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DENGUE INFECTION AND ITS OUTCOME IN PREGNANCY

Gynaecology

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ABSTRACT

Background: Dengue is one of the most common mosquito born viral disease in India. This study was done to find out the manifestations and complications of dengue fever including feto-maternal outcome at a tertiary care center. **MATERIALS AND METHODS:** It is a retrospective analysis of pregnant women with dengue fever from January 2019 to October 2019 at Father Muller Medical College, Mangalore, INDIA. Clinical, laboratory findings, and maternal/fetal outcome were collected from patients with confirmed dengue infections in pregnancy. **RESULTS:** There were 9 pregnant patients with dengue fever during this period. Among them, two women (22%) presented in the first trimester of pregnancy, one was in the second and six subjects were in the third trimester. The gestational age at presentation was 10 weeks to 37 weeks. Among them, 5 were beyond 31 weeks of gestation. All were monitored daily for both fetal and maternal wellbeing. Eight out of nine pregnant women were managed conservatively in the form of hydration, antipyretic drugs and supportive care. One woman developed severe dengue, remaining 8 patients belonged to the category of dengue with presence of warning signs. **CONCLUSION:** Dengue fever in pregnancy can cause serious maternal and fetal morbidity and mortality. Though most of the cases can be managed conservatively, it requires early diagnosis and treatment. Pregnancies complicated with dengue infection require close monitoring for potential maternal and fetal complications.

KEYWORDS

Dengue fever, Dengue hemorrhagic fever, Thrombocytopenia, Postpartum hemorrhage

INTRODUCTION

Dengue is a mosquito born viral disease commonly seen in tropical and subtropical areas [1]. Based on the data of national vector born disease control programme, the number of dengue cases reported in 2017 were about 188401 with 325 deaths. Annually 50 million people get infected with dengue virus worldwide. It is caused by 4 closely related dengue virus serotypes (DENV-1, DENV-2, DENV-3 AND DENV-4) of the genus Flavivirus belonging to family Flaviviridae. These serotypes of the dengue virus are transmitted to humans through the bite of infected Aedes mosquitoes, principally Aedes aegypti [2]. The complications of dengue in pregnancy have been scarcely studied. Clinical presentation of dengue may be confused with HELLP syndrome, with both conditions manifesting with low platelet counts, elevated liver enzymes and hemolysis. However serology helps in differentiating between them. No serious harm has been noted in most of the cases of dengue fever in pregnancy. Treatment includes proper hydration, antipyretics and careful monitoring for bleeding manifestations and its management [3-5]. In this study one patient had PPH and required platelet and blood transfusion.

MATERIALS AND METHODS

It is a retrospective analysis of pregnant women with dengue fever from January 2019 to October 2019 at Father Muller Medical College, Mangalore, INDIA.

There were 9 pregnant patients with dengue fever during this period. Rapid NS-1 antigen detection test and serological test for detection of antibodies was used to confirm the diagnosis.

INCLUSION CRITERIA

1. All serologically positive pregnant women for dengue antigen were included in the study.

EXCLUSION CRITERIA

I. Patients with febrile illness of other cause [1].
II. Those with pre-existing medical disorders.
III. Those with hematological disorders were excluded from the study.

A complete history and clinical examination including obstetric examination was recorded. Clinical data, laboratory findings, foeto maternal outcomes were documented during their hospital stay.
Daily platelet count and hematocrit values were repeated to see response.

Grading of the severity of dengue infections was done according to 2009 WHO criteria, as follows:

1. Dengue without warning signs
2. Dengue with warning signs like vomiting, fever, pain abdomen, headache, hepatomegaly, low platelets, increasing hematocrit, mucosal bleeding, lethargy, fluid accumulation.

TABLE 1: AGE DISTRIBUTION

Age of the patient	No.of pregnant woman
<20	1
20-24	4
25-29	2
>30	2

TABLE 2: GESTATIONAL AGE

Gestational age at which dengue Occured	No of pregnant Women
<13	2
13-27	1
28-36	1
>36	5

3. Severe dengue with plasma leakage, bleeding with organ impairment [1].

ANALYSIS

Cases were studied based on fall in platelet count, rise in hematocrit, presence of hemorrhagic manifestations or fluid leak in the mother, need for ICU care, need for platelet transfusion, mode of delivery and foeto maternal outcome. Data was analyzed manually.

RESULTS

Nine patients were diagnosed with dengue infection during the study period. The clinical and laboratory findings are as shown below:

Table 3: Platelet Count And Transfusion Received

Mode of delivery	No. of Woman
No. of Patients recovered	2
Spontaneous abortion	1
Medical termination of Pregnancy	0
Pre term Normal delivery	0
Pre term Cesarean Section	0
Term Vaginal delivery	3
Cesarean Section	2

Table 4: Mode Of Delivery

Platelet count on Admission (Cell/mmm)	No of Pregnant Women	No of Patients Received transfusions	Platelet transfusions
<10000	0	0	-
10000-25000	1	1	4-5 UNITS
5000-50000	1	1	4-5 UNITS
50000-100000	7	0	-

Table 5: Complications

Complications	No. of cases
Dissiminated intravascular coagulation	0
Pregnancy induced hypertension	2
Dengue haemorrhagic fever	1
Dengue with malaria	1
Post operative respiratory stridor	0
Post partum haemorrhage	1

DISCUSSION:

This study was done in 9 pregnant women with dengue fever. Among them, two women (22%) presented in the first trimester of pregnancy, one was in the second and six subjects were in the third trimester. The gestational age at presentation was 10 weeks to 37 weeks. Among them, 5 were beyond 31 weeks of gestation.

