PREVALENCE OF HEPATITIS B SURFACE ANTIGEN IN PREGNANT WOMEN FROM DELHI

by

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SUMMARY

Sera from 175 pregnant women, 30 pregnant women with hepatitis and 100 healthy non-pregnant females was tested for presence of hepatitis B surface antigen (HBsAg) by counterimmunoelectrophoresis (CIE) and reverse passive haemagglutination (RPHA). The detection rate by RPHA was significantly greater than by CIE ($P < .05$). HBsAG was isolated more frequently ($P < .05$) in pregnancy with hepatitis (36.7%) as compared to pregnancy without hepatic dysfunction (12%). The HBsAg carrier rate in pregnancy was fairly high (12%) and was greater than the HBsAg carrier incidence in non pregnant female population (5% : $P > .05$).

Introduction

Asymptomatic hepatitis B surface antigen (HBs Ag) carrier state is a well documented entity. It's incidence in pregnant women is reported to vary from 0.12% to 16.5% is different areas of world (Skinhoj *et al* 1972, Beosley *et al* 1975). A few studies have analysed the magnitude of this problem in India by the relatively insensitive techniques of immuno-diffusion or counter immunoelectrophoresis (CIE) (Shanmugam *et al* (1978). A recent report from Southern India (Kerala) has utilised a sensitive method of reverse passive haemagglutination (RPHA) (Shanmugam *et al* 1981). Work of a similar nature, from the Northern part of the country, is scarce. This study was therefore designed to ascertain the incidence of HBsAg carrier state in pregnancy in Delhi by the RPHA test and to compare the results with those obtained by the CIE test.

Material and Methods

The study material comprised of 175 pregnant women (Group A) while 30 pregnant females suffering from acute viral hepatitis (Group B) and 100 healthy non-pregnant adult females (Group C) served as controls. Details of history and physical examination were recorded on a pretested

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proforma. Apart from other relevant investigations as required, liver function tests (Serum bilirubin, serum alkaline phosphatase, serum glutamic oxaloacetic and pyruvic transminases) were performed on each individual. Presence of HBsAg was detected by CIE and RPHA as described earlier by Talib *et al* 1983. Asymptomatic individuals harbouring HBsAg were designated as carriers only if a repeat test 4 months later showed persistance of the antigen. If pregnancy continued beyond 4 months of the initial detection in a carrier, persistence of antigen was confirmed within one week of delivery. Statistical significance was assessed by X^2 analyses.

TABLE II
Incidence of HBsAg Positivity in Study Groups

Groups	No.	HBsAg Positivity	
		CIE (%)	RPHA (%)
Pregnant Women (A)	175	4 (2.3)	21 (12.0)
Pregnant Women with hepatitis (B)	30	2 (6.7)	11 (36.7)
Healthy non-Pregnant women (C)	100	2 (2.0)	5 (5.0)

Results and Discussion

The incidence of HBsAg positivity in various study groups is depicted in Table. All the sera positive for HBsAg by CIE were positive by RPHA also. The detection rate of HBsAg by RPHA was significantly higher in comparison to CIE ($P<0.5$). Similar observations have been made earlier (Shanmugam *et al* 1981; Talib *et al* 1983). HBsAG was isolated more frequently ($P < .05$) in pregnancy with hepatitis (36.7%) as compared to pregnancy without hepatic dysfunction (12.0%).

In all asymptomatic individuals harbouring HBsAg, the antigen persisted for a period of 4 months or till the termination of pregnancy (if later than 4 months). The HBsAg carrier rate in pregnancy (12.0%) was higher than that in non-pregnant females (5.0%), but the difference was statistically not significant ($P. < .05$). This difference has been postulated to be due to an increased susceptibility to infection during pregnancy or some unknown immunological mechanism (Schiff 1974). None of the pregnant HBsAg carriers was alcoholic, drug abuser or had any recent contact with documented hepatitis B infection. Three were hospital employees. Liver function tests were normal in all except 1, in which there was mild elevation of enzymes on one occasion; consent for liver biopsy was not given in this case. The carrier rate was comparitively higher in age group 15-35 years, multigravida and lower socio-economic status. However, the differences were statistically insignificant ($P.> .05$).

The incidence of HBsAg carriers in pregnancy from this part of the country (12.0%) is comparable to the South (13.8%) (Shanmugam *et al* 1981). In contrast to the low carrier rate in Western countries, India has a fairly high incidence which is slightly lower than the maximal (16%) reported from Taiwan by Beasley *et al* 1975. Evidently it would be desirable to screen all preg-

nancies for presence of HBsAg in high prevalence areas. However, the cost effectivity is likely to prohibit this in India for the present.

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