

## DENGUE IN PREGNANCY- ARE WE LOOKING AT IT CLOSELY

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### ARTICLE INFO

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### ABSTRACT

Dengue is an endemic tropical disease in India. The incidence has been increasing consistently in this last decade and is now a major public health problem. Dengue in pregnancy has not been extensively studied. The aim of the study was to investigate maternal and perinatal outcomes of dengue at one of the tertiary care centers in Southern India. A retrospective study was undertaken during the two successive outbreaks and case records of women from 2008-2010 with positive dengue Ig M were reviewed. Three cases were diagnosed as dengue fever with no signs of DSS and DHF and all three patients presented with febrile illness with rashes. All three were primigravida. The mean age of pregnant women was 31 years and their mean gestational age was 21 weeks. While one of the patients had complete abortion, the other two women completed their terms with full term normal vaginal deliveries. There were no premature births or congenital anomalies. There were no maternal deaths. All the three patients received fluid replacements with one receiving platelet transfusions. Dengue in pregnancy may not always result in poor maternal and perinatal outcomes. More such studies from this part of the world are needed to establish strong cause-effect relationships in pregnant women. Ongoing preventive measures against dengue in the endemic regions need a booster.

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### INTRODUCTION

Dengue has been a major public health problem of the tropical countries. Worldwide, it is estimated that about 2.5 million people live at-risk regions and nearly 50 million new dengue new cases occur annually in the world. The disease is now endemic in more than 100 tropical countries, and the number of cases has increased dramatically during the past three decades. The global epidemiology and the transmission of dengue virus have changed dramatically in South and South-east Asia in the recent years. South East Asia Region together with the western pacific bears nearly 75% of the current global burden. India too has been witnessing a huge rise in number of Dengue cases in the last decade with significant outbreaks and increasing mortality [1-3]. Our tertiary health center located in a developing city of thick population density and migration alone has documented a two-fold rise of laboratory confirmed dengue cases every year from the last three years and so are the staggering numbers across the country.

Dengue in pregnancy is not a common entity and the impact of dengue on pregnancy needs to be better understood in terms of perinatal mortality and morbidity. It is believed that dengue infection in pregnancy carries the risk of hemorrhage for the mother and preterm deliveries contributing to maternal morbidity and mortality. Also, the

vertical transmission of dengue virus is quoted which manifests as a full-blown illness in the infant similar to that seen in children and adult cases may be encountered [4-5]. The clinical manifestations can overlap with the other prevailing febrile illness in the tropics, or a HELLP syndrome of pregnancy. We communicate three pregnant cases of Dengue in the 2-year duration during two successive outbreaks with the assessment of the clinical pattern, impact and outcome of dengue virus on pregnancy both on the mother and the child.

### MATERIALS AND METHODS

Demographic data of laboratory confirmed dengue positive pregnant cases from 2008 to 2010 August were reviewed in our 250-bedded JCI approved tertiary care center. Obstetric details such as gestational age at the time of 1<sup>st</sup> day of illness, maternal presentation, laboratory parameters, ante-natal complications, pregnancy outcome, delivery type and the features of congenital infection of the fetus if any were noted in the followed up cases. Classical dengue fever (DF) was defined as an acute febrile illness with two or more other clinical manifestations involving headache, retro-orbital pain, myalgia, arthralgia, rash, hemorrhagic manifestation, or leukopenia, and was supported by serology or occurrence at same location and

time as other confirmed cases. Dengue hemorrhagic fever (DHF) was classified as fever, hemorrhagic tendencies, thrombocytopenia, and evidence of plasma leakage, as well as possible association with hepatomegaly and circulatory disturbances. Dengue shock syndrome was classified when DHF symptoms included rapid and weak pulse, narrow pulse pressure of less than 20 mmHg and hypotension [6] Serological Ig M estimation tests from paired sera were performed as per the manufacturer's instructions (Pan Bio Diagnostics). An abortion was defined as the expulsion of the fetus before 28 weeks of gestation, Preterm delivery as a delivery that occurred between 28 and 37 weeks of pregnancy, Low birth weight as the baby delivered weighing <2500 gm. Perinatal mortality as the number of deaths of newborns born after  $\geq 28$  weeks of gestation till the end of day 7. Maternal death was defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause.

