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Original Research Article

Fever in pregnancy and its maternal and fetal outcome at tertiary care level

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ABSTRACT

Background: The fever during pregnancy is the ominous sign. Early detection and prompt management of fever prevents maternal mortality and morbidity. Any maternal hyperthermia (>38.9°C) potentially affect the fetus. Hence study was conducted to know the outcome of fever in pregnancy.

Methods: To study the outcome of pregnant women admitted with fever in obstetrics ward at MGMGH, Trichy over the period of 6 months from July 2017 to December 2017.

Results: The incidence of fever was 6%. In this study the most common cause was viral fever among which dengue fever was most common. Hence outcome depends on its impact on pregnant mother and fetus. Many preterm labour (24%) were noted in this study which needs NICU admission of babies. Maternal mortality was 25%, most of it were associated with DIC, IUD and one or two combined risk factors.

Conclusions: The incidence of fever was 6%. In this study the most common cause was viral fever among which dengue fever was most common. Hence outcome depends on its impact on pregnant mother and fetus. Many preterm labour (24%) were noted in this study which needs NICU admission of babies. Maternal mortality was 25%, most of it were associated with DIC, IUD and one or two combined risk factors.

Keywords: Fever, Preterm labour, Temperature

INTRODUCTION

The incidence of fever varies with time period. During six month of our study there was dengue outbreak in trichy. Hence this time period was selected to know the overall outcome of the fever in pregnancy.

The fever during pregnancy is the ominous sign. Early detection and prompt management of fever prevents maternal mortality and morbidity. Any maternal hyperthermia (>38.9°C) potentially affect the fetus.¹

Consequences of fever depends on the extent and duration of temperature elevation, timing of the exposure in pregnancy, and possibly on maternal nutritional status,

comorbidities, medications, genetic background, and several other factors. The exposure of maternal temperature has been reported to lead to cell disruptions, vascular disruption and placental infarction, which affect the risk of structural and functional defect in the offspring.²

An episode of fever is of common occurrence in pregnancy.

A surveillance of the effect and to study the incidence of fever in pregnancy during study period, to know the etiology of fever in pregnancy, to know the etiology of fever in pregnancy.

METHODS

This study was conducted at MGMGH Trichy for the duration of six months from July 2017 to December 2017. It is referral hospital covering large population in Trichy and also get referral cases from pudukottai, perambalur and karur. During this study dengue outbreak was there hence many cases presented with thrombocytopenia misleading in diagnosis of preeclampsia cases. For all admitted fever cases careful and detailed history taking, careful clinical examination, complete blood count including the platelet count, urine routine, USG abdomen and pelvis, widal, dengue serology, peripheral smear, blood culture and urine culture were done.^{3,4} The causes of fever was identified. The maternal and fetal outcome was noted.

Management

The bacterial infection was treated with i.v antibiotics and changed according to blood culture report. If patient presented with thrombocytopenia or dengue serology positive treated with i.v fluids to maintain hydration. Serial CBC monitoring till thrombocytopenia recovers.⁵ The patients were discharged only after getting the physician fitness. Mosquitoes nets were provided to the patients. Separate fever ward was opened inside the labour room for continues vitals monitoring of patient. Many thrombocytopenia cases were admitted during outbreak period. Concerned area were alerted for mosquitoes controlled by proper fogging. Paediatricians were alerted if preterm delivery was conducted.^{6,7} Anaesthetist were called for ICU care. Thus, team management help in treating the fever cases.⁸ The critically ill patient were monitored in ICU. The cause of fever was identified and treat accordingly. Associated pregnancy related conditions like GHT, GDM, PROM was identified treated carefully.

RESULTS

The total number of fever cases admitted during six months period was 357 cases. Out of 357 fever cases peak admission was noted during October month (134 fever admissions).

Table 1: Total number of fever cases admitted in the labour ward for six month duration.

Month	Total no. of cases
July	11
August	15
September	49
October	134
November	83
December	65
Total	357

Out of 357 fever cases total number of antenatal cases were 245, postnatal cases (102) including the fever in

postnatal mother with fever who delivered in MGMGH and also referred from outside PHC. Among 357 antenatal cases 115 were delivered on admission.

