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## Original Research Article

# Feto maternal outcome in pregnancy with fever

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## ABSTRACT

**Background:** Infection in pregnancy is a common clinical problem worldwide. The risk to the mother and the fetus is significantly increased in pregnancy complicated by fever. Effect of fever depends on the extent and duration of temperature elevation, socioeconomic status and nutritional status of mother, pre-existing co-morbidity, timing of exposure in pregnancy and several other factors. So, here we have carried out study on symptomatic antenatal patients to determine the fetomaternal outcome of various infections during pregnancy.

**Methods:** This prospective observational study is done to determine fetomaternal outcome of 80 antenatal patients admitted during antepartum period with fever with infectious etiology at the department of obstetrics and gynecology, At SMT. SCL hospital, between 1<sup>st</sup> April 2023 to 30<sup>th</sup> September 2023, who were either delivered or aborted.

**Results:** Out of 80 cases of fever in pregnancy, most common cause of fever was urinary tract infection (UTI) (31.3%) followed by upper respiratory infection (25%). fever was associated with antenatal complication such as abortion (13.8%), preterm delivery (23.7%), PROM, PPRM and etc. fetal outcome were preterm birth (23.7%), low birth weight (40%), neonatal mortality (2.5%).

**Conclusions:** Infection during pregnancy is a commonly encountered feature that results in an extensive array of both maternal and fetal complications. The most common cause of fever was UTI. So, all women coming for first antenatal check-up should be investigated for the presence of asymptomatic genitourinary infection. early diagnosis and treatment of them adequately with the antimicrobials decreasing the associated neonatal and maternal morbidities.

**Keywords:** Fever, Preterm, UTI

## INTRODUCTION

In world, fever in pregnancy common clinical problem. Pregnancy complicated by infection and fever have so many risks to mother and fetus. Some infections can be transmitted through the uterus and have many consequences to fetus.

In pregnancy maternal immune function is decreased. So, there are problems in treating infection and fever in pregnancy.

Maternal infections and associated fever are common during pregnancy. In fact, 1 in 5 women report having

experience of fever on at least one occasion while being pregnant.<sup>1-3</sup> Most common presentation of infection is fever. It can affect in any trimester. In fever there is a leukocytosis and hyperthermia which cause cell death, membrane disruption, vascular disruption, and placental infarction etc., this all cause fetal damage. Serious infectious illness in the mother can have non- specific fetal or obstetric effects and lead to miscarriage, premature rupture of membrane (PROM), PPRM, preterm labour or fetal death.<sup>4,5</sup>

Various infections during pregnancy and its course and outcome should be studied in detail. This knowledge will improve management and outcomes. In countries like

India which have an immense burden of infectious diseases this is particularly important. To fill the gaps between the knowledge of the causative agents of infections and febrile illness in pregnancy and its impact on fetomaternal outcome is the need of today. So, we have carried out study on symptomatic antenatal patients with various infections during pregnancy to determine the fetomaternal outcome.

## METHODS

This prospective observational study is done to determine fetomaternal outcome of 80 antenatal patients admitted during antepartum period with fever with infectious etiology at the department of obstetrics and gynecology, of our tertiary care teaching institute SMT. SCL hospital Ahmedabad, between 1<sup>st</sup> April 2023 to 30<sup>th</sup> September 2023, who were either delivered or aborted.

### Inclusion criteria

All antepartum patients admitted with febrile illness with Single intrauterine pregnancy with intact fetal membrane with various infectious etiologies, who could be followed up till the end of pregnancy and delivered or aborted, were included in the study.

### Exclusion criteria

All antepartum patients admitted with febrile illness with twin pregnancy, who lost to follow up till the end of delivery were excluded.

All antepartum patients with fever admitted in ANC ward. Detailed history and clinical examination were performed. Patients were investigated and treated according to diagnosis and then discharged when afebrile for 72 hours with advice on regular ANC follow up. Patients were followed till delivery and fetomaternal outcome were studied.

## RESULTS

Total 80 antenatal symptomatic patients during pregnancy were analyzed in present study.

In present study majority of patients were primigravida and between age group of 20 to 30 years of age as this correspond to peak of reproductive age group. Majority of woman with fever belonging from lower socioeconomic class (85%) in present study as our hospital is located in urban-rural slum area (Table 1).

