FREQUENCY OF HEPATITIS B&C IN YOUNG ASYMPTOMATIC MALES

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ABSTRACT

Objective: To understand the latest trends of hepatitis B and C viruses frequency by detecting Hepatitis B surface antigen and hepatitis C antibodies in young asymptomatic males.

Design: Descriptive study.

Setting and Duration: This study has been carried out at the Department of Pathology Combined Military Hospital, Risalpur and Department of Virology, Armed Forces Institute of Pathology, Rawalpindi from 1st March 2010 to 30th September 2010.

Material and Methods: One thousand and forty two physically fit candidates between 17 to 23 years of age, reporting to Engineer Centre Risalpur, from Punjab and Khyber Pakhtunkhwa for induction in Armed Forces, were enrolled in the study by non-probability convenience sampling. They were screened for HBsAg and anti HCV by Immuno-chromatographic rapid test devices, at Pathology Department Combined Military Hospital Risalpur. All positive samples were confirmed from Department of Virology, Armed Forces Institute of Pathology Rawalpindi by Enzyme Linked Immuno-sorbent assay.

Results: Out of 1042 study subjects, screened during the period, 31 (2.97%) were found to be positive for HBsAg and 16 (1.53%) for anti HCV. As per available information, 876 study subjects belonged to rural areas and 166 belonged to urban areas. Mean age was 20±1.4 years and range was 17 to 23 years. Province wise 987 individuals belonged to Punjab, out of which 30 cases (3.0%) were positive for HBsAg and 15 cases (1.5%) were positive for anti HCV, which indicates that the predominant part of the study subjects were from Punjab and their positivity percentage is almost same as given in the study, whereas 55 individuals belonged to Khyber Pakhtunkhwa.

Conclusion: Frequency of Hepatitis B and C in asymptomatic young males of Punjab is 3% and 1.5% respectively and that for Khyber Pakhtunkhwa is 1.8% for both viruses.

Keywords: Hepatitis B virus, Hepatitis C virus, anti HCV.

INTRODUCTION

The Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) infections occurring in young people are important as they can lead to chronicity and deprive the nation of its work force and are easily transmittable[1]. Worldwide there are 300 million cases of Hepatitis C and 360 million cases of Hepatitis B[2,3]. Domestic figures for Hepatitis B and C carriers are around 23 million[4,5]. Knowing the importance of preventing these diseases, Pakistan Army has started screening recruits for Hepatitis B and C as a part of routine medical checkup before induction.

The WHO estimates of HCV prevalence in Pakistan is nearly 5% of the general population and the same has been confirmed by prevalence study by Pakistan Medical Research Council[6]. Wide variation in seroprevalence of HCV in general population of Pakistan has been reported from 0.7-20%[7,8]. The burden of the HCV in Pakistan is steadily increasing and is likely to remain a serious health care problem in Pakistan for a long time to come[9]. At the same time carrier rate of HBV is reported as 7-22% with an alarming overall exposure rate of 40-50% by different studies[10,11].

As regards public health awareness campaigns, Taseer et al have recommended that effective efforts are needed among rural population[12]. Common risk factors in Pakistan for HBV and HCV are blood transfusion, use of unsterilized syringes, barber shaving, tattooing and sexual abuse; asymptomatic patients pose great danger of spreading the infection to other patients and medical personnel[13,14]. As treatment

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of hepatitis B and C is very expensive and creates a huge burden on the country's economy, so more emphasis should be given to the preventive measures and aggressive steps should be taken by government authorities to create awareness among the general public[15].

As prevalence of HBV and HCV in the country is variable according to different studies, there is always a requirement for evaluation of the situation, to see the latest trends. Moreover, there is a constant increase in awareness among people and there is better implementation of the preventive measures, with passage of time. The young candidates for recruitment reporting for induction in army were thus selected and this study was planned to determine the trend of HBV and HCV frequency among young, asymptomatic, and physically fit males from various parts of Pakistan.

