The Prevalence of Hepatitis B Surface Antigen in the Philippines*

V. Basaca-Sevilla,** Eleonor P. Pastrana,** Resurreccion G. Balagot,** Josue S. Sevilla,*** John H. Cross**** and Kurt Sorensen****

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INTRODUCTION

The Philippines is a country where immunization is maximally utilized as an effective tool in the prevention of certain infectious diseases like tuberculosis, pertussis, tetanus, diphtheria, cholera el tor, typhoid and rabies. In 1979, 5,539,000 doses of BCG and 184,500 doses of DPT were utilized excluding the wastage. In the same year, 5,435,150 doses of cholera-typhoid, 471,930 doses of tetanus toxoid and 292,936 doses of anti-rabies vaccine (Semple), were dispensed from the manufacturing laboratory. It is also a country where much blood for transfusion is dispensed through the commercial blood banks. In fact more than half of the country's need for blood is filled from commercial sources. Annually, about 100,000 units of 500 ml blood bags are dispensed by all blood banks in Metro Manila excluding the 110,000 units of 250 ml bags dispensed by the Philippine National Red Cross and about 30,000 units of 500 ml dispensed in the South.

There has been much concern with regard to the viral hepatitis especially those following blood transfusions or injections. In the Philippines viral hepatitis is notifiable. The term has been applied clinically to cases of jaundice with fever, with or without gastrointestinal symptoms. There are very limited laboratory facilities available for the study of these cases. Hence, much interest is shown for this disease, not only because of the number of people affected but because of the possible relationship of Hepatitis B virus to chronic active hepatitis, cirrhosis and hepatocellular carcinoma. There is yet no evidence that hepatitis A virus, or the viral agents causing non-A and non-B hepatitis are associated with these diseases. The precise mode of spread is uncertain. Inoculation of infected blood is as important a cause as is close contact. Hepatitis B surface antigen has been detected in urine, saliva, bile, feces, sneeze droplet, semen, vaginal secretions, breast milk and tears.

A study was undertaken to look into the prevalence of hepatitis B virus (HBV) in blood samples obtained from different parts of the country through the detection of hepatitis B surface antigen (HBsAg), which is regarded as a marker for blood that is potentially infectious for Hepatitis B virus.

MATERIALS AND METHODS

In this study, no attempt was made to classify sampling as to age and sex, except that unless indicated, samples were obtained from asymptomatic adults. Donors who gave blood to the Philippine National Red Cross, to commercial blood banks, or to the Bureau of Research and Laboratories. were adult males. Samples were also obtained from the general population from an infectious disease survey in a collaborative project with the United States Naval Medical

Research Unit No. 2. Samples were likewise obtained from hospitality girls from various parts of the country as well as from residents of penal colonies.

The third generation test to detect HBsAg utilized was the radioimmunoassay (RIA). Ausria II^{-125} kit of Abbott Diagnostic Division was made use of. The procedures for the test was that incorporated in the kit.

RESULTS AND DISCUSSION

Using the RIA Method, a large number of sera from various sources and areas were tested for HBsAg from June 1979 to October 15, 1980. The results are shown in several tables. From Table 1, it is noted that of 22,969 sera from the Philippine National Red Cross Center in Metro Manila, 2,889 or 12.57% were positive. Blood donors (7,054) of the commercial blood banks were examined in fifty days. Of these, 1,070 or 15.17% were positive for HBsAg. These represented blood donors from six commercial blood banks. Blood samples from hospitality girls from eight areas were obtained. Of 1,925 samples, 168 or 8.73% were positive. The prevalence varied from 3.64% in Baguio to 11.06% in Isabela, the latter representing an industrialized rural area. The findings of an 18.75% prevalence from Caloocan was not included in the total prevalence of the group because the sample group of 16 was considered too small to compare with the other sources. Residents of penal colonies in the provinces and in the City Jail (Manila) were examined. There were 2,013 of them examined and 323 (16.05%) were positive. Residents of Manila numbering 695 were examined, 82 or 11.8% were positive. Samples from different areas in the Philippines totaling 426 were examined, 43 or 10.09% were positive. Of 500 residents of five rural areas, 52 or 10.4% were positive for HBsAg. From the religious community, 41 were examined (all female), 2 or 4.88% were found positive. Twenty nine or 41.43% of 70 hospitalized patients were found positive for HBsAg.

Table 1. RIA Results of Blood samples obtained from various sources from the Philippines from June to October 1980

		Reactive	
Source	No. of Samples	No.	%
Philippine National Red Cross Blood Center	22,969	2,889	12.57
Professional Blood Bank	7,054	1,070	15.17
Hospitality Girls	1.925	168	8.73
Residents of penal colonies and City Jail	2.013	323	16.05
Residents of Manila	695	82	11.80
Residents of different areas in the Philippines	426	43	10.09
Residents of five rural areas	500	52	10.40
Religious community (all female)	41	2	4.88
Total	35,623	4,629	12.99
Hospitalized patients	70	29	41.43

Table 2 gives an idea on the prevalence of Hepatitis B surface antigen among groups of people who donate to the Philippine National Red Cross. The lowest reactivity, which was 3.92%, was found among the Americans of Clark Air Base. The highest prevalence of 14.58% was found among the inmates of the City Jail, followed by the representatives of the armed forces with a prevalence of 13.25%.

It would be interesting to know what would be the prevalence of HBsAg detection among the hospitality girls, considering the isolation of the antigen from body secretions and excretions. The results are shown in Table 3. Hospitality girls from nine areas were examined. The reactivity varied from 3.64% at Baguio to 11.06% at Isabela. It is noted that in Caloocan City, the prevalence was 18.75% but we did not compare this with other figures because those examined

were too few. Among the cities however, with less than a hundred samples like Iloilo, Manila, Olongapo, Caloocan has the highest prevalence.

