

Incidence of Hepatitis B in Bahrain

By Bader Zahoor H. Baig
Rifaat A. Hameed **

ABSTRACT

A retrospective analysis of 13,543 serum samples belonging to five major groups of individuals revealed that the positivity rate for the hepatitis B surface antigen was lowest (0.8%) in the blood donors. Apart from the suspected hepatitis cases (11.7%) the incidence was highest (7.6%) in the illicit drug abusers while the VDRL positive and patients from haemodialysis units rated second and third.

A greater proportion of illicit drug abusers who were positive for HBsAg were also positive for the 'e' antigen (27.3%), a marker associated with high infectivity, compared to the suspected hepatitis cases (22.0%) who were confirmed to be suffering from HBV infection. These results indicate that the individuals of certain high risk groups should be tested more often and as a control measure the vaccine administered to the close contacts of those testing positive for HBsAg and HBeAg.

Hepatitis B is one of the most common viral disease today with around 300 million carriers of the hepatitis B markers and active infection worldwide¹.

Certain population groups are at high risk of contracting hepatitis B virus (HBV). These include male homosexuals, prostitutes, intravenous drug abusers, medical personnel particularly those with frequent blood contact, patients needing frequent blood transfusions, chronic haemodialysis patients, and residents of mentally retarded centres^{2, 3}.

The incidence of this disease in Bahrain is not known while in Saudi Arabia its incidence among the local population has been found to be much higher than Europe and America but lower than in the Far Eastern countries⁴. A retrospective

study was carried out on the blood samples collected from March 1987 to September 1988.

METHODS

A total of 13,543 samples were screened for the hepatitis B surface antigen (HBsAg) a marker which appears prior to antibodies to hepatitis B core antigen (anti-HBc). All HBsAg positive samples were stored at -70°C pending further investigations.

Tests for the serological markers were carried out at the Public Health Laboratory. The samples were tested for hepatitis B 'e' antigen (HBeAg) and antibodies to HBe (anti-HBe) by the enzyme immuno assay (EIA). These tests are reliable indicators to determine the disease status of the patient. The presence of the 'e' antigen indicates infectiousness while at least 98% of the 'e' antibody positives indicate that the patient is not infectious.

All pertinent information on the patients was collected from a registry kept separately for the positive cases. The 13,543 samples included 1,172 suspected hepatitis cases, 198 users of illicit parenteral drugs, 498 confirmed VDRL positives, 169 patients of haemodialysis units, and 11,506 blood donors. Of these only the illicit drug abusers were confirmed to be Bahrainis whereas the nationalities of the other four groups could not be ascertained.

RESULTS

Prevalence of HBsAg

During the nineteen month period serological evidence of infection with HBV was found in 272 (2%) of the 13,543 blood samples tested. Of the 11,506 blood donors screened 97 (0.8%) were positive for HBsAg. Apart from the suspected

* Head, Public Health Laboratory
P.O. Box 42
Ministry of Health
State of Bahrain

** Director
Public Health Directorate
Ministry of Health
State of Bahrain

TABLE 1
Prevalence of Hepatitis B
Surface Antigen by groups of Individuals

Blood source	Positive for HBsAg		
	No. tested	No.	%
Suspected hepatitis cases	1,172	137	(11.7)
Users of illicit parenteral drugs	198	15	(7.6)
VDRL positives	498	21	(4.2)
Patients of haemodialysis units	169	3	(1.8)
Blood donors	11,506	97	(0.8)
Total	13,543	272	

TABLE 2
Prevalence of HBeAg and Anti-HBe
in HBsAg positives.

Blood source	No. tested	No. positive (%)			No. negative to both (%)
		HBeAg	anti-HBe		
Suspected hepatitis cases	118	26 (22.0)	54 (45.8)	38 (32.2)	
Users of illicit parenteral drugs	11	3 (27.3)	6 (54.5)	2 (32.2)	
VDRL positives	17	2 (11.8)	6 (35.3)	9 (52.9)	
Blood donors	75	16 (21.3)	45 (60.0)	14 (18.7)	
Total	221	47 (21.3)	62 (28.0)	63 (28.5)	

hepatitis cases the highest positivity (7.6%) was found in the intravenous drug users. Suspected cases of jaundice accounted for only 137 (11.7%) of the 1172 tested. Of these 137 only 36 (26.3%) were females. The other two groups namely haemodialysis patients and syphilis positive patients showed 1.8% and 4.2% reactivity for HBsAg respectively. Table 1 presents the HBsAg results for the five groups of individuals.