Table 2: Distribution of fever cases in antenatal and postnatal mother.

Distribution	Total no of cases
Antenatal mother	245
Postnatal mother	102
Number of antenatal fever cases who delivered	115

Table 3: Distribution of fever cases according to the cause.

Causes	Number of cases
Upper respiratory infection	44
Lower respiratory infection	51
Typhoid	11
Malaria	5
Dengue	49
Viral fever	81
Scrub typhus	2
Urinary tract infection	41
Postoperative fever	42
Hepatitis	3
Wound infection	6
Unknown pyrexia	8
Chicken pox	11
Tuberculosis	3

The fever cases were distributed according to the causes for fever. Among which Dengue serology positive cases (it includes both NS1 positive and IgM positive) were 49, the viral fever of unknown causes including the fever with thrombocytopenia cases were 81 (dengue serology negative mimics dengue fever). Two scrub typhus cases with eschar were noticed during study period. Due to chicken pox admitted cases were 11. The postoperative fever cases that were shifted to labour ward was 42 cases.

Table 4: Distribution of antenatal cases according to gestational age.

Gestational age	Numbers
Less than 32 weeks	81
32 to 36 weeks	82
37 to 40 weeks	71
>40 weeks	11
Total	245

Among 245 antenatal fever cases 11 were admitted as prolonged pregnancy, 71 were between 37 to 40 weeks, 82 were between 32 to 36 weeks and remaining were less than 32 weeks gestational age.

Among 245 antenatal cases, PROM (11), anaemia (41), GHT (19), polyhydramnios (5), jaundice cases were

associated with complication like preterm labour (28), (6), IUD (14) GDM (7), oligohydramnios (19), abruption (4). Fever associated with preterm labour, anaemia and IUD has greater impact on fetal and maternal outcome.

Table 5: Outcome of antenatal cases.

Complications	Numbers
Preterm Labour	28
Oligohydramnios	19
Hyperemesis gravidarum	17
False labour pain	30
GHT	19
Abruption	4
Polyhydramnios	5
Fetal distress	21
Anaemia	41
PROM	11
Jaundice	6
GDM	7
Seizure disorder	4
IUD	14
No comorbidities	19
Total	245

Table 6: Mode of delivery in 115 antenatal cases.

Mode of delivery	Numbers
FTNVD	35
Preterm normal delivery	28
LSCS	31
Ectopic	2
Abortion	16
Outlet forceps	3
Total	115

Among 115 antenatal cases delivered 35 were full term normal vaginal delivery (30%), 28 preterm labour (24%), LSCS-31 cases (26%), two ruptured ectopic pregnancy, 16 cases in early gestation aborted (13%) and three outlet forceps delivery. Out of which 48 babies were admitted in NICU. Among 14 IUD cases, 10 were referred from outside.

Table 7: Fetal outcome in delivered cases: (exclude ectopic and abortion).

Fetal outcome	No.
Healthy baby with mother	34
IUD	14
NICU admission	
Meconium stained	11
IUGR	9
LBW	28
Total	96

Among 115 antenatal cases delivered 35 were full term normal vaginal delivery (30%), 28 preterm labour (24%), LSCS-31 cases (26%), two ruptured ectopic

pregnancy, 16 cases in early gestation aborted (13%) and three outlet forceps delivery. Out of which 48 babies were admitted in NICU. Among 14 IUD cases, 10 were referred from outside.

Table 8: Maternal outcome in fever cases.

Maternal outcome	Numbers
Antenatal mother discharged	237
Absconded	9
Postnatal mother discharged	100
Against medical advice	4
Maternal mortality	7
Total	357

In total 357 fever cases, 237 antenatal cases, 100 postnatal cases were discharged, 9 cases absconded and 4 cases were discharged against medical advice. The maternal mortality among fever cases was 7. Viral haemorrhagic fever associated with thrombocytopenia with DIC contribute to the leading factor for maternal mortality. Among seven maternal mortality cases five cases was IUD added contributing factor for fever, thrombocytopenia and DIC. All seven cases were referred from PHC. Thus early referral, prompt critical care and adequate fluid management prevent in maternal mortality.

