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Original Research Article

Preterm labour and its effect on perinatal morbidity and mortality

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ABSTRACT

Background: This study was performed to find out the incidence and identification of risk factors of preterm labour and also to find out the incidence of perinatal outcome in the form of morbidity and mortality.

Methods: Total 720 antenatal cases with preterm labour admitted and studied in total one-year duration in UPUMS Saifai, Etawah. Out of 720 cases, 692 pregnant patients underwent preterm birth. Thorough history taking, general, systemic and obstetrical examination was done for each patient. APGAR Score and birth weights of the new borns were noted at the time of birth and they were followed up throughout the hospital stay. Incidence and perinatal morbidity and mortality of preterm births were calculated.

Results: Incidence of preterm labour and births were 28.5% and 27.9% respectively. Among various causes of preterm birth, spontaneous labour with intact membranes is the most common cause. Lack of antenatal check-up was found to be most common risk factor of preterm labour followed by infection and low socioeconomic status. Majority of the new-borns had low APGAR score (<6) in the present study. Total perinatal morbidity in the present study group was 67.2%

Conclusions: We concluded that higher incidence of perinatal morbidity and mortality may be due to that the study was conducted at tertiary health care hospital which mostly receive high risk cases and majority of cases belonged to low socioeconomic group and also that the incidence of perinatal morbidity and mortality may be more in this part of country.

Keywords: Preterm labour, Perinatal morbidity and mortality

INTRODUCTION

Preterm labour is defined by WHO as the onset of labour prior to the completion of 37 weeks of gestation.¹ Preterm labour is a syndrome characterized by premature activation of the final pathway of parturition and causing approximately 30% of all preterm birth. Preterm labour has multiple causes like chorioamniotic infection is responsible for 20-40% of all cases of preterm birth.¹ Approximately 5-10% of patients in preterm labour have infection outside uterus, most commonly in urinary tract. Another extra uterine infection is gingivitis.² Abnormal placentation, foetal and maternal stress.³ Stress response

in human beings is regulated by the hypothalamic secretion of corticotropin releasing hormone (CRH). Foetus stress is possibly the cause of preterm birth in pregnancies with a foetus affected by a congenital, metabolic or infectious disease.⁴ Bleeding in decidual chorionic interface. Vaginal bleeding is frequently the first sign of a sequence of events leading to preterm birth. Preterm labour is also common with abruption placenta and placenta previa. Risk factors for preterm labour includes demographic characteristic (age <17 years to >35 years, non-white races, low socioeconomic status, low pre-pregnancy weight), behavioural factors, stressful life style and previous preterm labour. Preterm birth is a

leading cause of morbidity and mortality in both developed and developing countries. Four major reasons of preterm births are preterm labour (causes and risk factors of preterm labour already described), premature rupture of membranes (PROM), indicated preterm delivery (most common conditions requiring preterm birth are preeclampsia, severe foetal growth restriction due to uteroplacental insufficiency, antepartum hemorrhage, placenta previa, abruption placentae, Rh-immunization, maternal diabetes, chronic hypertension, chronic renal disease etc.) and incompetent cervix.

Preterm labour complicates 5-10% of pregnancies and is a leading cause of morbidity and mortality. Preterm infants are at risk for developing numerous medical problems like respiratory complications (like respiratory distress syndrome, chronic lung disease and bronchopulmonary dysplasia etc.), cardiovascular (patent ductus arteriosus), neurological (hypoxic ischemic encephalopathy, intraventricular hemorrhage, retinopathy of prematurity etc), gastrointestinal and metabolic (necrotizing enterocolitis, rickets of prematurity etc.), haematological (anaemia of prematurity, thrombocytopenia, hyperbilirubinaemia etc.) complications etc. Recent evidences suggest that early identification of at risk pregnancies with timely referral for specialized obstetrical care may help identify women at risk for preterm labour and decrease the extreme prematurity rate thereby reducing the morbidity and mortality rates.

METHODS

Total 720 antenatal women with preterm labour at less than 37 weeks gestational age admitted and studied. Out of 720 cases, 692 pregnant patients underwent preterm

birth in our Department of Obstetrics and Gynaecology, UPUMS, Saifai Hospital from October 2015 to September 2016.

Inclusion criteria

- <37 weeks and >20 weeks of gestational age,
- Singleton pregnancy,
- All booked and un booked patients,
- Either vaginal preterm or caesarean delivery.

Exclusion criteria

- Malpresentation
- Multi foetal gestation
- Pregnancy beyond 37 weeks.

Each patient was subjected to thorough history taking, general physical examination, systemic examination and obstetrical examination paying special attention to presence or absence of conventional risk factors for preterm labour. Investigations like routine, urine, vaginal culture sensitivity, C reactive protein, LFT (liver function tests), KFT (kidney function tests), NST (non-stress test), USG (for gestational age, liquor, congenital anomaly etc.) were done. APGAR scores and birth weights of the new borns were noted at the time of birth and they were followed up throughout the hospital stay. Incidence and perinatal morbidity and mortality of preterm birth were calculated.

RESULTS

The present study was conducted in 720 antenatal cases with preterm labour to identify risk factors and to assess the perinatal morbidity and mortality in preterm labour and birth.

Table 1: Incidence of preterm labour and preterm birth.

Preterm labour	Preterm birth	
	Total	Incidence (%)
Total antenatal cases admitted during study period	2520	28.5%
Antenatal cases with preterm labour admitted during the study period	720	
		27.9%
	Total antenatal cases delivered during study period (term and preterm)	
	Antenatal cases with preterm labour delivered during study period	692

Table 1 showing incidence of preterm labour and preterm birth. In our study we found incidence of preterm labour 28.5% and incidence of preterm birth 27.9%.

