

## A PROSPECTIVE STUDY OF MATERNAL PYREXIA AT TERM PREGNANCY IT'S EVALUTION, EFFECTS ON MATERNAL AND PERINATAL OUTCOME

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### Abstract

**Background:** This study was conducted to evaluate aetiology, type of treatment, effect on pregnancy, maternal and fetal outcome. **Materials and Methods:** It is a prospective Hospital based study conducted in the department of Obstetrics and Gynaecology, Guntur. In 100 fever complicating term pregnancy cases, over a period of 24 months from January 2020 to December 2021. All primi and multi gravidae were included in the study. **Results:** In the present study the etiology of fever was varied in whom 20% had covid pneumonia, 18% had Urinary tract infections, 16% had Pyrexia of unknown origin, 16% had acute GE, maternal complications due to fever, 30% had anemia, 20% had consolidation lungs, 12% had hypoglycemia, 8% had pleural effusion, 16% had low birth weight babies were noted. **Conclusion:** In the present study on fever during pregnancy and its maternal and fetal outcome, fever was associated with a definite impact on maternal and fetal outcome, Hypoglycemia, LBW babies, Apgar <7 were the most common fetal complications. Different causes of fever also had different impact on maternal and fetal outcome.

## INTRODUCTION

Utero-placental circulation and heat-exchange at the amniotic fluid interface normally keep the temperature of the foetus stable during its intrauterine life in normal circumstances. Almost any source of maternal fever that causes a significant increase in core temperature (above 38.9°C/102°F) has the potential to be harmful to the foetus.

The extent and duration of temperature elevation during pregnancy, as well as the timing of the exposure during pregnancy, as well as the nutritional status or immunological status of the mother, comorbidities, medications, and a variety of other factors, determine the consequences of fever during pregnancy.

Increased brain temperature leads to increased oxygen consumption, as well as a lower threshold for hypoxia-induced brain injury. In term neonates, hypoxia-induced brain injury is exacerbated by hyperthermia.<sup>[1,2]</sup>

Because of maternal pyrexia, various inflammatory mediators as evidenced by umbilical cord cytokines is documented in the absence of neonatal sepsis.<sup>[3]</sup> The underlying maternal cytokine polymorphism is strongly associated with both intra partum fever & cerebral palsy at term.<sup>[4,5]</sup>

## Aims and Objectives of the Study

This study was conducted to evaluate etiology, type of treatment, effect on pregnancy, maternal and fetal outcome at term gestation of pregnancy were admitted with fever in OBG department.

## MATERIALS AND METHODS

This is prospective study conducted in Department of Obstetrics and Gynaecology at Government General Hospital, Guntur, between January 2020 to December 2021, in term fever cases.

### The patient is evaluated for following parameters

1. Etiology of fever.
2. Type of treatment patient received.
3. Effect of fever on pregnancy.

### Outcome of pregnancy

All patients of term gestational age admitted to antenatal ward, medical ward in GGH Guntur, were Included in the study. The study was approved by the Institute Ethics Committee. Patients was followed till delivery and discharge followed by postnatal visits with all babies referred to pediatrician.

All pregnant women based on the selection criteria within the study period are willing to participate were included in the study

### Selection Criteria

#### Inclusion Criteria

1. All primigravida and multigravida term pregnancy (>37 weeks)
2. Pregnancy with live fetus
3. Serologically negative for HIV and related illness

#### Exclusion Criteria

1. Gestational age of <37 weeks
2. Known case of auto immune disorders

3. Patient with any malignancies

4. Patient with dead fetus / anomalous baby

#### Statistical Analysis

Data Entry was done using Microsoft excel 2013 and analysis done using SPSS V 16. Qualitative data was expressed in frequencies and percentages and Quantitative data in mean and standard deviation. p value of <0.05 was considered statistically significant.

## RESULTS

**Table 1: Distribution based on age**

Age	Frequency	Percentage
18 – 22	26	26%
23 – 27	44	44%
28 – 32	22	22%
33 – 36	8	8%
Total	100	100%

In the present study, majority 44% were aged between 23-27years,8% were aged 33-36 years.

**Table 2: Distribution based on parity**

Parity	Frequency	Percentage
Primi	56	56%
Multi	44	44%
Total	100	100%

In the present study, 56% of the participants were primigravida and 44% of the participants were multiparous.

**Table 3: Distribution based on Socioeconomic status**

	Frequency	Percentage
Upper	2	2%
Upper lower	5	5%
Middle	43	43%
Lower middle	24	24%
Lower	26	26%
Total	100	100%

In the present study, 2% were in upper SES, 5% were in upper lower class, 43% belonged to middle class.

**Table 4: Distribution based on Haemoglobin levels**

	Frequency	Percentage
<7	2	2%
7 – 9	28	28%
9 – 12	43	43%
>12	23	23%
Total	100	100%

In 2% of the participants Hb level was <7,43% had Hb 9-12.

**Table 5: Mode of delivery**

	Frequency	Percentage
NVD	63	63%
LSCS	37	37%
Total	100	100%

In the present study, 63% had NVD, 37% had LSCS.

