 4.5 % of recruits tested positive for HBsAg. Province wise distribution showed Sindh had the highest frequency of HCV positive cases i.e 6.4% though Punjab had almost equal values of HBV and HCV of around 4%. While 2.7% of those from NWFP tested positive for HBsAg and 1.4% of them for Anti-HCV. Balochistan and Northern areas had no more than 0.5% of HBsAg positive cases while there was no hepatitis C positive candidate from these areas.

**Conclusion:** This study indicates that young healthy, recruits from all the four provinces revealed an overall 4.5% frequency of HBsAg carriers and 3.2% of the screened population.

**Key words:** HBsAg, Anti HCV, frequency, rural Pakistan.

### INTRODUCTION

The hepatitis B (HBV) and hepatitis C (HCV) viral infections occurring in young people are important as they deprive the nation of its work force and consume a large proportion of national health budget. They are completely preventable through health education alone [1]. With improved available therapeutic modalities there is an ever-increasing demand for an expensive treatment regimen, which is wrought with potential side effects lowering the quality of life as well [2].

HBV and HCV are easily transmittable. Therefore, the decision taken by world health organization (WHO) and National institute of Health (NIH) suggests that all the patients should be examined with respect to their risk factors for HCV and HBV [3]. Lately, Pakistan Army realized the importance of preventing

these diseases by screening out all the Hepatitis B & C positive young recruits before selection in the army.

Hepatitis B virus and Hepatitis C virus infections are of serious community health concern in Pakistan. Both infections can lead to an acute or chronic course of liver disease. HBV and HCV infection rates differ in different settings and prognosis may be affected with associated diseases prevalent in that area [4,5]. It is estimated that about one million people die each year from HBV related chronic liver disease [6]. Hepatitis B virus is prevalent in Pakistan. Though incidence of HBV infection is not known, different studies report carrier rate of 7-22% with an alarming overall exposure rate of 40-50% [7,8].

Recruits reporting for selection in army compose an interesting cohort as they belong to almost all provinces and districts of Pakistan in varying proportions.

The aim of this study was to determine frequency of HBV and HCV among young

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healthy adults from various provinces of Pakistan

**MATERIALS AND METHODS**

The study was designed to include all the young men who had reported for preliminary screening for hepatitis B & C at the pathology laboratory of CMH Malir Cantt during the period of study from 1st June to 1st December 2005. All of them hailed from rural or semi urban areas of all the four provinces of Pakistan. They all were in the age bracket of 18 - 20 years and had been educated till Matric i.e. 10 years of formal education in local schools. This demographic detailed data is routinely obtained and maintained at the recruitment centre. In this study Army Air Defense and Ordinance Centers located in Malir Cantt were approached. Screening records of recruits at pathology laboratory were used as the reference tool for study. A 3 ml sample of venous blood was drawn and serum was separated.

Anti HCV screening was performed through 'Sandwich' chromo-immunoassay method based on anti-HCV (IgG) detection using Biorapid test of Biokit. HBsAg screening was performed with chromo-immunoassay method using HBsAg detection device of Diamate Biotechnologies. Both these methods are highly sensitive but lack specificity to some extent. Doubtful cases were confirmed by 3rd generation ELIZA technique. Data had been analyzed using statistical package for social sciences (SPSS version 11). Descriptive statistics were computed for demographic variables for all the screened population.

**RESULTS**

During the period of study from June 2005 to December 2005 a total of 3320 candidates were screened for hepatitis B & C viral infection. They belonged to all the four provinces as well as northern Areas and Azad Kashmir. Province wise distribution of screened recruits is shown in Fig-1.

Two hundred and fifty four (7.61%) candidates tested positive. One hundred and forty eight (4.58%) tested positive for hepatitis B and 106 (3.28%) were positive for anti-

HCV. A province wise distribution of such seropositive recruits is represented in Fig-2.