MATERIAL AND METHODS

This was a descriptive study carried out at the Department Pathology Combined Military Hospital (CMH) Risalpur, from 1st March 2010 to 30th September 2010. A total of 1042 young asymptomatic physically fit male candidates for induction in Pakistan Army, from different parts of the country, who reported to Engineer Centre Risalpur for their selection, were enrolled in the study by non-probability convenience sampling. The ages of these individuals ranged from 17 to 23 years. The minimum qualification of these study subjects was matric.

Blood sample of 5ml was collected aseptically in plain plastic tubes from each candidate for HBsAg and Anti HCV antibody testing. The sera were screened for HBsAg and anti HCV antibody at Department of Pathology CMH Risalpur with the help of HBsAg rapid test device based on immuno-chromatographic sandwich principle and Maxi-test anti HCV rapid test kit based on enzyme immunoassay. All samples found positive for HBsAg and anti HCV antibody on initial screening were confirmed by Enzyme linked immuno-sorbent assay (ELISA) at Virology Department of Armed Forces Institute of Pathology (AFIP). Confirmatory testing at AFIP was carried out with the reagent kit of Linear Spain for HBsAg and with the ELISA based kit of Foresight (Acon USA) for Anti HCV. Detailed history did not reveal any blood transfusion, surgery, dental treatment or jaundice in any of the recruits.

Statistical analysis

Statistical analysis of data was done by using Statistical Package for Social Sciences (SPSS) version 12.0. Descriptive statistics were carried out to summarize the data. Mean ± SD and range was calculated for age. Frequency and percentage was calculated for province wise participants and individuals having HBsAg and anti HCV positivity.

Operational definition: Physically fit, those individuals who could run 1 km in 5 minutes, perform 20 push-ups repetitions and 5 chin ups on beam consecutively were declared physically fit.

RESULTS

Out of 1042 recruits screened during the period, 31 (2.97%) were found to be positive for HBsAg and 16 (1.53%) for anti HCV respectively. None had double infection. Among the total, 876 (84%) belonged to rural areas and 166 (16%) candidates belonged to urban areas (Table 1). Mean age was 20±1.4 years and range was 17 to 23 years.

Maximum cases (n=987, 94.7%) belonged to Punjab and 55(5.3%) belonged to Khyber Pakhtunkhwa (KPK). Out of those belonging to Punjab, 30 cases (3%) had HBsAg and 15 cases (1.5%) had anti HCV. Out of 55 subjects belonging to KPK, 1 case had anti HCV (1.8%) and 1 case had HBsAg (1.8%). Wide variation was observed in district-wise distribution of the results and maximum candidates were from Chakwal (n=173) with 1.15% frequency of HBsAg and no case of HCV.

DISCUSSION

Pakistan is a developing country which lies between middle to low income countries, where

over one-twelfth of labor force is unemployed, over one third of the population subsists in poverty and over half the population is illiterate, meta-analysis (n=1004391) from 2007 to 2008, in which data from 183 studies was collected and have concluded that 2.71% of general population

Table-1: Province wise participants and percentage of HBsAg and anti HCV (n=1042).

Sr# no.	Province	n	HBsAg	anti HCV
1	Punjab	987	30 (3%)	15 (1.5%)
2	Khyber Pakhtunkhwa	55	1 (1.8%)	1 (1.8%)

Table-2: Studies about frequency of HBsAg & anti HCV in Pakistani young, healthy males.