**Table 6: Gestational age at delivery**

	Frequency	Percentage
37 – 40	84	84%
>40	16	16%
Total	100	100%

In 84% of the subjects gestational age at delivery was 37-40 weeks, 16% were having gestational age >40 weeks.

**Table 7: Etiology of fever**

	Frequency	Percentage
Dengue	6	6%
Acute gastro enteritis	16	16%
Malaria	6	6%
Chorioamnionitis	12	12%
Acute pyelonephritis	2	2%
Urinary tract infection	18	18%
Pyrexia of unknown origin	16	16%
Typhoid fever	4	4%
COVID Pneumonia	20	20%
Total	100%	100%

In the present study the aetiology of fever was varied, in whom 6% had dengue, 16% had AGE, 6% had malaria, 12% had chorioamnionitis, 2% had acute pyelonephritis, 18% had UTI, 16% had PUO, 4% had typhoid, 20% had COVID pneumonia.

**Table 8: Maternal complications due to fever**

	Fever	Percentage
Atonic PPH	5	5%
Diarrhoea	5	5%
Consolidation of Lungs	20	20%
Hypoglycaemia	12	12%
Pleural effusion	8	8%
Puerperal sepsis	2	2%
Thrombocytopenia	6	6%
Severe Anemia	30	30%
Oligohydramnios	7	7%

In the present study, 5% had atonic PPH, 5% had diarrhoea, 20% had consolidation of lungs, 12% had hypoglycaemia, 8% had pleural effusion, 2% puerperal sepsis, 6% had thrombocytopenia, 30% had severe anaemia, 7% had oligohydramnios.

**Table 9: Effect of fever and perinatal outcome**

	Frequency	Percentage
Low birth weight	16	16%
IUGR	8	8%
Neonatal sepsis	3	3%
APGAR <7	12	12%
Hypoglycaemia	32	32%

In the present study, 16% were born LBW, 8% had IUGR, 3% had neonatal sepsis, 12% had an apgar score <7, 32% had hypoglycaemia.

## DISCUSSION

### Age

In the present study, majority were aged between 23-27 years, (44%), 8% were aged 33-36 years.

Present study	70% in 18 – 27 years age group
Santosh D et Al, <sup>[6]</sup>	62.24% (122/196) were between 20-25 years,
RekhaRao et Al, <sup>[7]</sup>	Majority of the patients were within the age of 20-30 years

### Parity

In the present study, 56% of the participants were primigravida and 44% of the participants were multiparous.

Present study	56% of the participants were primigravida and 44% of the participants were multiparous
Poovathiet Al, <sup>[8]</sup>	Incidence of fever more in Multi gravida
Rekha Rao et Al, <sup>[7]</sup>	57% Primi and 43% were Multi

Rekha Rao et Al,<sup>[7]</sup> reported that The incidence of fever was high in third trimester (60), followed by second trimester (28), then first trimester. Poovathi et Al,<sup>[8]</sup> reported incidence of more in multigravida.

### Socio economic status

In the present study, 2% were in upper SES, 5% were in upper lower class, 43% belonged to middle class, 24% belonged to lower middle class and 26% belonged to low class.

Similar findings were reported by Santosh D et Al,<sup>[6]</sup> where 65.31% (128/196) belonged to the lower strata, 27.04% (53/196) belonged to the middle strata and 7.65% (15/196) belonged to the upper strata

### Mode of Delivery

In the present study, 63% had NVD, 37% had LSCS. Poovathi et Al,<sup>[8]</sup> reported that 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.

### Etiology of fever

In the present study the aetiology of fever was varied, in whom 6% had dengue, 16% had Acute gastro enteritis (AGE), 6% had malaria, 12% had chorioamnionitis, 2% had acute pyelonephritis, 18% had UTI, 16% had PUO, 4% had typhoid, 20% had COVID pneumonia.

### Incidence of dengue

Present study	6%
Vibha More et Al, <sup>[9]</sup>	5%
Santosh D et Al, <sup>[6]</sup>	5.6%
Rekha Rao et Al, <sup>[7]</sup>	8%

### Incidence of malaria

Present study	12%
Vibha More et Al, <sup>[9]</sup>	15%
Santosh D et Al, <sup>[6]</sup>	9.18%

### LRTI/COVID Pneumonia

Present study	20%
Poovathiet Al, <sup>[8]</sup>	20.8%
Santosh D et Al, <sup>[6]</sup>	11.2%

### Urinary tract infection

Present study	18%
Vibha More et Al, <sup>[9]</sup>	14%
Poovathi et Al, <sup>[8]</sup>	16.7%

### Maternal complications

In the present study, 5% had atonic PPH, 5% had diarrhoea, 20% had consolidation of lungs, 12% had hypoglycaemia, 8% had pleural effusion, 2% puerperal sepsis, 6% had thrombocytopenia, 30% had severe anaemia, 7% had oligohydramnios. Santosh D et al,<sup>[6]</sup> study reported following pregnancy outcomes in their study, still birth (10.71%), anomalous baby (0.51%, Neural Tube Defect), IUD (11.73%), Preterm Birth (40.48%) and IUGR (12.24%).

