

HEPATITIS—B VIRUS INFECTION IN PREGNANCY—ITS EFFECT ON MOTHER AND FOETUS

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Virus-B hepatitis is not frequent in pregnancy. The incidence of virus-B hepatitis in pregnancy has been variously reported from different parts of the world. There are almost equal number of reports in favour and against virus-B hepatitis exerting an adverse effect on the course of pregnancy and foetus. The first of this kind of report was from Martinique by Saint Vel in 1962 from an epidemic of severe virus hepatitis amongst pregnant women. The earlier literature contains scanty and incomplete data as well as divergent views. The expert committee of World Health Organisation recommended to find out the incidence and factors favouring the perinatal transmission of hepatitis-B virus infection in different regions of the world. The reports on the effect of hepatitis-B virus infection on pregnancy and perinatal transmission are totally lacking in this country. The effect of virus B hepatitis on mother and new-

born was evaluated during a study designed to study perinatal transmission of hepatitis-B virus to newborn infants.

Material and Methods

During a period of one year from 1981 to 1982 the study was conducted jointly by division of Gastroenterology and the department of Obstetrics and Gynaecology, S.C.B. Medical College, Cuttack. Four groups of infant-mother pairs were investigated. They included (i) pregnant women with viral hepatitis, (ii) pregnant women with previous history of an attack of viral hepatitis, (iii) mothers of babies with jaundice within 7 days of delivery and (iv) apparently healthy mothers attending the hospital for delivery. The diagnosis of virus-B hepatitis was based on epidemiological, clinical and immunological criteria. Venous and cord blood were collected for testing of hepatitis-B surface antigen by counter immunoelectrophoresis. The antisera used was obtained from Wellcome Laboratories, London. Besides recording of clinical data the liver function tests were carried out. Serum bilirubin, alkaline phosphatase, glutamic oxaloacetic transaminase, glutamic pyruvic transaminase, protien and albumin by standard technique were studied.

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Results

Four thousand, two hundred and fifty pregnant women attended the hospital during the study period. During the same period, 10 pregnant women with acute virus-B hepatitis (1 in 425) were observed. The age distribution of different groups of pregnant women studied are given in Table I. These 10 cases were equally distributed in all the age groups. None of the cases were above 35 years of age. The results of detection of hepatitis-B surface antigen in all the groups are shown in Table II. The antigen was detected in 2 out of 10 (20%) pregnant women with acute virus-B hepatitis. This was much higher in comparison to a detection of hepatitis-B surface antigen in 1 out of 200 (0.5%) healthy mothers.

None of the 17 pregnant women with previous history of having suffered from acute viral hepatitis and mothers of babies born with jaundice were positive for hepatitis-B surface antigen.

The clinical and biochemical parameters of 10 pregnant women with acute viral hepatitis were very similar to classic type of acute virus-B hepatitis. However, one had morphological changes of bridging necrosis of liver, who died of hepatic failure following delivery. Low value of mean serum albumin was observed to be 3.07 (0.2) mg per 100 ml in pregnant women with acute viral hepatitis indicative of a status of under nutrition.

It was observed that acute hepatitis due to virus-B infection is more common in third trimester of pregnancy, 8 out of 10

TABLE I
Age Distribution

Age group in years	No. of pregnant women with AVH	Pregnant women with previous history of AVH	Mothers of jaundiced babies	Healthy mothers
15-20	2	1	13	37
21-25	3	8	17	90
26-30	3	3	6	54
31-35	2	4	4	16
36-40	—	1	1	2
40	—	—	—	1
Total	10	17	41	200

TABLE II
Detection of Hepatitis B-Surface Antigen (HBsAg)

Status of mothers	No. of cases HB	No. of HBsAg positive	Percentage
Pregnant women with AVH	10	2	20
Pregnant women with previous history of AVH	17	Nil	—
Mothers of jaundiced babies	41	Nil	—
Healthy mothers	200	1	0.5

cases (80%) and remaining 2 cases were in second trimester (Table III). The

babies born to mothers at full term were alive and the birth weight was observed to be greater than the previous group.

TABLE III

Distribution of Pregnant Women With AVH in Different Trimester of Pregnancy

Different trimester of pregnancy	No. of cases	Percentage
First trimester	Nil	—
Second trimester	2	20
Third trimester	8	80

obstetric complications in pregnant women with acute virus B hepatitis were mainly premature labour, early rupture of membrane, postpartum haemorrhage and toxæmia in 70, 20, 20 and 10 per cent respectively (Table IV). The prognosis in

TABLE IV

Obstetric Complications in 10 Pregnant Women With AVH

Nature of complications	No. of cases	Percentage
Premature labour	7	70
Early rupture of membranes	2	20
Postpartum hoemorrhage	2	20
Toxaemia	1	10

newborns delivered by them were much more serious. In those mothers who had premature labour, 2 were still-births and 3 died within 7 days of delivery. Rest two remained alive (Table V). All the 3

Discussion

It was observed in the present study that incidence of acute viral hepatitis in pregnancy was 1 in 428. A similar observation of higher incidence has been observed by other workers as 1 in 386 and 1 in 700 in two different observations (Rao and Gunapathy, 1956; Singh *et al*, 1977). The incidence in Eastern Europe and America are low, 1 in 120,000 pregnancies (Sever and White, 1968). The higher incidence of acute virus hepatitis in pregnancy in this country is geographical and is due to low nutritional status and poor hygienic condition.

The higher incidence of acute viral hepatitis in third trimester of pregnancy of the present series has also been observed by others (Dutta, 1977). An attack of acute viral hepatitis in pregnancy can give rise to many obstetrics complications. The observations of premature labour, early rupture of membrane, postpartum haemorrhage and toxæmia in 70, 20, 20 and 10 per cent respectively is in agreement with most of the earlier observations (Schweitzer *et al*, 1973; Gerety and Schweitzer, 1977). Seventy per cent of babies were born prematurely. The average birth weight was below normal. The increased incidence of prematurity and

TABLE V

Foetal Prognosis in 10 Mothers With AVH

Type of labour in mothers	Perinatal death			Average birth weight in kg.
	Still birth	Death within 7 days of delivery	Alive	
Premature labour	2	3	2	1.65
Term labour	—	—	3	2.66

low birth weight of the newborns was in agreement with the observations of others (Schweitzer *et al*, 1973; Gerety and Schweitzer, 1977). The perinatal mortality was observed to be higher in the present series. Two were still born and 3 died within 7 days of delivery. A comparatively little lower, 50 per cent perinatal mortality is similar to other observations of 52 to 80 per cent (Malkani and Grewal, 1957).

Two out of 10, 20 per cent women were positive for hepatitis-B surface antigen by counter immunoelectrophoresis. The twenty per cent sero-positivity was within the observations of other workers ranging from 11 to 23.3 per cent (Hills *et al*, 1970; Pal *et al*, 1973). It was observed that hepatitis-B virus infection was transmitted to the newborn in the perinatal period.

Summary

The incidence of acute virus B hepatitis in pregnancy in eastern India is 1 in 425. Twenty per cent of them were found to be positive for hepatitis B surface antigen. Most of the women were affected in third trimester of pregnancy. The obstetric complications were premature labour, early rupture of membranes, postpartum haemorrhage and toxæmia in 70, 20, 20 and

10 per cent respectively. Foetal prognosis was observed to be more adverse. The still birth and perinatal death were observed as 2 and 3 respectively. A low birth weight was observed in those newborns, who remain survived.

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