Author	Publication Year	Study Group	n	HBsAg	Anti HCV
Ahmed et al 24	1991	Healthy recruits	990	9.97%	-
Ali et al 18	2002	Healthy recruits	5371	3.53%	3.29%
Zakria et al 25	2003	Healthy naval recruits	963	3.2%	2.2%
Farooq et al 26	2005	Healthy soldiers	665	3.0%	3.3%
Mirza et al 27	2001-03	Healthy recruits	15550	3.24%	3.69%
Sharif et al 28	2005-06	Healthy recruits	2558	2.8%	3.4%
Azam N et al 20	2005	Healthy recruits	3320	3.2%	4.5%
Aziz MS et al 29	2005	Healthy blood donors	850	8.4%	1.1%
Alam M et al 30	2007-08	Healthy recruits	697	1.15%	1.86%
Present	2010	Healthy recruits	1042	2.97%	1.53%

with parts of the country being even worse than what the national averages indicates[16]. The overall conditions of the country, the population explosion, inadequate medical facilities for the masses, use and re-use of contaminated and inadequately sterilized needles and syringes for injections, practice of tattooing, nose and ear piercing, use of unsterilized blades for shave by the barbers and inadequate facilities to ensure 100% screening of the blood donations, do put us at higher risk for HCV infection.

In present study (n= 1042), 31 (2.97%) were found to be positive for HBsAg and 16 (1.53%) for anti HCV respectively. In a study to find seropositivity of Hepatitis B and C among children in Karachi (n=3533) Jafri et al concluded that 1.8% were positive for HBsAg, 1.6% were positive for anti-HCV. When compared with this study, the positivity percentage for our study was more for HBV (2.97% versus 1.8%) which can be explained by passage of more time, as our study subjects were relatively older (mean age was 20±1.4 years)[13]. Umar et al have performed a of Pakistan is HCV positive. However in present study we have found a lower percentage of HCV positivity[17].

In contrast to present study Ali et al in an almost similar setting has reported overall frequency of anti HCV 3.29% and HBsAg 4.1% and province wise distribution of anti HCV and HBsAg as follows, 4.5% Punjab, 2.4% Sindhis and 3% from NWFP[18]. However the different province wise results cannot be possibly commented upon because of different composition of the screened group. Similarly Siddiqui et al have shown that 7.23 % were found positive for HBsAg, 4.92 % were found positive for anti HCV, 0.96 % were found positive for both HBsAg and anti-HCV in young population of rural Sindh[19]. Azam et al (n=3320) in a similar study in 2005 has reported that HBsAg was positive in 4.1% Punjabis, 0.4% Sindhis and 3.5% from KPK, with an overall frequency of 4.5% of HBsAg and 3.2% of anti HCV positive cases among recruits belonging to rural area of Pakistan and is quite higher than present study[20].

Malik et al has shown that HBsAg was 7.39% and anti- HCV 4.37% among young adult males from interior Sindh which is significantly higher than our results[21]. Alam et al reported prevalence of HBV and HCV in adults belonging to Central Punjab. It was 5.85% and 3.01%, for HBV and HCV respectively for Sargodha, 7% and 5.84% for Jhang and for Faisalabad 7.3% and 10.45%, which is very high as compared to our study[22].

However Khokher et al in a similar study of pre-employment screening found that prevalence of HBsAg was 2.56% in cases belonging to northern parts of Punjab and KPK which supports present study[23].

It is highlighted here that present study has shown that frequency of HBV and HCV has significantly reduced as compared to previous studies (Table 2). Study population in present study was dominated by rural participants as n=876 (84%) belonged to rural areas and n=166 (16%) candidates belonged to urban areas. None of them was illiterate and all were with a minimum qualification of matric.

A declining trend has been observed in this study for HBsAg and anti-HCV among healthy adult males. An important finding is decrease in HCV frequency as compared to HBV which shows a paradigm shift. This might be due to younger age of the study subjects which reveals less time spent as vulnerable population thus less chances of acquisition of the virus. This was basically a desriptive study, but it might also suggest an overall decrease in the frequency of these viral diseases. The other factors contributing to the decrease in frequency might be the awareness on the part of the study subjects as none of them was illiterate. There might as well be a role of effective prevention and control measures and campaigns against these diseases, being undertaken at different levels in the society.

CONCLUSION

Frequency of Hepatitis B and C in asymptomatic young males of Punjab is 3% and 1.5% respectively and that for Khyber Pakhtunkhwa is 1.8% for both viruses.

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