All were monitored daily for both fetal and maternal wellbeing. Eight out of nine pregnant women were managed conservatively in the form of hydration, antipyretic drugs and supportive care. One woman developed severe dengue, remaining 8 patients belonged to the category of dengue with presence of warning signs. Thrombocytopenia and elevated hematocrit were seen in all subjects.

Platelet transfusion was needed for 2 patients with severe thrombocytopenia with bleeding manifestations. They presented with melena and bleeding from the IV site. They also presented with pregnancy induced hypertension.

One patient with severe thrombocytopenia (patient 2) had missed abortion and also had co infection with plasmodium vivax. One patient had severe dengue and developed complications in the form of dengue hemorrhagic fever. This patient was diagnosed with dengue infection (platelet count was 45000/cumm).Ultrasound pelvis done showed missed abortion. Patient underwent suction and evacuation under spinal anesthesia, followed by 1 unit packed cell transfusion and 3 units of platelet transfusion on same post-operative day. Patient improved symptomatically, antipyretics and antibiotics continued, strict 4th hourly temperature charting was done. Patient's general condition improved and hence was discharged on post-operative day [3].

Case number 9 was a multigravida, G3P2L2 at 39 weeks period of gestation who had come with complaints of pain abdomen and fever since 2 days, not associated with bleeding or leaking per vagina. She was referred in view of low platelet count. She was febrile with features of dehydration. Obstetric examination revealed the subject to be in early labor with breech presentation. Investigations showed a low platelet count (41000/cumm) and dengue positive status. She received hydration therapy and antipyretics. The patient underwent emergency caesarean section in view of breech presentation in labor. There was excessive bleeding intra operatively. The patient received 4 units' platelets and 1 unit of packed cells on the day of surgery. She had bleeding at the IV line site. She was in the ICU, and strict monitoring of vitals and temperature charting was done. The neonate needed ICU stay for few hours following which the baby was shifted out. Exclusive breast feeding was encouraged.

Patient was observed in ICU for 2 days for vitals and bleeding manifestations. She was conscious and oriented, so patient shifted out of ICU after 2 days.

Case number 6 was a primigravida at 38 weeks period of gestation who had come in active labor. She had history of fever since 1 day associated with chills. She had a normal vaginal delivery. Blood investigations showed dengue infection with thrombocytopenia (platelet count 70000/cumm). Following delivery, the patient had severe atonic post-partum hemorrhage which was medically managed initially. As the general condition of patient was deteriorating, a decision of surgical management was taken. Emergency laparotomy and stepwise revascularization of the uterus was done. As the vitals of the patient improved and the uterus was contracted, the surgery was completed and the patient was shifted to ICU. She received 5 units of platelet and 2 packed cell transfusion. As the patient's general condition improved, she was shifted out of ICU.

Fetal outcome was satisfactory in all but one patient who had missed abortion. There were no cases suggestive of vertical transmission causing anomalies or need for platelet transfusion in the neonate due to bleeding manifestations.

Low birth weight and preterm deliveries have been noted in various studies. The average birth weight in this study group was 2.67kg and 5 women delivered beyond 36 weeks of gestation.

This study concludes that mothers who had dengue fever in first half of pregnancy had average weight babies ,however if fever occurred beyond 34 weeks ,the birth weight was above average.

Dengue fever in pregnancy presents with symptoms like fever, myalgia, headache, and arthralgia. Fluid leak (elevated hematocrit, pleural effusion or ascites) and hemorrhagic manifestations are characteristic features of dengue hemorrhagic fever, however the physiological haemodilution of normal pregnancy can mask the haemoconcentration in dengue.

Limitations of this study are that the diagnosis was done by rapid strip test, which has a sensitivity and specificity of 90%. It is only positive during acute phase and becomes negative shortly after that, so the detection window in the clinical setup to confirm infection is relatively narrow.

ELISA method has a sensitivity of 95% and specificity of 100%. The gold standard test for dengue fever is reverse transcription polymerase chain reaction using type specific primers, which is highly sensitive and specific.

Ismail et al, [6] state a maternal mortality of 2.6%. Although morbidity like Dengue hemorrhagic fever, PIH, prolonged fever were noted in this study, there was no maternal death.

CONCLUSION

Dengue fever in pregnancy can cause serious maternal and fetal morbidity and mortality. Though most of the cases can be managed conservatively, it requires early diagnosis and treatment [7].

Pregnancies complicated with dengue infection require close monitoring for potential maternal and fetal complications. Cases with hemorrhagic complications may need blood and blood product transfusion.

Early diagnosis and prompt management is the key in preventing foeto maternal complications in dengue fever in pregnancy.

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