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Seroprevalence And Demography Of Hepatitis B And C Among Healthy Young Males Of Northern Areas Of Pakistan

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Objective: To study the Seroprevalence of HBV and HCV with particular relevance to demographic and ethnic features of healthy male recruits of Northern areas of Pakistan.

Material and Methods: Two thousand five hundred and twelve healthy male recruits (Age 18 - 25 yrs) were screened for HBsAg and Anti-HCV prior to recruitment. Screening was done at Combined Military Hospital Gilgit. All reactive results were confirmed by ELISA methodology at AFIP, Rawalpindi. The individuals included in the study had reported between Jan 2004 to Jun 2006. Demographic record of all the individuals was also studied.

Results: On analysis, over-all prevalence for HBsAg among the individuals tested was 2.5% and prevalence for Anti-HCV was 1.1%. District Skardu had highest prevalence rate for HBsAg (9%) while Astore had the highest prevalence for Anti-HCV (3.1%).

Conclusion: There is variation in HBV and HCV seroprevalence in the Northern areas of Pakistan. Ethnic and demographic differences account for this variation with higher HBV seroprevalence in Skardu and low seroprevalence of HBsAg and Anti-HCV in the isolated valley of Ghizer.

Key Words: Prevalence, HBsAg, Anti-HCV, Hepatitis.

Introduction

Hepatitis B and C infections are a serious public health problem in Pakistan. Despite large-scale efforts based on screening and vaccination strategies to eliminate hepatitis B, it is estimated that 400 million people worldwide have chronic hepatitis B virus (HBV) infection.¹ An estimated 170 million people are chronically infected with hepatitis C virus and 3–4 million people are newly infected each year.² Our country is known to lie in a zone of intermediate endemicity for these infections.³ Countries with high endemicity are those where HBsAg seroprevalence is greater than or equal to 8 percent; countries with intermediate endemicity are those where seroprevalence is 2–7 percent; and those with low endemicity are those where seroprevalence is less than 2 percent.⁴

Northern area is spread over 70,332 sq Km. It is sub divided into various districts i.e. Gilgit, Ghizer, Chilas, Skardu, Astore and Ghangche (Fig 1). According to latest population census the total population of Northern area is 870, 437. Average household size comprises of 7.8 persons. Rural population comprises 86.0% of the total. Annual population growth rate is 2.74%. Male to female ratio is 1: 1.9. Literacy rate is around 33%⁵.

This is an area of pockets of different populations. Majority of the people of Gilgit, Chilas and Astore area are central Asian in origin and the prevalent spoken language is Shina. Ghizer is a relatively closed valley area, famous for Shandur; polo matches and is located between Gilgit and Chitral. It is poorly accessible. Skardu and Ghanche are in Baltistan and the people are Tibetan in origin. They speak a language derived from Tibetan (a Sino-Burmese language group). They are more akin to the South Chinese population.⁶

Although exact national estimates for prevalence of HBV and HCV infections in Pakistan are unknown, studies in selected areas and groups have shown that the prevalence of these infections varies in different parts of the country. There is dearth of authentic data in regards to the prevalence of these infections in Northern areas. The aim of the present study was to study the seroprevalence of HBV and HCV among healthy young males with relevance to demographic and ethnic features.

Materials and Methods

Two thousand five hundred and twelve recruits (n=2512) were screened over a period of two and half years (Jan 2004 – Jun 2006). The cohort is comprised of young healthy males between the age of 18 and 25 yrs. At the time of sampling, demographic data, pertaining to area of residence and age was recorded. The blood samples (5mL) were collected in a clean dry test tube, labelled, serum was separated, aliquoting was done after proper labelling, and the serum aliquots were stored at 2-8 ° C until further testing. Testing was completed in batches. HBsAg and Anti-HCV were performed by sandwich immunoassay (IND Diagnostics, Canada). All the reactive results for Anti-HCV were confirmed by fourth generation ELISA (Innogenetics, Belgium) and for HBsAg by ELISA (Linear chemicals, Spain) performed on the original samples sent to AFIP Rawalpindi.

