



STUDY OF CLINICAL PROFILE AND OBSTETRICS OUTCOME IN PREGNANT PATIENT WITH DENGUE INFECTION AT TERTIARY CARE CENTRE JAIPUR, RAJASTHAN

Obstetrics & Gynaecology

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ABSTRACT

Dengue is the most common vector borne disease caused by family of flavivirus and is transmitted to human beings by Aedes aegypti mosquito. World Health Organisation defines dengue fever as an acute febrile illness with two/more of the following signs and symptoms: intense headache, retroorbital pain, myalgia, arthralgia, rash, leukopenia and haemorrhagic manifestations. Pregnancy is one of the vulnerable conditions for severe form of dengue infection which can substantially increase the maternal and fetal morbidity. There is an increased risk of spontaneous abortion, pre-term birth (PTB), oligohydramnios, and maternal hemorrhage, low birth weight (LBW) and increased caesarean section. Moreover, dengue infection during this period poses a risk not only to the mother but also increases fetal complications such as Intrauterine Foetal Demise, low birthweight and prematurity.[6] **Method And Material-** The present study was conducted from January 2021 to December 2021 at tertiary care centre SMS Medical college and attached hospitals Jaipur, Rajasthan. All pregnant patients reporting to the hospital with fever and serologically confirmed dengue infection w. Both NS1 antigen and dengue specific antibody were tested for dengue infection. The laboratory confirmation of dengue infection was made when the woman was positive for either NS1 antigen or IgG/ IgM antibody were included in the study irrespective of the gestational age. The demographic details, obstetric risk factors, maternal and perinatal outcome were recorded. Detailed history, clinical examination, relevant blood investigations (complete blood counts, serial platelet counts, liver function test, renal function test, coagulation profile) was done and recorded. **Inclusion criteria** Patients of 20-40-year age with viable pregnancy confirmed with ultrasound Having fever which is clinically recordable Dengue serology, NS1 antigen and/or IgG or IgM positive, by ELISA method Patients willing to follow-up after delivery upto 6 weeks. **Exclusion criteria** Patients with non-viable pregnancy and fever with negative dengue serology. The cases were followed up till their delivery to monitor the effect of dengue on the natural course of pregnancy in these patients. An account of the mode of delivery in these patients was made. The neonates born were evaluated by being subjected to dengue serology and platelet count laboratory investigations and were followed up till 6 weeks of life. **Observation & results-** In our study patients presented with various clinical features. Oligohydramnios was seen in 20% patients, PROM present in 16 % patients. 20% patients were with h/o previous cesarean and 12% patients were present with features of preeclampsia, 40 % patients had dengue fever without warning signs and 20% patients presented with dengue fever with warning signs. Severe dengue was seen in 20% patients. Out of the 50 patients studied serological test reporting shows NS1 Antigen were positive in all 50 patients, IgM Antibody were positive in 10 patients, and 12 patients were both NS1 Antigen & IgM Antibody positive results. Fever was present in all 50 patients. Myalgia was seen in 50% patients, 60% patients had headache, and 20% patients had skin rashes of varied degrees. Patechia present in 12% and breathlessness was seen in 32% patients. 20 % patients had complain of abdominal pain. Maternal outcome shows that in 60% patients platelet counts was $<100 \times 10^9/L$, need for platelet transfusion was occurred in 30% patients. Abnormal LFT and features of Jaundice was seen in 50% and 10% patients respectively. 16 % patients had PPH, 2% patients had Encephalopathy, 24% patients need ICU care. 16% patients had preeclampsia with severe features, secondary infection seen in 8% patients. 4% cases had MODS and 2% patients need massive blood transfusion. Maternal death were reported in 10% patients. In our study 30% patients had term vaginal delivery, 20% patients had term cesarean delivery. Preterm vaginal and cesarean delivery were seen in 28% and 22% patients respectively. Fetal complications that occurred in our study shows that MSL was present in 50% cases, fetal distress was seen in 30% cases. Prematurity and IUGR seen in 50% and 20% patients respectively. 50% newborn babies need NICU admission. 8% cases were lost to follow up. **Conclusion-** Dengue in pregnancy needs early diagnosis and appropriate treatment. Dengue fever is associated with adverse maternal and fetal outcome despite appropriate measures. A high clinical suspicion, low threshold of in-patient care, aggressive supportive therapy, close materno-fetal monitoring and timely obstetric care are essential to manage the infection and to ensure a favourable pregnancy outcome.

KEYWORDS

INTRODUCTION

Dengue is the most common vector borne disease caused by family of flavivirus and is transmitted to human beings by Aedes aegypti mosquito. The incidence of dengue infection is rising worldwide. Since it is an endemic disease, many tropical countries like India with more than 50% of world's population is at risk of dengue infection [1,2]. Not only the infection but also the deaths associated with dengue are on the rise. There are mainly four serotypes of dengue virus.

