

Original Research Article

# A study of maternal and fetal outcome in dengue fever in pregnancy

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## Abstract

**Background:** With the recent advent of urbanization, there is a rise in incidence of dengue infections thereby increasing the number of pregnant women affected with dengue infection. Infection with dengue is risky to both mother and fetus. This study aimed to observe the effects of dengue infection during pregnancy on mother and fetus.

**Materials and methods:** This was a retrospective study done from January 2019 to December 2019 at King George Hospital, Visakhapatnam. Pregnant women found to be positive for dengue infection were 26 during this period. Pregnant women serologically positive for dengue infection (IgM) were included in this study irrespective of gestational age and were followed till delivery and babies till seven days postpartum.

**Results:** 69.2% women with dengue during pregnancy had thrombocytopenia, 38.4% required platelet transfusion. Pre-eclampsia was seen in 23%, preterm labour (7.6%), Intrauterine fetal demise (38.4%), meconium stained liquor (15.3%), oligohydramnios (30.7%) were observed. Dengue hemorrhagic fever was seen in 19.2%, dengue shock syndrome in 7.6% cases accounting to maternal mortality of 23%.

**Conclusion:** Dengue infection during pregnancy increases the chances of dengue hemorrhagic fever, dengue shock syndrome leading to maternal mortality, so careful monitoring for warning signs of plasma leakage is essential. It is also associated with preeclampsia which further deteriorates the condition. Fall in platelets may necessitate platelet transfusion. There are high chances of oligohydramnios, Intrauterine fetal demise, Fetal distress, Preterm labor, NICU admissions in women with dengue during pregnancy.

## Key words

Dengue fever, Thrombocytopenia, Dengue Hemorrhagic Fever, Dengue Shock Syndrome.

## Introduction

Dengue infection is a viral illness transmitted by mosquito Aedes. It is caused by dengue virus belonging to genus Flavivirus, family Flaviviridae. Four serotypes of virus DENV -1 to 4 have been isolated. Dengue is endemic in around 100 countries in WHO regions with South-East Asia and Western Pacific areas most affected. India is in Category A of South-East Asian countries.

In India, due to rapid urbanization recent increase in dengue infection was seen. Infection in pregnancy has more severe disease and higher risk of death by 3 to 4 times compared to non-pregnant women. Endemicity is seen in 35 states of India. Case fatality rate is 0.33%. DENV -1 and DENV -2 are widespread in India [1].

Infection with dengue is risky to both mother and fetus. Dengue infection increases risk of preterm birth and low birth weight [2]. Some studies reported vertical transmission. DHF, DHS occur in less than 5% cases [3]. Secondary dengue increases the risk of severity. This study aimed to observe the effects of dengue on mother and fetus.

## Materials and methods

This was a retrospective study done from January 2019 to December 2019 at King George hospital, Visakhapatnam. Pregnant women found to be positive were 26 during this period. Pregnant women who were serologically positive for dengue infection by Dengue IgM ELISA were included in this study irrespective of gestational age and were followed till delivery and 7 days postpartum.

Maternal complications like Pre eclampsia, DIC, DHF, DSS, maternal morbidity and mortality were observed. Fetal complications like oligohydramnios, preterm labor, IUD, low birth weight were observed.

## Results

Total number of deliveries was 7568 during study period. Total number of pregnant women with Dengue was 26 during this period. Age and gestational age of the patient, platelet count at presentation to hospital, number of transfusions needed, mode of delivery and associated complications were shown in **Table – 1 to 6**.