Desai M et al,<sup>[10]</sup> discovered maternal anaemia in 38% of cases, low birth weight in 43%, and perinatal mortality in 27% of cases.

abortion, 9% had neonatal death, 6% were preterm, and 59.75 percent were multigravida.<sup>[11]</sup>

### Neonatal complications

In the present study, 16% were born LBW, 8% had IUGR, 3% had neonatal sepsis, 12% had an APGAR score <7, 32% had hypoglycaemia. Santosh D et al,<sup>[6]</sup> study reported the following fetal outcomes in their study which include foetal birth weight was normal in 29.76% cases, low in 60.12% cases, very low in 7.14% cases and extremely low in 2.98% cases. According to Vibha More et al,<sup>[9]</sup> the "relative risk of NICU admission was 1.6-fold higher in the study group (p = 0.034)." In the Study group the most common cause of NICU admission was MSAF (15%), followed by preterm status (10%), birth asphyxia (3%), and PROM (3%). (2 percent). (n = 1)."

In paediatric literature, maternal fevers of between 38.0°C and 38.9°C have been associated with a

higher risk for 5-minute Apgar scores of <7, hypotonicity, assisted ventilation, and early-onset seizures when compared with the risk among a nonfebrile population,<sup>[12,13]</sup> with neonatal complications like, Hypoglycaemia, sepsis, APGAR <7. Abdalla et al,<sup>[14]</sup> reported that High temp was associated with increased risk of NICU admission (48.1% vs 50.4%, p=0.02). Further neonatal outcomes are in the Table. When controlling for African American race, preterm birth, and delivery route, patients with high temp were not more likely to have adverse neonatal outcomes (aOR 1.28, 95% CI 0.84, 1.98).

## CONCLUSION

In the present study on fever during pregnancy is associated with a definite impact on maternal and fetal outcomes. Antibiotic prophylaxis reduces the incidence of postpartum uterine infection and wound infection in all women following caesarean delivery, whether elective or emergency.

Hypo glycaemia Low birth weight and Apgar <7 were the most common fetal complications. Duration of fever was linearly associated with poor outcomes. Different causes of fever also had different impact on maternal and fetal outcome. Hence standard methods or infection in homes, communities and health care settings should be emphasized.

## REFERENCES

1. Chaiworapongsa T, Romero R, Kim JC, Kim YM, Blackwell SC, Yoon BH, Gomez R. Evidence for fetal involvement in the pathologic process of clinical chorioamnionitis. *American journal of obstetrics and gynecology*. 2002 Jun 1;186(6):1178-82.
2. Simhan HN, Krohn MA et al. Tumour Necrosis Factor – L promoter gene polymorphism -308 & Chorioamnionitis. *Obstet. Gynecol*. 2013; 102 (1): 162 - 166
3. Graham JM Jr, Edwards MJ. Teratogen update: gestational effects of hyperthermia due to febrile illnesses and resultant patterns of defects in humans. *Teratology* 1998; 58: 209-21.
4. Wallur DW, Wood C et al. Temperature relationship of the mother and fetus during labour. *Am J obstet. & Gynecol*. 1999;107(1):83-87.
5. Goetzl L, Evans T et al. Elevated maternal and fetal serum interleukin -6 levels are associated with epidural fever. *An J obstet. Gynecol*. 2012;187(4):834-838.
6. Santosh D Kachare, Ashwinkumar Sontakke, Sangeeta Ramteke. Effect of maternal fever on fetal outcome. *Gynaecology*. November 2019; 12(2): 22-25.
7. Rekha Rao PMR, Sahaja S. Fever in Pregnancy and Its Maternal and Fetal Outcome. *Int J Health Clin Res*. 2021 Mar 14;4(5):190-5.
8. Poovathi M, Prasanna N. Fever in pregnancy and its maternal and fetal outcome at tertiary care level. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2018 May 1;7(5):1864-8.
9. Vibha More VS. Fever in pregnancy and its maternal and fetal outcomes. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*. 2017 Dec 1;6(12):5523-8.
10. Desai Kline J, Stein Z, Susser M, Warburton D. Fever during pregnancy and spontaneous abortion. *Am J Epidemiol*. 1985;121(6):832-42.
11. Saba N, Sultana A, Mahsud I. Outcome and complication of malaria in pregnancy. *Gomal J Med Sci*. 2008;6(2):98-101.

12. Lieberman E, Lang J, Richardson DK, Frigoletto FD, Heffner LJ, Cohen A. Intrapartum maternal fever and neonatal outcome. *Pediatrics*. 2000 Jan 1;105(1):8-13.
13. Higgins RD, Saade G, Polin RA, Grobman WA, Buhimschi IA, Watterberg K, Silver RM, Raju TN. Evaluation and management of women and newborns with a maternal diagnosis of chorioamnionitis: summary of a workshop. *Obstetrics and gynecology*. 2016 Mar;127(3):426.
14. Abdalla A, Varvoutis M, Dotters-Katz S. Does the degree of maternal fever in the setting of chorioamnionitis impact the risk of neonatal morbidity?. *American Journal of Obstetrics & Gynecology*. 2019 Dec 1;221(6):676.