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Results

Area-wise results are shown (Table 1). A total of 2512 subjects were screened during the period. There were 65 (2.6%) subjects positive for HBsAg, 30 (1.1%) subjects positive for Anti-HCV. Majority of the subjects belonged to Ghizer valley; area wise seroprevalence is shown in Table 1.

Table 1: Area-wise Seroprevalence of subjects in Northern Areas

Number Recruits area-wise (n=2512)	of tested %	HBsAg prevalence%	Anti-HCV prevalence%
Gilgit (409)	16.2%	2.6 (11)	1.4 (6)
Chilas 4.6%	(115)	3.4 (4)	2.6 (3)
Ghizer 56.4%	(1416)	0.47)	0.3 (5)
Astore (128)	5.1%	4.6 (6)	3.1 (4)
Skardu 12.6%	(316)	9 (30)	2.8 (9)
Ghangche 5.1%	(128)	5.4 (7)	2.3 (3)

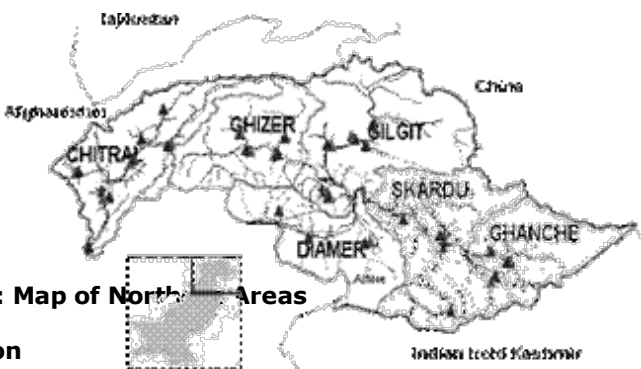


Figure 1 : Map of Northern Areas

Discussion

The Northern Areas have had a long and turbulent history. Many different peoples and cultures have left their impact on the

the Northern Areas have had a long and turbulent history. Many different peoples and cultures have left their impact on the region including the White Huns from Central Asia, the Turks, the Tibetans and the Dogra rulers of Kashmir. A trade route connecting India with Central Asia and China was established as early as the 4th century B.C. There is no ethnic uniformity and the languages, cultures and features vary.⁶

In our study, prevalence rates of different areas in the northern region reveal a marked difference specially that of HBV seroprevalence, which was higher in Skardu as compared to other areas. The seroprevalence is similar to that in another study conducted in Baltistan.⁷ The inhabitants of this area have features very similar to the Tibetans (Chinese) and their language is of Tibetan (Burma Chinese) origin. HBsAg seroprevalence in these areas is comparable to that of other high prevalence regions where the viral infection is highly endemic include the Far East, parts of the Middle East, sub-Saharan Africa, and the Amazon basin. In these regions, serologic evidence of prior HBV infection (anti-hepatitis B core antigen [anti-HBc] or anti-HBs positivity) is present in the vast majority of individuals.⁸

Since Anti-HBc, testing was not included in our study the actual hepatitis B virus endemicity may be of a greater level. On comparison, HBsAg positivity as reported in a nation-wide screening programme was 3.1% in Karachi, 3.1% in Islamabad and in Multan, it was reported as 6-7%.⁹

Similarly, other studies have revealed that the more congested zones of Punjab like Multan and Bahawalpur have a relatively higher HBV prevalence.^{10,11}

The endemicity of HBV is low in most developed areas, such as North America, Northern and Western Europe and Australia. In these regions only 0.5–2% of the population are chronic carriers.^{12,13}

These areas have better access to health care facilities; fare better in having low prevalence of these infections, interestingly in our study the isolated valley of Ghizer has a relatively lower seroprevalence of both HCV and HBV despite the fact that HBV infection is more prevalent in low socioeconomic settings.¹⁴ The over-all prevalence of HBsAg and HCV-antibodies in our study matches with other local studies.^{15,16}

Conclusion

Although the over-all seroprevalence is of an intermediate degree for both HBV and HCV in the Northern areas of Pakistan, there is marked variation area wise; further population based studies are needed with special focus on isolated communities.

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