JAMC, Vol. 3, July 1990

HEPATITIS B VIRUS MARKERS AMONG PREGNANT WOMEN IN SAUDI ARABIA

M. Hafeez Ikram

INTRODUCTION

Hepatitis B surface antigen (HBsAg) among women varies from 3.8% in Riyadh area to 15% in Khaiber.[1] HBsAg carrier mother may deliver a baby, which has a greater chance of becoming a HBsAg carrier.[2] Hepatitis Delta virus (HDV) infections occur along with HBV infections as coinfections or superinfections.[3] In order to find the risk to the baby, pregnant women were surveyed for the presence of Hepatitis B virus (HBV) and HDV markers.

MATERIAL AND METHOD

500 samples were tested by using kits (Wellcozyme) for HBsAg, anti-HBs (AUSab EIA), and anti-HBc (Corzyme). HBsAg positive sera were also examined for the presence of HBeAg and anti-HBe (Wellcozyme). One hundred samples, positive for HBV markers were assayed for Hepatitis Delta antigen, Hepatitis Delta antibody and Hepatitis Delta antibody IgM (wellcozyme).

RESULTS

The results indicate that 4.6% of the women were HBsAg carriers, whereas figures for anti-HBs and anti-HBc were 22% and 28% respectively (table-1):

Hepatitis B Virus Markers Among the Pregnant Females

		HBV markers	
No. Tested	HBsAg No. (%)	Anti-HBs No. (%)	Anti-HBc No. (%)
500	23 (4.6)	110 (22)	140 (28)

Of these anti-HBs positive people 86% were noted having anti-HBc in their blood. The incidence of HBV markers decreased with an increase in education and the carrier rate was reduced to more than one third, when the persons had an education standing of 10 years or more (Table-2):

Relationship of HBV Markers and HBsAg With Education Level

Years of Education	No. Tested	HBsAg No. (%)	HBV markers No. (%)
0 – 9	308	19 (6.2)	110 (35.7)
≥ 10	192	4 (2.1)	48 (25)

From Institute of Nuclear Medicine and Oncology, Lahore
M. HAFEEZ IKRAM, Ph.D. P.O. Box 53, Lahore.

HBsAg positive sera tested for HBeAg and anti-HBe indicated that 14 (61%) specimens were positive for anti-HBe. None was positive for HBeAg and others were negative for both. Samples examined for HDV markers showed that 5 specimens (5%) were positive. Two people were infected with HD antigen and three specimens showed anti-HD.

DISCUSSION

Hepatitis B virus infection rate of 32% and HBsAg carrier rate of 4.6% among the female in Madina Munawarah is higher than the women in Riyadh but lower than those in Khaiber and Gizan[1], and is also lower than those in Male[4]. Differences between males and females may either be due to sex difference exposure to HBV[5] or may be biological i.e. ability of females to clear HBsAg from their blood.[6] In Saudi Arabia a strict separation of sexes favours the sex difference exposure hypothesis.

It was seen that Delta antigen was present in the sera of HBsAg carriers, whereas anti-delta was found in population positive for anti-HBs. This confirms the hypothesis that Delta virus is a defective virus and needs HBV for its replication.[3]

The most common route of HBV transmission is from carrier mothers to their babies. Neonates acquiring HBV have only 10% chance of clearing the infection. 90% will become chronic carriers. Female grow up and perpetuate the infection through their off-springs, whereas males are more likely to develop Cirrhosis and Hepatocellular Carcinoma.[7,8] It has been shown that babies born to HBsAg positive mothers, immunised within seven days have a much greater chance of developing antibodies than those vaccinated later.[8] Therefore, it is suggested that HBsAg carrier women should be identified and their new born should be vaccinated as soon as possible, so that the transmission of HBV and HDV to the new born may be prevented.

ACKNOWLEDGEMENT

The Author thanks Miss Farkhanda for her help in the preparation of the manuscript.

The kits for testing HBV and HDV markers were kindly supplied by Wellcozyme Diagnostics and Abbott Laboratories.

REFERENCES

1. El-Hazmi, M.A.F. Hepatitis B virus markers in Saudi Arabia: a comparative study in different regions. Ann. Saudi Medicine 1986; 6: 185-190.

2. Boxall, E.H. Hepatitis problems in the pregnant and nursing mothers and the new born. Midwives Chronicle and Nursing Notes. July 1983; 226-229.

3. Rizzetto, M. The Delta antigen. Hepatology, 1983; 3: 729-37.

4. Ikram, M.H., Ali S.I., Khawaja, F.I. and Awad, A.H. Hepatitis B virus markers among the blood donors in Medina Munawarah. Ann. Saudi Medicine 1988; 8: 470-73.

5. Mazzur, S. and Jones, N. Equal susceptibility of males and females on Sta Cruz Island to the carrier state of Hepatitis B surface antigen. J. Infect. Dis. 1976; 133: 331-33.

6. Lingao, A.L., Domingo, E.D., West, S. et al. Seroepidemiology of Hepatitis B virus in the Philippines. Am. J. Epidem. 1986; 123: 473-80.

7. Szmuness, W., Stevens, C.E., Ikram, H. et al. Prevalence of Hepatitis B virus and Hepatocellular Carcinoma in the Chinese Americans. J. Infect. Diseases, 1978; 137: 822-29.

8. Sian Dulfer. Hepatitis B and the new born: a case for vaccination. Postgraduate Doctor 1987; 10: 375-78.