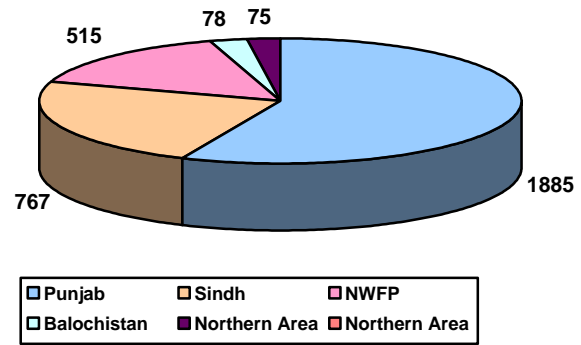
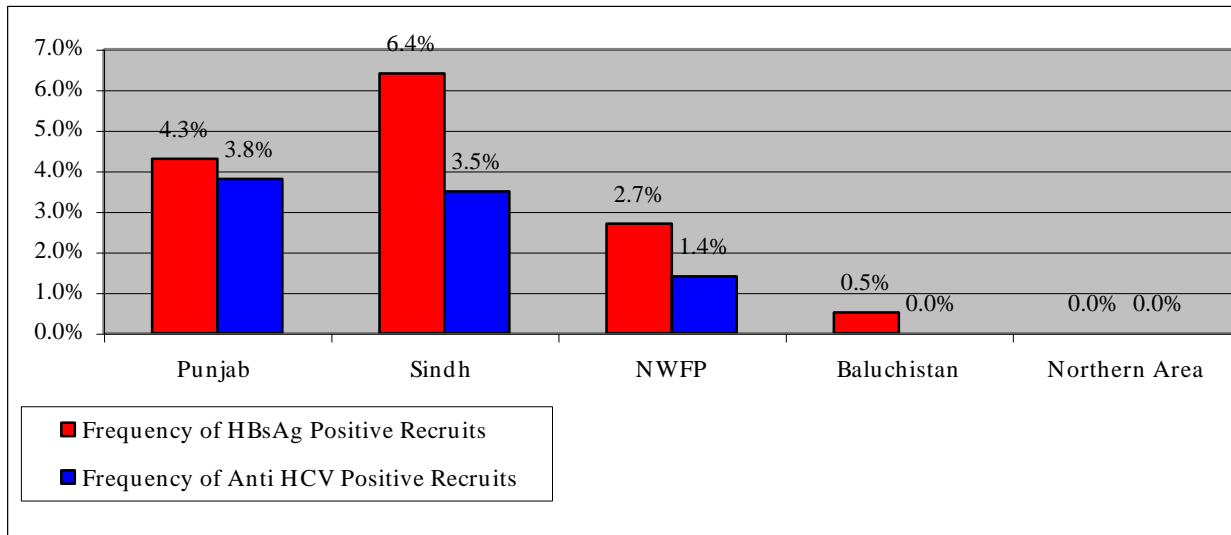


Fig.1: Province wise distribution of screened recruits

**DISCUSSION**

The global prevalence of HCV is 3% [9] but present study revealed a frequency of 4.5% of HbsAg and 3.2% of Anti HCV positive cases among the total 3320 recruits screened during the duration of study. A relatively high frequency of "HCV is found in Africa, especially in some cities of Egypt where more than 15% of the population is infected [10]. Rehman et al [11] determined frequency of Anti HCV in blood donors aged 18- 60 years in Lahore. In this study 4.1% were confirmed to be Anti HCV positive. The same team of authors found an HBsAg frequency of 2.3% among voluntary non remunerated blood donors in 124 blood banks of institute of Hematology and blood transfusion Punjab from 1996-2000 [12].

Other studies [13,14] with reasonably comparable population of subjects included voluntary blood donors either in general practice or college students first time donors in Karachi. These found 2.21% frequency of HBsAg and 0.5% to 1.8% frequency of Anti HCV in voluntary blood donors. Trend analysis revealed a significant linear increase in proportions of HCV- positive donors from 1998 to year 2002 [15]. Ahmed et al [16] reported that 9.97% of healthy recruits were positive for HBsAg. In a study by Zakaria et al [17] 2.2% of healthy male naval recruits from various cities of Pakistan were positively for anti-HCV. Farooq et al [18] reported frequency of 3.3% for Anti-HCV and 3% of HBV when compared to earlier studies. The reason for this is probably that all the subjects



**Figure 2: Province Wise Distribution of Seropositive Recruits**

in study were healthy adults, who had been medically selected at the time of their enrolment. The results of this study are closer to the value of 3.29% Anti-HCV frequency and 4.1% HBsAg as reported by Nadir et al [19]. The same study reported in an almost similar setting a province wise distribution of Anti HCV and HBsAg as follows.

In 4.5% Punjabis, 2.4% Sindhis and 3% from NWFP as Anti-HCV was positive.

In 4.1% Punjabis, 3.5% Sindhis and 3.5% from NWFP HbsAg was positive. A probable reason for closer overall results can be the similar setting of patient selection at recruitment centre Attock. However the different province wise results cannot be possibly commented upon because of different composition of the screened groups.

Khokher et al [20] in a similar study of pre-employment screening at shifa international hospital Islamabad found a frequency of 2.56% HBsAg positive cases all belonging to Northern parts of Punjab and NWFP. In general Pakistan has been considered among the areas of low endemicity for Hepatitis B when surveyed in the Asian region. Voluntary blood donors being generally healthy and young can be considered a closely comparable group to the young and healthy volunteer recruits. Zuberi et al [21], Hashmi et al [22], Yousaf et al [23] and Rehman et al [24] had reported the HBsAg frequency of 3.1%, 0.99%, 1.1% and

5%, respectively in voluntary blood donors. Now comparing the results of present study with these a definite rising trend in HBsAg seropositivity can be appreciated. In an earlier similar study, blood donors screening revealed HBsAg frequency between 4-7% [25]. There were certain international studies which attempted to determine frequency of hepatitis B and C among military recruit population. Whereby Hyams et al [26] determined not only the multiethnic and multiracial composition of American recruits but also found that there was a higher frequency of HBsAg and anti HCV among the 7% of recruits born outside the US. In a similar study among 726 Egyptian military recruits, Farghaly [27] found overall Anti HCV frequency of 33.4% with rising figures among those with concomitant hepatitis B or bilharzias infection. This high frequency of Anti HCV positives in this study need review and may be seen as the already achieved peak of epidemic of hepatitis B and C in Egypt.

**CONCLUSION**

This study indicates that in young healthy, recruits from all the four provinces, frequency of HBsAg was 4.5% and anti-HCV was 3.2%. However, there were obvious differences of seropositivity status between recruits belonging to various provinces

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