## RESULTS

The patients hailed from different localities of the city; one had a recent travel to another endemic focus of the country. All three cases were diagnosed as dengue fever alone with no signs of DSS and DHF, all showed febrile illness with rashes. All three were primigravida and their mean age was 30.6 years. The mean gestational age was 21 weeks. The average duration of admission was 9 days. Case 2 had a complete abortion and there were no maternal deaths. Both the other two women completed their gestation till term. There were no premature births or congenital anomalies except the one documented in-utero fetal death. Baby born to patient 3 cried immediately after birth, had no immediate postnatal complication, admitted to NICU on third day of birth for hyperbilirubinemia. All the three patients received fluid replacements with platelet transfusions. However, rise in titre from the second serum samples were not demonstrated in two of them as samples were not collected.

**Table 1: Baseline socio-demographic and biochemical characteristics with outcome of the pregnant patients with dengue at admission**

Characters	Patient 1	Patient 2	Patient 3
Age(years)	29	31	29
Parity	Primigravida	Primigravida	primigravida
Duration of illness	8 days	1 day	9 days
DF/DHF/DSS	DF	DF	DF
Weight,kg	61 kg	54 kg	56 kg
Gestational age, weeks	26	20	17
Temperature, F	99.7	103.7	102.4
Haemoglobin,gm/dl	9.6	12.5	10.6
Blood glucose, fasting, mg/dl	90	106	98
Serum creatinine, mg/dl	0.67	0.75	0.68
Serial Platelets, cells/ul	2,23,000	19,600, 69,000	1,12,000, 73,000,23,000,30,000
White blood cells, cells/ul	6000	3,400	9,600
PCV	27	37	34
Total protein, g/dl	7.2	6.8	6.3
Serum bilirubin, mg/dl	0.32	0.56	0.49
Alanine transferase IU/l	18	31	24
Aspartate transferase IU/l	25	24	22
Alkaline phosphatase IU/l	101	58	50
Maternal outcome	recovered	recovered	recovered
Fetal outcome	Continued pregnancy	Complete abortion	Continued pregnancy
Duration of hospital stay, days	5	5	10
Type of delivery	Normal vaginal	-	Cesarean
Preterm delivery	no	-	no
Birth weight	2.5 kg	-	3.24 kg
NICU admission	no	-	yes
Perinatal mortality	no	-	no

## DISCUSSION

Though, the number of dengue cases has evidently seen an upward trend from the past three years in the world, the reporting of cases of pregnant women with dengue has been few. The National Integrated Disease Surveillance Program (IDSP) started in 2004 to strengthen the disease surveillance in the country including dengue does not exclusively constitute the pregnant dengue cases. Available data from Perret et al [7] quotes the proportion of pregnant women having acquired dengue infection is significantly low (0.8%) though the sero-positivity was 94.7% in a highly endemic area. There has been good evidence about the complication of dengue in pregnancy such as prematurity, fetal death and risk of hemorrhage as put forward by Carles et al, Ismail et al [8, 9]. However, we did not encounter in all the women with early gestational ages. The cause of death of foetus in case 2 was doubtfully attributed to the vertical transmission and was not confirmed by placental examination or virus isolation. Majority of the hospitals in India do not step up for pathological examination of unexplained fetal loss and the causes thus remain unidentified. Our patient did not however have any

chromosomal or autoimmune pathophysiology, which was previously ruled out. Though running low platelet counts, Patient 2 and 3 did not show any signs of bleeding and received platelet transfusions. Patient 3 came with the history of travel to another endemic area. As a precaution, pregnant women should safely avoid travelling to endemic areas, more so in small outbreaks like-situations when cases steeply rise. The maternal recovery in all three was rapid with prompt treatment and reassurance. The typical clinical presentation, treatment and outcome were noted to be same as in any non-pregnant women as reported by the Sirinaivin et al [10]. The three cases discussed here is only the tip of the iceberg and is not being reported as much as it should be across the country.

## CONCLUSION

Our limited numbers show dengue in pregnancy may not always result in poor maternal and perinatal outcomes. The presentation and line of management may not vary from non-pregnant status and stands the same. Knowledge about the potential rise in number of infected pregnant

cases in endemic areas and highly endemic areas in the coming years with the recognition of typical signs and symptoms and the management of the same becomes important. Reporting of more cases from different parts of the world is needed to establish strong cause-effect relationships in pregnant women. The ongoing national programs for Dengue may extend its surveillance to the pregnant cases also.

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