DISCUSSION

In our six month study, total number of deliveries were 5168. The total number of fever cases admitted during six months period was 357 cases. Thus, the incidence of fever in our study was 6%. Among which dengue serology positive cases were 49, the viral fever of unknown causes including the fever with thrombocytopenia cases were 81.

Dengue fever is a mosquito borne virus infection. It is endemic world wide in tropic and subtropic countries. It is caused by a flavivirus spread by the vector mosquito *Aedes aegypti*. The maternal risks in dengue was deranged liver functions with thrombocytopenia mimics HELLP syndrome. It is associated with high maternal mortality unless treated promptly and aggressively. There is no teratogenic effect on fetus. But in term period intrauterine death of fetus, still birth can occur. Evidence of vertical mother to fetal transmission present it results in thrombocytopenia, fever and hepatomegaly in the newborn babies. The diagnosis is made on investigations to rule out clinical pictures are leukopenia, haeoconcentration, thrombocytopenia, elevated liver enzymes, ELIZA TEST, IgM ELISA, NS1 positive.⁹ The regular CBC monitoring and look warning signs like abdominal pain, sever head ache, vomiting. The main pathogenesis was capillary leakage. The adequate fluid management is essential and main mode of treatment.¹⁰

Two scrub typhus cases with eschar were noticed during study period. Due to chicken pox admitted cases were 11.

The postoperative fever cases that were shifted to labour ward was 42 cases. The scrub typhus fever was caused by Scrub typhus. It is a form of intracellular parasite *Orientia tsutsugamushi*, a Gram-negative α -proteobacterium of family Rickettsiaceae.¹¹

Signs and symptoms include fever, headache, muscle pain, cough, and gastrointestinal symptoms. The most virulent strains of *O. Tsutsugamushi* can cause hemorrhage and intravascular coagulation. Morbilliform rash, eschar, splenomegaly, and lymphadenopathies are typical signs. Leukopenia and abnormal liver function tests are commonly seen in the early phase of the illness. Pneumonitis, encephalitis, and myocarditis occur in the late phase of illness. Without treatment, the disease is often fatal. Since the use of antibiotics, case fatalities have decreased from 4-40% to less than 2%.

The drug of choice was doxycycline or tetracycline. But in pregnant women with scrub typhus azithromycin is alternative drug of choice.^{12,13} The other cause of fever like upper respiratory infection, chicken pox, malaria, typhoid also contribute to cause of fever in our study.

Among 245 antenatal cases, PROM (11), anaemia (41), GHT (19), polyhydramnios (5), jaundice cases were associated with complication like preterm labour (28), (6), IUD (14) GDM (7), oligohydramnios (19), abruption (4). Fever associated with preterm labour, anaemia and IUD has greater impact on fetal and maternal outcome. Already most of the fever cases with altered coagulation failure added high risk factor like anaemia, IUD. The incidence of preterm labour around 24% it contributes to increase in NICU admission. Thus, it increase the risk of neonatal mortality and morbidity. Carles G et al found that the rate of fetal death associated with dengue fever was 13.6%. In our study it contributes to 12% (IUD).

The maternal mortality in our study was 25% which was very high. Among seven maternal mortality cases five cases was IUD added contributing factor with fever, thrombocytopenia and DIC. All seven cases were referred from PHC. Thus, early referral, prompt critical care and adequate fluid management prevent in maternal mortality.

CONCLUSION

The most common cause of fever is viral fever among which dengue haemorrhagic fever was the most common cause. The peak period of fever was October month. The incidence of fever in present study for six months period is 6%. The maternal mortality associated with fever was high (25%) during fever outbreak. Thus, preventive measures and early referral from primary health centre help in preventing maternal mortality and neonatal

mortality. In dengue fever outbreak, adequate fluid management is essential where as in case of bacterial infection proper antibiotic coverage was important.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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