Infection with one serotype confers lifelong immunity but repeat infections can occur with other serotypes. Such repeat infections are severe which increase the morbidity and mortality [3]. Dengue infection can be mild with or without warning signs or severe damage.

World Health Organisation defines dengue fever as an acute febrile illness with two/more of the following signs and symptoms: intense headache, retroorbital pain, myalgia, arthralgia, rash, leukopenia and haemorrhagic manifestations.

Pregnancy is one of the vulnerable conditions for severe form of dengue infection which can substantially increase the maternal and fetal morbidity. Studies have shown that pregnancy does not seem to increase the incidence of dengue infection but it can cause devastating complications to the pregnant women [4,5]. There is an increased risk of spontaneous abortion, pre-term birth (PTB), oligohydramnios, and maternal hemorrhage, low birth weight (LBW) and increased caesarean section. Moreover, dengue infection during this period poses a risk not only to the mother but also increases fetal complications such as Intrauterine Foetal Demise, low birthweight and prematurity.[6]

According to the National guidelines for dengue management released by Government of India, pregnancy is listed as the top high-risk group prone to have severe manifestations and complications of dengue fever and dengue haemorrhagic syndrome.[7] Therefore, they require close monitoring for severe infection and onset of complications. The aim of this study was to evaluate the clinical profile of pregnant patients with

dengue and to assess the maternal and fetal outcomes of dengue in pregnancy.

METHOD AND MATERIAL

The present study was conducted from January 2021 to December 2021 at tertiary care centre SMS Medical college and attached hospitals Jaipur, Rajasthan. All pregnant patients reporting to the hospital with fever and serologically confirmed dengue infection were included in the study irrespective of the gestational age. As per the hospital protocol, written informed consent was taken from the patient/relative at the time of admission to undergo treatment or any procedure required for treatment. Both NS1 antigen and dengue specific antibody were tested for dengue infection. The laboratory confirmation of dengue infection was made when the woman was positive for either NS1 antigen or IgG/ IgM antibody. The demographic details, obstetric risk factors, maternal and perinatal outcome were recorded. Detailed history, clinical examination, relevant blood investigations (complete blood counts, serial platelet counts, liver function test, renal function test, coagulation profile) was done and recorded.

As per the revised WHO classification (2009), they were classified as dengue fever with or without warning signs and severe dengue and the pregnancy outcomes were expressed as percentages. The obstetric risk factors looked were oligohydramnios, premature rupture of membrane (PROM), preterm labour, ante partum hemorrhage and associated risk factors like preeclampsia and HELLP syndrome were studied. Other details like admission in intensive care, mode of delivery, post-partum hemorrhage (PPH), the need for blood transfusion and its details were also recorded. The perinatal outcomes which were looked include still birth, neonatal death and admission to neonatal intensive care unit.

Inclusion criteria

Patients of 20-40-year age with viable pregnancy confirmed with ultrasound. Having fever which is clinically recordable Dengue serology, NS1 antigen and/or IgG or IgM positive, by ELISA method. Patients willing to follow-up after delivery upto 6 weeks.

Exclusion criteria

Patients with non-viable pregnancy and fever with negative dengue serology.

The cases were followed up till their delivery to monitor the effect of dengue on the natural course of pregnancy in these patients. An account of the mode of delivery in these patients was made. The neonates born were evaluated by being subjected to dengue serology and platelet count laboratory investigations and were followed up till 6 weeks of life.

OBSERVATION & RESULTS

Table No. 1 Clinical Characteristics

Characteristics	Numbers (n=50)	Percentage %
Oligohydramnios	10	20
PROM	8	16
Previous cesarean	10	20
Preeclampsia	6	12
Dengue fever without warning signs	20	40
Dengue fever with warning signs	10	20
Severe Dengue	10	20

* PROM: Premature rupture of membrane

In our study patients presented with various clinical features. Oligohydramnios was seen in 20% patients, PROM present in 16 % patients.

20% patients were with h/o previous cesarean and 12% patients were present with features of preeclampsia, 40 % patients had dengue fever without warning signs and 20% patients presented with dengue fever with warning signs. Severe dengue was seen in 20% patients

Table No. 2 Serological reporting of dengue

Serological tests	Number of cases
Ns1 Antigen positive	50
IgM Antibody positive	10
Both Ns1 Antigen + IgM Antibody positive	12

Out of the 50 patients studied serological test reporting shows Ns1 Antigen were positive in all 50 patients, IgM Antibody were positive in 10 patients, and 12 patients were both Ns1 Antigen & IgM Antibody positive results.

