

SEROPREVALENCE OF HBsAg AND HCV ANTIBODIES IN HEALTHY INDIVIDUALS OF HIGH SOCIOECONOMIC STATUS

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This study was planned to determine the seroprevalence of hepatitis C antibodies and B surface antigens among students of Lahore medical & Dental College, Lahore, Pakistan, bearing a high socio-economic status. Their seroprevalence levels were compared with general population of higher risk groups. The study group comprised of 524 volunteers including BDS and MBBS students. Among 524 volunteers 46% were males and 54% were females. The screening results showed 1.1% individuals positive for HBsAg and 2.1% positive for HCV antibodies. When HBV seropositivity was evaluated according to sex, it was found to be 1.6% among girls and 2.0% among boys. Antibodies for HCV were 1.4% in females and 2.9% in males. There was no dominance of HBsAg and anti-HCV in any age group.

Hepatitis C virus HCV and hepatitis B virus HBV are now a growing public health concern. These diseases are directly related to education, socio-economic level, and infrastructural characteristics of the place in which one lives.^{1,2} The World Health Organization (WHO) estimates that there are 350 million chronic carriers of hepatitis B³ and 170 million chronic carriers of hepatitis C worldwide⁴. Pakistan is an intermediate endemic region for HBV that is transmitted haematogenously and sexually⁵. The outcome of this infection is a complicated viral-host interaction resulting in either an acute symptomatic disease or an asymptomatic disease. Patients may become immune to HBV or may develop a chronic carrier state, the most frequent cause of development of hepatocellular carcinoma and cirrhosis is HBV.^{6,7} The prevalence of hepatitis C virus (HCV) infection is increasing worldwide. HCV is predominantly transmitted by means of percutaneous exposure to infected blood.⁸⁻¹⁰ In developed countries, most new HCV infections are related to intravenous drug abuse. HCV may also be transmitted by means of acupuncture, tattooing, and sharing razors. Needle stick-injuries in the health care setting result in a 3% risk of HCV transmission.¹¹⁻¹³

MATERIAL & METHODS

In this random study during 2005, we included all volunteer students of Lahore Medical and Dental College (LMDC) Lahore, Pakistan. According to screening program blood samples were collected from 524 students of this college. Blood was centrifuged within two hours after venipuncture. Sera were frozen until analysed. The surface antigens of HBV, and antibodies against HCV were analysed and identified by using enzyme linked immuno-

sorbant assay (ELISA) (Human ELYSIS-2) technique. The test results were interpreted as negative or positive. The age of these students varied between 17 and 26 years.

RESULTS

The study group comprised of 524 volunteer students out of whom 240 (46%) were males and 285 (54%) were females. Among 524 students only ten (1.1%) individuals were positive for HBsAg and 11 (2.1%) were found reactive for HCV antibodies. There were 05 out of 285 (1.6%) females where as 05 out of 240 (2.1%) were males in HBsAg on the other hand positive group 5 (1.4%) females and 7 (2.9%) males were in HCV positive group. (Table 1). There was no dominance of HBsAg and anti-HCV in any age group while HCV antibodies level was found higher in males than in females (Table 2).

Table 1: *Break up of sex-wise seroprevalence of HBsAg and HCV in 524 subjects.*

Sex distribution	No. of Cases	Percentage (% in +ve cases)
No. of male students total	240	46%
No. of female students total	285	54%
Total anti HCV positive	+11	2.1%
Male anti HCV positive	7	2.9% (63.60)
Female anti HCV positive	4	1.4% (36.30)
Total no. of HBsAg positive:	10	1.1%
Male HBsAg positive	5	2.1% (50.00)
Female HBsAg positive	5	1.7% (50.00)