Table 2. RIA Results of Blood Samples of Donor Representative Groups to the Philippine National Red Cross (1980)

Source	No. of Samples	Reactive	
		No.	%
ROTC Group	1,162	144	12.39
Armed Forces	249	33	13.25
General Population	710	81	11.40
Clark Air Base (Americans)	816	32	3.90
City Jail	144	21	14.58
Total	2,265	279	12.32
Philippine National Red Cross Blood Center (June 1979 to October 1980)	22,969	2,889	12.57

Table 3. RIA Results of Blood Samples from Hospitality Girls from Different Areas (1979-1980)

Source	No. of Samples	Reactive	
		No.	%
Baguio City	302	11	3.64
Cebu City	633	61	9.63
Bicol (Daet, Naga, Legaspi)	211	16	7.58
Isabela	470	52	11.06
Dagupan City	127	11	8.6
Caloocan City	16	3	18.75
Iloilo City	80	7	8.75
Manila	441	5	1.13
Olongapo Social Hygiene	42	2	4.76
Total	1,925	168	8.73

The results of the examination of residents from four colonies including the Manila City Jail are shown in Table 4. The prevalence of HBsAg detection varies from 14.19% to 19.8% with an average of 16.05%.

Table 4. RIA Results of Blood Samples from Residents of Penal Colonies and City Jail (1979-1980)

Source	No. of Samples	Reactive	
		No.	%
Sablayan (Mindoro)	550	81	4.7
San Ramon (Zamboanga)	382	76	19.8
Davao	777	118	15.19
Manila City Jail	304	48	15.79
Total	2,013	323	16.05

Table 5 shows the results of the examinations of residents from different areas in the Philippines whether rural or urban as well as the results from five strictly rural areas with the same sampling. The prevalence for Metro-Manila is 11.8%, 10.09% for the areas outside Metro Manila and 10% for strictly rural communities.

Mention has been made of the role of Anti-HBs to protect recipients of blood transfusion from disease caused by HBV or at least reduce its severity, It is interesting to find out the prevalence of anti-HBs. In a previous study, the parallel testing of 500 samples, 100 coming from Mindoro, Sorsogon, Capiz, Cagayan and Pangasinan was done utilizing AUSAB, an RIA test for the detection of antibody to Hepatitis B surface Antigen or Ausria II^{-125}. The results are shown in table 6. One notes that of the 500 tested, 203 or 40.6% were positive for AUSAB test or positive for antibody while 52 or 10.4% were positive by AUSRIA or positive for the Hepatitis B surface antigen. Of the 500 samples, there were 3 positive for both antigen and antibody.

Table 5. RIA Results of Blood Samples from Residents of Different Areas in the Philippines (1979-1980)

Source	No. of Samples	Reactive	
		No.	%
Metro-Manila	695	82	11.80
From different Areas	426	43	10.09
Total	1,121	125	11.15
From different areas			
Sorsogon	90	13	14.44
Legaspi	90	5	5.55
Cebu	55	7	12.72
Iloilo	41	3	7.31
Cagayan de Oro City	25	1	4.0
Davao	40	5	12.5
Mindoro	20	2	10.0
Quezon	20	2	10.0
Surigao	15	3	20.0
Baguio	10	1	10.0
Samar	10	1	10.0
Marinduque	10	1	10.0
Total	426	43	10.09

Table 6. Results of the AUSAB and the AUSRIA Tests Done on 500 Blood Samples from Five Localities

Locality	No. of Tests	AUSAB		AURIA	
		No. +	%	No. +	%
San Jose, Mindoro	100	50	50	5	5
Sorsogon	100	36	36	10	10
Capiz	100	37	37	12	12
Cagayan	100	40	40	12	12
Mangaldan, Pangasinan		40	40	13	13
Total	500	203	40.6	52	10.4

CONCLUSION

The possibility of sexual transmission of Hepatitis B virus has been studied in depth. Mosley (1972) summates thus: "If a virus is present in semen, then intravaginal ejaculation essentially represents its parenteral inoculation, as was illustrated recently for the Marburg virus. Furthermore, during sexual intercourse the urethral mucosa of the male is exposed to whatever fluids are present in an organ grossly contaminated with blood some five days each month. Quite apart from oral-genital contact and anal intercourse, therefore, we have at least theoretical reasons for giving serious consideration to venereally transmitted type B hepatitis."

In the light of the facts on transmission what is to be done with those found positive for HBsAg among the hospitality girls besides inhibiting them to donate blood? Residents of penal colonies and jails have been popularly utilized in the provinces and even by the Red Cross as blood donors. The prevalence of HBsAg detection should give us an objective basis if this should continue especially when we consider the limitations of the laboratory facilities to provide adequate HBsAg clearance.

There are some who are not bothered by the rather high prevalence of HBsAg among blood donors because of the 40% prevalence of anti-HBs. Pathologists and hematologists however, have supported the continuance of HBsAg clearance of all blood for transfusion.

In the light of the studies on the prevalence of HBsAg, The Bureau of Research and Laboratories has continued to clear the blood samples from the Philippine National Red Cross and is seriously looking into the inclusion of those from commercial blood banks as well as the

establishment of a central registry for all commercial blood donors. Only few of the private hospitals have made the clearance of blood for HBsAg as a routine pre-transfusion procedure. The use of disposable needles for infections is given wide publicity. Every group request for vaccines that is filled is accompanied by a verbal reminder of the need of the vaccines to be protected against hepatitis B virus by the use of disposable needles.

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