Prevalence and clearance of HBeAg

Only 80% of the total HBsAg positive sera were in sufficient quantity for the performance of HBeAg/anti HBe tests (Table 2). Of the total 221 HBsAg positive sera screened 21.3% were positive for HBeAg. The positivity for HBeAg was highest (27.3%) in the intravenous drug users and lowest (11.8%) in the VDRL positives. There was no difference for this marker between the donors (21.3%) and the suspected hepatitis cases (22.0%). However, positivity for anti-HBe was much higher for blood donors (60.0%) than for any other group.

Approximately 53% of the VDRL positive sera were negative for both HBeAg and anti-HBe. Only 18.7% of the blood donors sera were negative for both these markers while the intravenous drug abusers and hepatitis cases showed the same rate (32.2%).

DISCUSSION

Many serological surveys for markers of HBV infection have been conducted throughout the world. Most of these studies have revealed that high prevalence rates for HBV can be found in some population groups with most of the infected individuals having no history of acute hepatitis. This study reveals the difference in prevalence rates for HBV in five different groups of population. Apart from the suspected hepatitis cases which account for almost half of the 272 HBsAg positives the rest of the samples were from apparently healthy people, especially those from blood banks and haemodialysis units. The prevalence of HBsAg has ranged from 0.8 to 1.1 percent in volunteer blood donors for the last five years (PHD, unpublished data). In most countries it ranges from 3 to 5 percent whereas in Saudi Arabia according to one study 8 to 12% HBsAg positivity has been noted⁴.

Similarly, the low proportion (1.8%) of HBsAg in haemodialysis patients is much lower compared to figures of 3 – 10% in some countries⁵. On the other hand the incidence of 7.6% in the illicit drug users is comparable to observations in some western countries. This is probably because of the common risk factors in this particular group.

Apart from the 137 HBsAg positive patients in the suspected hepatitis cases group the remaining 135 or at least a majority of these can be said to be individuals with sub-clinical infections. It is these individuals who have been shown to be at greater risk of becoming chronic carriers compared to individuals with clinical hepatitis B ⁶. In addition to this it is these individuals who act as reservoir of HBV and transmit infection to others in their family and community.

It is interesting to note that HBeAg a marker associated with high infectivity and active ongoing infection was highest (27.3%) in the illicit drug users compared to hepatitis B cases in which the incidence was only 22.0%. In fact this figure is more in comparison with the blood donors (21.3%) which shows how the sub-clinical cases help to spread the disease. The reported prevalence rate for this marker in asymptomatic persons has been shown to be as high as 68.5% ⁷. On the other hand the high rate of HBsAg and HBeAg positivity in the illicit drug indicates why there is a greater likelihood of spread of HBV in this group and consequently the higher incidence of the disease as shown in this study.

The incidence of seroconversion from HBeAg to anti-HBe was highest (60.0%) in the blood donor group which is not surprising as it is the only healthy group of the four tested for these markers. But, since anti-HBe is usually regarded as a sign for recovery in clinical cases and at the same time identifies the 'healthy' carrier state in the asymptomatic individuals it is difficult to put either of these two labels on these subjects without a proper follow up testing on these individuals to monitor the disappearance of HBsAg and the appearance of anti-HBe.

CONCLUSION

In this retrospective study we have identified the incidence of HBV in five major groups of individuals which provides an insight into this problem in Bahrain for the first time. These figures can also be taken as baseline data since the incidence of the disease could increase in the coming years because of the influx of people from the Far East and due to the continuous changes in the habits and social activities of the people.

Follow-up testing for the complete profile of the HBV markers should be done after at least six months of the initial test in order to identify the chronic active hepatitis and the carriers. As an important control measure close contacts of the positive individuals specially the carriers should be vaccinated.

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