Original Articles

HEPATITIS Bs ANTIGENEMIA—INCIDENCE IN APPARENTLY HEALTHY ADULT MALES

M. Shuaib Quraishi*, Sarwar J. Zuberi** and Manzoor Ahmad*.

Abstract

One thousand two hundred apparently healthy individuals were screened for the presence of Hepatitis Bs antigen. 3.6% showed its presence. The antigen was found in all age groups and in all geographic regions. The high prevalence can be attributed to many factors including poor hygienic and economic standards in the country.

Introduction

The discovery of hepatitis Bs antigen and its association with viral hepatitis has provided a very useful tool for investigating the problem of liver disease. The determination of prevalence of antigen in the population can furnish important information about the epidemiology of hepatitis and related disorders.

The result of a study undertaken to document the prevalence of this antigen in an apparently healthy male population is presented here.

Material and Methods

Twelve hundred individuals were examined. Eight hundred of these were newly recruited personnel, who had reported for their initial training at the training establishments of the Armed Forces from various regions of the country. They were examined within 4-6 weeks of their arrival. The remaining four hundred were service personnel who had been in service from 1-16 years (mean 5 years). The mean age of the recruits was 19.5 years (range 16 to 19 years), while those in service were slightly older (mean age 21 years; range 18-42 years). Information about age, place of origin and caste/tribe was recorded.

A physical examination was carried out in all cases especially for hepatomegaly and splenomegaly. Ten ml blood was obtained taking care to avoid haemolysis. Hepatitis Bs antigen was determined by counter current immunoelectrophoresis. Those showing the presence of antigen were admitted for further evaluation including liver biopsy. They were followed up at three months interval after discharge from the hospital.

P.N.S. Shifa* and **P.M.R.C. Research Centre, Jinnah Postgraduate Medical Centre, Karachi.

Results

Forty four out of twelve hundred people showed the presence of HBs antigen (3.6%). The distribution in various age groups is presented in Table I while Table II gives the prevalence according to the place of origin.

Table I: Hepatitis Bs Antigen—Prevalence in Various Age Groups

Age Groups	*Number Examined*	*Number Positive*	*Percentage*
16-20	824	30	3.6%
21-30	192	7	3.6%
31-40	153	2	1.3%
41-50	24	1	4.2%

Table II: Antigenemia in Various Provinces/Azad Kashmir

Provinces	*Number Examined*	*Number Positive*	*Percentage*
Sind	82	3	3.7%
Baluchistan	15	0	—
Punjab..	551	28	5.0%
N.W.F.P.	112	1	0.9%
Azad Kashmir	26	0	—

The incidence in Rawalpindi District 0.8%.

The majority of carriers continued to show antigenemia on follow up. Eighty six percent were chronic carriers (antigenemia for over 3 months). Three developed jaundice during the follow up period.

Discussion

It is generally known that HBs antigen is prevalent in countries where socio-economic and hygienic standards are poor. The high prevalence of antigenemia is therefore not unexpected. A previous survey comprising only 25 villagers around Lahore had reported an incidence of 4%. The sample in the present study was far larger. Moreover the individuals were drawn from various geographic regions of the country. They perhaps are more representative of the population at large.

The Counter current immunoelectrophoresis is considered to be only a moderately sensitive method so far as detection of antigen is concerned. With more refined methods like radio-immunoassay, the detection rate is higher. It would appear that although the incidence of 3.6% is quite high as compared to Western countries, the real incidence in our country would be far higher.

The antigen was present in all age groups. There was not much difference in prevalence between those over or under 20 years.

The prevalence was higher in the Punjab as compared to other regions. Within this province

those residing in the Rawalpindi District had very low prevalence (less than 1%). However, more extensive survey is required to document actual prevalence in various regions.

It has been suggested that the carrier state is genetically determined. Clustering of carriers was seen in certain families (Blumberg et al., 1969). There was no opportunity to test the families of the carriers. However, since caste system is fairly entrenched in our society, an attempt was made to see if the antigenemia correlated with castes. This limited survey does not provide conclusive evidence for clustering in different castes.

The reasons for higher prevalence for antigen could be numerous. This agent is known to be capable for dissemination through a wide variety of agencies. This includes not only the well known parenteral spread through blood transfusion and injections but lesser known non-parenteral spread also. The antigen has been found in various body secretions of carriers. These include faeces (Grob and Jemelka, 1971), urine (Heathcote et al., 1973), saliva (Brodersen et al., 1974) and semen (Heathcote et al., 1974). A number of vectors have also been incriminated. Mosquitoes of various species were examined. Many revealed the presence of antigen. Other insects include bedbugs and cockroaches. The intestinal worms which penetrate the skin have also been suggested as a factor in the spread (Barbotin and Oudart, 1972).

If we consider the various ways in which the antigen can spread, a high frequency does not appear to be surprising. We live in an environment which provides an ideal opportunity for the spread of antigen. The poor socioeconomic standard which characterize the existence of most of our population is an important factor. Overcrowding without elementary facilities of sewage disposal and water supply, wide prevalence of potential vectors due to insanitary living conditions are all important contributory factors.

The wide spread of antigenemia in apparently healthy population does not imply that it is harmless symbiosis. Our studies in these carriers (Ahmad et al. Unpublished data) have shown that most of these individuals suffer from anicteric hepatitis which may manifest as clinical disease in a small percentage. The antigenemia could also be an important factor in the epidemiology of a chronic liver disease in this country.

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