**Table – 1:** Age wise distribution of cases.

Age of the patient (Years)	Number of cases	Percentage
15-20	6	23%
21-25	14	53%
26-29	4	15%
30-35	2	7%

**Table – 2:** Gestational age.

Gestational age	Number of cases	Percentage
<14 Weeks	0	0
14-27 Weeks	2	7%
28-36 Weeks	10	38%
36-40 Weeks	12	46%
>40 Weeks	2	7%

**Table – 3:** Platelet count.

Platelet count at admission	No. of cases	No. of cases receiving platelet transfusion	No. of platelets transfused
< 10,000	2	2	17, 19 respectively
10,000 - 50,000	4	4	11, 7, 13, 8 respectively
50,000- 1 lakh	6	4	4, 3, 6, 4 respectively
1 lakh - 1.5 lakh	2	0	
>1.5 lakh	12	0	

## Perinatal outcome

Average birth weight was 2.3 kg in our study. No evidence of vertical transmission in our study was noted.

**Table – 4:** Maternal complications.

Associated complications	No. of cases	%
Pleural effusion	2	7.6%
Pre-eclampsia	6	23%
Widal positive	2	7.6%
DHF	5	19.2%
DSS	2	7.6%

**Table – 5:** Fetal complications.

Associated complications	No. of cases	%
Oligohydramnios	8	30.7%
Preterm labor	2	7.6%
Intrauterine fetal demise	10	38.4%
Meconium stained liquor	4	15.3%

**Table – 6:** Mode of delivery.

Mode of delivery	No. of cases	%
Preterm vaginal delivery	4	15.3%
Preterm cesarean delivery		
Term vaginal delivery	12	46.1%
Term caesarean delivery	6	23%
Hysterotomy	4	15.3%

## Discussion

Dengue fever can occur at any age, gestational age. Fever with thrombocytopenia in endemic areas should raise suspicion of dengue. Leukopenia is also observed. Usually women present as fever, headache, retro-orbital pain, myalgia. Rise in packed cell volume should raise suspicion of dengue hemorrhagic fever.

In this study majority of women affected were between 20-30 years age and in third trimester. Similar results was seen in Srilankan case series [4]. Thrombocytopenia is seen in 69.2% (14) cases. Kanakalatha, et al. noted thrombocytopenia in as high as 86.3% patients [5]. 12 out of 14 cases in our study required platelet transfusion. One among them is diagnosed as HELLP syndrome. Her platelet count at admission is 36,000 and with intrauterine fetal demise. She required 6 random donor platelets, 1 single donor platelet. After improving her platelet count and hemoglobin,

Hysterotomy done for 2 previous cesarean sections.

Associated Preeclampsia is seen in 6 cases (25%): Two of them had spontaneous Preterm labor around 34 weeks and delivered 2.1 and 2.4 kg respectively, Remaining 3 are term pregnancies and were induced and delivered by vaginal route. Some studies reported eclampsia [6]. Oligohydramnios is seen in 8 cases which may be due to high grade fever or associated preeclampsia.

Intrauterine fetal demise is seen in 10 cases, 8 of them were referrals and two were sudden IUD due to high fever. Chitra and Panicker in their study noted myocardial calcifications in fetus affected early in gestation [7]. No evidence of postpartum hemorrhage in present study due to prior correction of platelets before delivery. No evidence of vertical transmission in present study. Earlier studies also had same results [8]. Dengue hemorrhagic fever is seen in 5 cases. Dengue shock syndrome is seen in 2 cases. Maternal mortality is seen in 6 cases due to DHF, DSS. Ismail, et al. reported maternal mortality of 2.6% [9].

Average birth weight was 2.3 kg in the present study. Low birth weight probably due to preterm delivery is also noted in a Srilankan study [10].

## Conclusion

Dengue infection during pregnancy increases the chance of dengue hemorrhagic fever, dengue shock syndrome leading to maternal mortality, so careful monitoring for warning signs and symptoms of plasma leakage is essential. It is also associated with Preeclampsia which further deteriorates the condition.

Fall in platelets may necessitate platelet transfusion if platelets count is less than 20,000 cells/mm<sup>3</sup> for normal delivery or less than 50,000 cells/mm<sup>3</sup> for cesarean section or if bleeding manifestations are present. Risk of Oligohydramnios, Intrauterine fetal demise, Fetal

distress, Preterm labour, NICU admissions is increased with dengue during pregnancy.

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