Table No. 3 Symptoms On Reporting

SYMPTOMS	Number	percentage
Fever	50	100 %
Myalgia	25	50 %
Headache	30	60 %
Skin rashes	10	20 %
Patechia	6	12 %
Abdominal Pain	10	20 %
Breathlessness	16	32 %

In our study it was observed that patients were present with variable symptoms on admission. Fever was present in all 50 patients. Myalgia was seen in 50% patients, 60% patients had headache, and 20% patients had skin rashes of varied degrees. Patechia present in 12% and breathlessness was seen in 32% patients. 20% patients had complain of abdominal pain.

Table No. 4 Maternal Outcome Of Women With Dengue Infection

Characteristics	Number of cases (n=50)	Percentage %
Platelets < 100 × 10 ⁹ /L	30	60 %
ICU Care	12	24 %
Abnormal LFT	25	50 %
PPH	8	16 %
Platelet transfusion	15	30 %
Preeclampsia with severe features	8	16 %
Jaundice	5	10 %
Maternal Death	5	10 %
Secondary Infection	4	8 %
MODS	2	4 %
Massive blood transfusion	1	2 %
Encephalopathy	1	2 %

ICU: Intensive care unit; LFT: Liver function unit; MODS: Multi organ dysfunction syndrome.

Maternal outcome shows that in 60% patients platelet counts was <100×10⁹/L, need for platelet transfusion was occurred in 30% patients. Abnormal LFT and features of Jaundice was seen in 50% and 10% patients respectively. 16 % patients had PPH, 2% patients had Encephalopathy. 24% patients need ICU care. 16% patients had preeclampsia with severe features, secondary infection seen in 8% patients. 4% cases had MODS and 2% patients need massive blood transfusion. Maternal death were reported in 10% patients

Table No. 5 Severity Of Thrombocytopenia

Platelet count /cubic mm	Number	Percentage
<50,000	10	20 %
50,000 to 1 lac	25	50 %
1 to 1.5 lac	7	14 %
>1.5 lac	8	16 %

Our study shows thrombocytopenia in variable concentration. 20% patients had platelet count <50,000, 50% patients had platelet count between 50,000 to 1 lac and 14% patients had platelet count between 1 to 1.5 lac. 16 % patients had platelet count >1.5 lac

Table No. 6 Outcome Of Pregnancy

Mode of delivery	Number of patients	percentage
Term Vaginal delivery	15	30 %
Term Cesarean delivery	10	20 %
Preterm vaginal delivery	14	28 %
Preterm Cesarean delivery	11	22 %

In our study 30% patients had term vaginal delivery, 20% patients had term cesarean delivery. Preterm vaginal and cesarean delivery were seen in 28% and 22% patients respectively.

Table No. 7 Fetal Complications

Fetal complications	Number of patients	Percentage
Meconium stained liquor	25	50 %
Fetal distress	15	30 %

IUGR	10	20 %
NICU admission	25	50 %
Prematurity	25	50 %
Loss to follow up	4	8 %

Fatal complications that occurred in our study shows that MSL was present in 50% cases, fetal distress was seen in 30% cases. Prematurity and IUGR seen in 50% and 20% patients respectively. 50% newborn babies need NICU admission. 8% cases were lost to follow up.

DISCUSSION

During times of dengue outbreaks, any pregnant patient reporting with fever should be evaluated for dengue. A high index of suspicion should be maintained by the clinician with an aim to identify infection early, start supportive treatment and evaluate for complications. Inpatient care should be provided for feto-maternal monitoring, and to de-stress the anxious patient and her relatives, since any infection in pregnancy is a major cause of concern.[8]

In this study, 50 pregnant patients with dengue infection. All the patients had presented with fever ranging between 99- 103°F, whereas, 20 % had skin rash and 50% had myalgia (Table 3). Other common symptom on presentation included abdominal pain, headache and breathlessness. Severe thrombocytopenia were noted in 10 (25%) cases (Table 5). A total 12 cases of this study patients required ICU care. 20% of study patients had term caesarean sections and 30% had term vaginal delivery, while 28% had preterm delivery (Table 6). Though 50% of the neonates required NICU care (Table 7), it was observed that none of these neonates had significant thrombocytopenia and moreover, there was no vertical transmission of dengue in them.

CONCLUSION

Dengue in pregnancy needs early diagnosis and appropriate treatment. Dengue fever is associated with adverse maternal and fetal outcome despite appropriate measures. The present study has shown that adverse maternal outcome is more in women with severe forms of dengue especially close to term when intervention was required for obstetric indications. At community level general preventive measures like mosquito nets/repellents use, avoiding travel to endemic areas, awareness and education about dengue fever play a major role however, maintaining euvoolemia and antipyretic management are the two important principles of management of dengue fever.

A high clinical suspicion, low threshold of in-patient care, aggressive supportive therapy, close materno-fetal monitoring and timely obstetric care are essential to manage the infection and to ensure a favourable pregnancy outcome.

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