Table 2 showing risk factors of preterm labour. Lack of antenatal check-up was found to be most important risk

factor in 78.5% of cases followed by infection to be the most important risk factor in 57.7% of cases. 56.3% of patients belonged to low socio-economic status, 43.3% of patients were involved in heavy work demanding long standing hours, 15.2% of patients have weight (<45 kg) and 11.6% of patients had height (145cm), 18.8% of

patients had history of previous abortion, 11.6% of patient had history of prior preterm birth and 18% patients had history of prior pregnancy loss.

Table 2: Risk factors of preterm labour (n = 720).

Risk factors	No.	%
Lack of antenatal check-ups	566	78.6
Infection	416	57.7
Low socioeconomic status	406	56.3
Heavy work	312	43.3
Previous abortions	136	18.8
Pre-pregnancy loss	130	18
Weight (<45kg)	110	15.2
Height (<145 cm.)	84	11.6
Previous preterm birth	84	11.6
Family history	8	1.1
Smoking	4	0.5

Table 3 shows distribution of preterm babies according to APGAR score at birth. We found that majority of neonates (45.3%) have APGAR score between 4-6 (≤ 6) in the present study. Neonates having APGAR of 7-10 were 43.3% while neonates with APGAR <3 were 11.4%.

Table 3: Distribution of preterm babies according to Apgar score at birth (APGAR score of live born babies at birth (n=559)).

Apgar score	Number	Percentage
7-10	242	43.3
4-6	253	45.3
<3	64	11.4

Table 4 showing neonatal outcome in live born babies (n = 559). In the present study we found that out of 559 live born, 239 (42.75%) babies were healthy and required no resuscitation. 320 (57.24%) babies shifted to neonatology intensive care unit (NICU) in which 119 (21.8%) babies recovered and shifted back to ward and 201 (35.95%) babies expired in NICU.

Table 4: Neonatal outcome in live birth babies (n = 559).

Total	No.	%
healthy babies	239	42.75
Neonates shifted to NICU (Neonatology intensive care unit)	320	57.24
Babies expired in NICU within 7 days	201	35.95
Babies recovered and shifted back to ward	119	21.28

Table 5 showing neonatal morbidity. Total perinatal morbidity in our study is 67.2%. In our study we found that out of 559 live born neonates 320 (57.24%) babies were shifted to NICU, 56 (17.5%) were diagnosed having respiratory distress syndrome on clinical grounds. 20

(6.2%) babies were diagnosed having intraventricular hemorrhage.

Table 5: Neonatal morbidity (n = 320).

Morbidity	No.	%
Neonatal hyperbilirubinemia (NNH)	60	18.7
Respiratory distress syndrome (RDS)	56	17.5
Hypoxic ischemic encephalopathy (HIE)	46	14.3
Sepsis	30	9.3
Intraventricular hemorrhage (IVH)	20	6.2
Other (congenital anomaly, anemia etc.)	04	1.3

60 (18.7%) babies developed jaundice within first 24 hours. 30 (9.3%) babies developed sepsis. 46 (14.3%) babies developed HIE (Hypoxic ischemic encephalopathy), rest 4 neonates had no obvious cause.

Table 6: Incidence of perinatal mortality.

Perinatal mortality	Number	%
Total perinatal mortality	402	52.8
Still born	201	26.4
Early neonatal mortality	201	26.4

Table 6 showing perinatal mortality. Incidence of perinatal mortality is 52.8% in present study. Incidence of early neonatal death is 26.4% in present study.

DISCUSSION

Preterm birth is the major cause of perinatal morbidity and mortality. In our study, total 720 antenatal patients with preterm labour admitted during the study period.

In the present study the incidence of preterm labour and preterm birth were 28.5% and 27.9% respectively. Uma S et al showed incidence of preterm labour and preterm birth around 22% and 20.9% respectively, which is less when compared with the present study.² Chandharan E et al showed incidence of preterm labour around 6-15%, which is quite less when compared to the present study (28.5% in the present study).³ Faye-Peterson OM, Baby Centre India and Ross MG showed incidences of preterm birth to be 5-13%, 11-14% and 20.9% respectively, which is less when compared with incidence of preterm birth in the present study (27.9%).⁴⁻⁶

In the present study we observed 57.7% of cases had infection which is consistent to other studies. Pandey K et al found that infection was associated with 65.5% of cases.⁷ Incidence of risk factors of lack of antenatal checkups and low socioeconomic groups were 78.6% and 56.3% respectively. Similar results have been reported by Pandey K and Meis and colleagues.^{7,8}

In the present study we found that majority of neonates had low APGAR score (<6) as shown in Table 3. Present findings are supported by Begum F, Bukshaw K, Pandey

JN found that mean birth weight and APGAR scores of babies were lower.³ In the present study we found that incidences of respiratory distress syndrome (RDS) 17.5%, hyperbilirubinemia (NNH) 18.7%, hypoxic ischemic encephalopathy (HIE) 14.3% as shown in Table 5. Sehgal et al showed in their study that neonatal hyperbilirubinemia (78%), RDS (65%) were the most common causes of morbidity.⁹ Singh et al showed intraventricular hemorrhage was the most common cause of death (42%) followed by sepsis (31%).¹⁰ In the present study we found incidence of perinatal mortality around 52.8% as shown in Table 6. Singh et al and Singh Uma et al showed incidence of perinatal mortality around 21% and 12.7% respectively, which is quite less when compared with the present study (incidence of perinatal mortality in our study 52.8%).^{10,2}

CONCLUSION

Authors concluded that higher incidence of perinatal mortality is because the study is conducted at rural tertiary health care hospital which mostly receives high risk cases and majority of cases belonged to low socioeconomic group and also that the incidence of perinatal mortality may be more in this part of country.

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