DISCUSSION

This is the first study of its kind in Pakistan. In this study the incidences of HBsAg and HCV antibodies were assessed in a healthy population of high socio-economical status. Some studies reported that HCV is an important health problem particularly for high risk groups and HBV is generally associated with poor socioeconomic conditions.¹⁴⁻¹⁶ In this study of professionals with no known HBV and HCV infection risk, the prevalence of seropositivity for HBsAg and anti-HCV was 1.1% and 2.1% respectively in healthy students. These rates are lower than the reported prevalence of HBV and HCV infection in the region of 3.1% and 3.4% respectively in populations of industrialised countries,^{1,3} but our results are similar to those in different Middle Eastern countries in the region of 1.4% and 2.6%. This is consistent with the fact that Pakistan is located in a semi-endemic region regarding the prevalence of hepatitis B infection. The results are compared with unpublished study in the orthopaedic patients at Ghurky Trust Teaching Hospital where 289 patients were screened using ELISA, revealed 4.5% HBsAg and 14% were anti-HCV positive.

These patients came from different areas of Pakistan. On the other hand in another study in the same hospital (located in rural area of greater Lahore) among 503 patients who came from an economically low class mixed general wards (not donors) of GTTH. In this unpublished data of 503 patients in general wards showed seropositivity of 5.0% for HBsAg and 30% anti HCV detected by ELISA. In Pakistan studies on healthy blood donors produce variable results of seroprevalence of HBsAg and HCV antibodies. Zaidi et al²¹ documented seroprevalence in HBsAg as 2.2% and 1.18% HCV antibodies in blood donors in North-west of Pakistan. Nadeem et al²⁰ reported hepatitis B&C in healthy blood donors of North Pakistan as 3.4% HBsAg and 4.6% anti-HCV. Khokhar et al in another study at Shifa Hospital, Islamabad for Gulf pre-employment medical evaluation documented 5.37% anti-HCV, 2.8% HBsAg¹⁹. Nadeem et al conducted a study on seroprevalence of HBs-Ag and HCV antibodies at Shifa Hospital high-risk individuals, including healthy personnel, haemodialysis patients and healthy workers, HBsAg and HCV antibodies seropositivity ranges between 3.5% and 4.6%²⁰. Mujeeb reported the HBsAg and HCV antibodies among college going first time volunteer

Table 2: Seropositivity of HBsAg and Anti HCV among medical students of various professional years.

The year of study	Volunteers (524)		HBsAg (10 Positive)		Anti HCV (11 Positive)	
	MBBS	BDS	Female	Male	Female	Male
1 st year	100	40	01	01	01	02
2 nd year	101	40	03	01	00	02
3 rd year	58	49	00	03	01	02
4 th year	36	45	01	00	01	00
5 th year	57	00	00	00	01	01

blood donors as 4.7% HBsAg and 3.6% HCV antibodies²³. Studies in the Middle East showed the prevalence of HBsAg and anti-HCV to range from 3% and 1.1% in India & Egypt, 4% to 5% in Iraq, 2.6% to 10% in Jordan, 2% to 6% in the Libyan, 3.2.3% to 10% in Oman, 5% to 6% in Palestine, 7.4% to 17% in Saudi Arabia, 16% to 20% in Sudan, 6.5% in Tunisia, 2% to 5% in UAE and 12.7% to 18.5% in the Republic of Yemen.^{15,23-25} These surveys have been conducted on a variety of different population groups with the intention of giving a representative estimate of the prevalence of carriers in the general population.

It is **concluded** that the prevalence of HBV and HCV infections was investigated in healthy medical students of low-risk groups of HBV and HCV in high socioeconomical sector. It was observed that the exposure among the low-risk group was as expected (not high). In fact these rates were significantly lower than those expected for high-risk population. In the end it is suggested that similar studies may be carried out in other cities in different regions of Pakistan, so those we have a better knowledge of prevalence of seropositivity for HBsAg and anti-HCV, in such a low risk population. In the context of the present study, healthy population with high socio-economic status was investigated for HBV and HCV prevalence.

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