The present study shows that most common cause of fever with pregnancy was UTI which is followed by upper respiratory tract infection in which patient present with burning micturition, cough and cold associated with fever. There is significant no. of cases of fever because of malaria and dengue, 16 patient presents with fever and diarrhea among which seven had widal positive and other had non-

specific acute gastroenteritis. Some the patient had repeated episode of fever diagnosed with tuberculosis and UTI. Two cases of chicken pox also reported among present study (Table 2).

**Table 1: Distribution of patients according to socio-economic class.**

Socio-economic status (modified Kuppusswamy scale)	Present study, (n=100)	Present study percentage (%)
<b>Lower</b>	68	85
<b>Middle</b>	12	15
<b>Upper</b>	00	00
<b>Total</b>	80	100

**Table 2: Distribution of patients according to causes.**

Final diagnosis	Present study, (n=80)	Present study percentage (%)
<b>UTI</b>	25	31.3
<b>URTI</b>	20	25
<b>Malaria</b>	10	12.5
<b>AGE</b>	9	11.3
<b>Typhoid fever</b>	7	8.6
<b>Dengue</b>	4	5
<b>Tuberculosis</b>	3	3.8
<b>Chickenpox</b>	2	2.5
<b>Total</b>	80	100

**Table 3: Distribution of patients according to gestational age.**

Gestational age	Present study, (n=80)	Present study percentage (%)
<b>1<sup>st</sup> trimester (0-12 weeks)</b>	7	8.7
<b>2<sup>nd</sup> trimester (13-28 weeks)</b>	4	5
<b>3<sup>rd</sup> trimester (29-40 weeks)</b>	69	86.3
<b>Total</b>	80	100

**Table 4: Mode of delivery in present study.**

Obstetric outcome	Present study, (n=80)	Present study percentage (%)
<b>Abortions</b>	11	13.8
<b>Preterm vaginal delivery</b>	18	22.5
<b>Term vaginal delivery</b>	30	37.5
<b>Preterm C-section</b>	1	1.2
<b>Term LSCS</b>	20	25
<b>Total</b>	80	100

The 86.3% patient present with fever in third trimester, among them 20 woman delivered by term LSCS, 1 pre term LSCS, 30 term vaginal delivery and 18 woman developed preterm labour pain and get delivered. Patient delivered by caesarean section are 26% out of that 10 had fetal distress, 6 had previous caesarean section, 5 had prolong 1st stage of labour, 8.7% had first trimester spontaneous abortion, and 5% had second trimester abortion, among them 2 required instrumental evacuation (Table 3 and 4).

**Table 5: Fetal outcome in present series.**

Fetal outcome	Present study, N (%)
Still birth	1 (1.2)
Preterm	19 (23.7)
LBW	32 (40)
Low Apgar (<7)	30 (37.5)
Neonatal mortality	2 (2.5)

Preterm delivery accounts for 23.7% in present series. Apart from fever maternal co morbidities like anemia and severe preeclampsia also play a definite role in causing preterm, low birth weight or low Apgar score. Neonatal mortality was there in patient diagnosed with UTI whose baby had neonatal sepsis. Other adverse fetal outcomes with UTI were preterm birth and low birth weight. Still birth seen in tuberculosis (Table 5).

**Table 6: NICU admission.**

Indication of NICU admission	No. of babies delivered	Percentage (%)
Preterm	19	23.7
Low birth weight	30	37.5
Meconium aspiration syndrome	4	5
Neonatal sepsis	1	1.3
GCA	2	2.5

Out of total birth outcomes (80), cause of admission to NICU is preterm in 19 (23.7%) newborns, low birth weight in 32 (40%) and meconium aspiration in 4 (5%) newborns in present study. Out of total low birth weight 32 only 30 needs NICU admission, remaining 2 had good Apgar score and was not admitted to NICU (Table 6).

Perinatal mortality was observed in viral fever, incidence of meconium-stained amniotic fluid was higher in malaria and respiratory tract infection, whereas preterm birth is more with the most of the infection,

## DISCUSSION

Total 80 antenatal symptomatic patients during pregnancy were analyzed in present study.

In our study majority of patients in present study (85%) had lower socio-economic class whereas in study of Jean-

Alfred et al (80.3%) were from middle socio-economic class.<sup>6</sup> Certain Unhygienic practices like improper hand washing, eating raw uncooked food, staying in crowded places, lack of environmental sanitation and nutritional deficiency may account for more prevalence of various infections and related febrile illnesses during pregnancy in lower socio-economic class in present study.

Higher incidence of infections in lower socio-economic class reflects that knowledge of occurrence and preventive measure of certain infections like malaria, typhoid, dengue, etc. are lacking in them.

In present study 49% of the patients with fever were primigravida. Similar finding is observed in Nath et al shows incidence of bacterial infections was maximum (47.6%) in primigravida.<sup>7</sup>

Most common cause of fever with pregnancy was UTI (31.5%) in present study where as in study of Nath et al (21.6%) malaria was most common cause and study of Kachare et al show typhoid (23.98%) was the most common cause.<sup>7,8</sup>

Majority of patients in present series had more than one associated symptom apart from fever. The common associated symptoms were cold and cough (38%), chills and rigors (25.5%), headache (25.5%), burning micturition (31.5%). Diarrhea is one of the common manifestations of either acute gastroenteritis, typhoid fever.

In present study 31.5% cases have altered urine routine examination. Significant physiological changes occur within the urinary tract during normal pregnancy. Dilatation of calyces and ureter along with progesterone induced relaxation of muscularis is responsible for vesico-ureteral reflux during pregnancy.<sup>9</sup>

In addition, the physiological increase in plasma volume during pregnancy, decrease urine concentration leading to decreased ability of the lower urinary tract to resist invading organisms may lead to increase susceptibility of UTIs.

Urogenital infections contribute significantly to the preventable causes of preterm labor. We recommend that women coming for first antenatal check-up should be investigated for the presence of asymptomatic genitourinary infections. Making early diagnosis of urogenital infections and treating them adequately with the suitable antimicrobials will go a long way in decreasing the incidence of preterm labor, preterm births, and the associated neonatal and maternal morbidities.<sup>10</sup>

Majority of patients in present study (86.3%) belong to 3<sup>rd</sup> trimester of pregnancy (29-40 weeks). In Nath et al study majority of patients belongs to 2<sup>nd</sup> trimester of pregnancy that is 48.6% whereas Ravindra et al study shows majority of the patients belong to 3<sup>rd</sup> trimester that is 70%.<sup>7,11</sup> Maternal complication associated with 1<sup>st</sup> and 2<sup>nd</sup> trimester

was abortion, and in 3<sup>rd</sup> trimester were preterm, PROM, PPROM and etc.

In present series 37.5% of patients had term vaginal delivery, term vaginal delivery was 25% in study of Alfred et al.<sup>9</sup> Preterm delivery accounts for 23.7% in present series whereas it is 43.1% and 36% in Brar et al study and Biswas et al study respectively.<sup>12,13</sup>

In our study low birth weight, preterm, neonatal sepsis, neonatal mortality, still births were the fetal outcome.

In present study total 56 newborn admitted in NICU, cause of admission to NICU is preterm in 19 (23.7%) newborns, low birth weight in 30 (37.5%) and meconium aspiration in 4 (5%) newborns in present study. In study of Kachare et al 70.24% newborns were low birth weight.<sup>8</sup>

## CONCLUSION

Infection during pregnancy is commonly encountered feature that results in an extensive array of both, maternal and fetal complications. Different infection had different impact on maternal and fetal outcome. Most common cause of fever was UTI followed by URTI in present study. Adverse fetal outcome with UTI are preterm birth and low birth weight, neonatal mortality. So, all women coming for first antenatal check-up should be investigated for presence of asymptomatic genitourinary infections, early diagnosis and treating them adequately with antimicrobials decreasing incidence of preterm labor, preterm births, and associated neonatal and maternal morbidities. Standard method of infection controls in homes, communities and healthcare settings, improving health education and awareness should be emphasis in preventing such adverse fetomaternal outcome. This study carried out at urban rural area so, upper socioeconomical class patient and their association with fever can't be studied. Size of sample was small. Large no. of patient present with fever in antenatal, but can't be followed up final outcome of pregnancy. Fetomaternal outcome of each etiology can also be studied. These are limitations of this study.

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