

Assessment of Cases of Preterm Labor at a Tertiary Care Teaching Hospital: A Clinical Study

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ABSTRACT

Background: Preterm labor and delivery has become challenging complications encountered by obstetricians nowadays, as are preterm neonates for the pediatricians. The present study records the incidence of preterm labor and preterm birth in study population.

Materials & Methods: This study was conducted in Department of Obstetrics and Gynaecology, Teerthanker Mahaveer Medical College & Research Centre, Moradabad, UP, India. It comprised of 140 antenatal women with preterm labor at less than 37 weeks gestational age. In all patients, name, age, history, clinical examination and ultrasonography (USG) was done. In all, rupture of membranes was diagnosed by speculum examination. Risk factors related to preterm labor and neonatal outcome were recorded.

Results: Maximum cases were seen in age group 34-36 (110) weeks followed by 28-34 weeks (30) < 28 (20) weeks and >36 weeks (20). The difference was significant. The various risk factors were PROM (30), infections (20), multiple gestation (10), APH (10), idiopathic (50) and maternal disease (10).

Conclusion: Preterm labor and preterm birth are increasing nowadays. Various risk factors are PROM, smoking, multiple gestation, APH and idiopathic.

KEYWORDS: Preterm labor, Pregnancy, Ultrasonography.

INTRODUCTION

Preterm labor and delivery has become challenging complications encountered by obstetricians nowadays, as are preterm neonates for the pediatricians. Preterm labor is defined as the onset of labor prior to 37 completed weeks of gestation i.e. 359 days from first day of last menstrual period.¹

Preterm delivery affects greater births in developing countries and causes 45-70% neonatal deaths. Preterm birth is a major determinant of neonatal mortality, morbidity and childhood disability. Preterm birth remains one of the most serious obstetric problems. Preterm birth is recognized as a worldwide problem responsible for most of the neonatal deaths and a vast majority of neonatal morbidity in the surviving infants. Incidence of preterm labor is 23.3% and of preterm delivery 10-70% in India.²

The exact etiology is unknown. It has been postulated that it can be due to interaction of several pathways or

independent effect of each pathway. 25% of premature birth are due to preterm rupture of membranes, in 45% cases causes are idiopathic and rest 10%- 25% are elective preterm deliveries.

The incidence of first time hospitalization for preterm labor is 9% with only 38% delivering in their first episode. Factors possibly contributing to but not completely explaining this upward trend include increasing rates of multiple births, greater use of assisted reproductive techniques, increases in the proportion of births among women over 34 years of age and changes in clinical practices, such as greater use of elective caesarean sections. Rates of preterm birth have been reported to range from 5-7% of all live births in some developed countries and are estimated to be substantially higher in developing countries.³ The present study records the incidence of preterm labor and preterm birth in study population.

MATERIALS & METHODS

This study was conducted in Department of Obstetrics and Gynaecology, Teerthanker Mahaveer Medical College & Research Centre, Moradabad, UP, India. It comprised of 140 antenatal women with preterm labor at less than 37 weeks gestational age. All were informed regarding the study and written consent was obtained. Ethical clearance was taken prior to the study. In all patients, name, age, history, clinical examination and ultrasonography (USG) was done. In all, rupture of membranes was diagnosed by speculum examination. Risk factors related to preterm labor and neonatal outcome were recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I shows that maximum cases were seen in age group 34-36 (110) weeks followed by 28-34 weeks (30) < 28 (20) weeks and >36 weeks (20). The difference was significant (P-0.01). Table II shows that the various risk factors for preterm labor were PROM, infections,

multiple gestation, APH, idiopathic and maternal disease. The difference was significant (P-0.02)

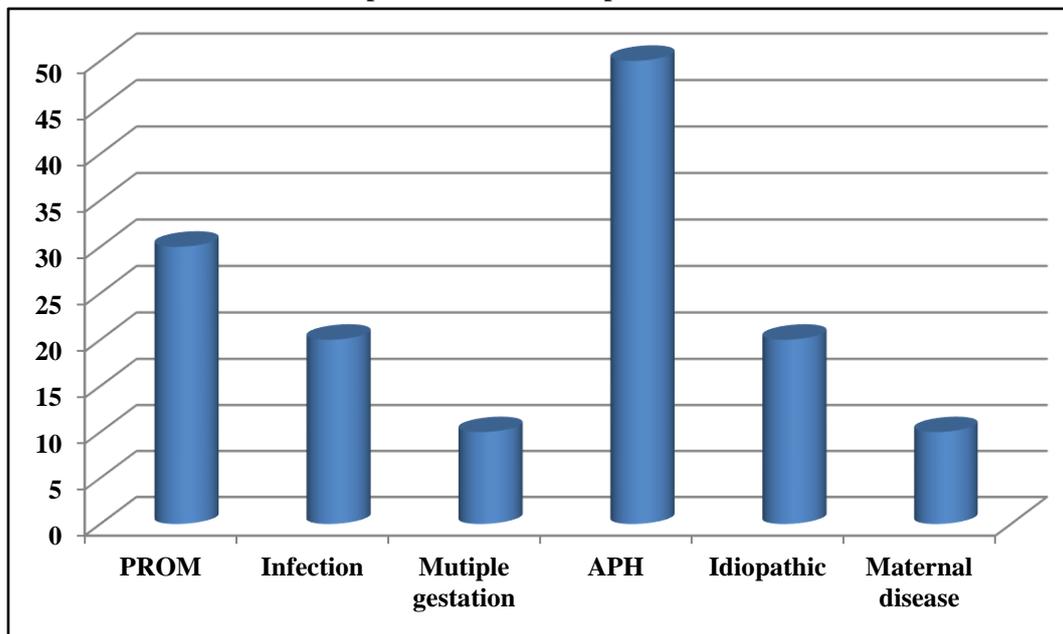
Table I: Distribution of patients

Age group (years)	Number	P value
<28	20	0.01
28- 34	30	
34- 36	70	
>36	20	

Table II: Risk factor for preterm labor

Risk factors	Number	P value
PROM	30	0.05
Infection	20	
Multiple Gestation	10	
APH	50	
Idiopathic	20	
Maternal DISEASE	10	

Graph I: Risk factor for preterm labor



DISCUSSION

There are various causes of preterm labor, though in a majority of cases, the cause is un-known. Infections, maternal medical and surgical disorders, uterine over-distension, uterine anomalies, placental anomalies and fetal pathologies are amongst the causes for preterm labor. There are some factors associated with preterm labor like socio-economic, genetic, constitutional and obstetric.⁴ Preterm labor and delivery are not uncommon in today’s life. Incidence of preterm labor is showing an increasing trend due to assisted reproduction leading to an increase in multiple births, early and late procreation,

and better obstetrical intervention. In present study we found that maximum cases were seen in age group 34-36 (110) weeks followed by 28-34 weeks (30) < 28 (20) weeks and >36 weeks (20). Our results are in agreement with the results of Sharma et al.⁵

Preterm babies continue to die in perinatal period or have severe neonatal complications which predispose to a higher incidence of developmental complications and sensory deficits. Impressive advances in neonatal care have steadily improved neonatal mortality over last many years; however it is unlikely to reduce it further to

a significant level. Etiology of preterm labor is multifactorial. Mittal et al⁶ found that approximately 30% of preterm births are associated with rupture of membranes. In present study, preterm rupture of membranes was associated with 120 (22%) preterm births. The onus is now on understanding the causes and mechanisms of parturition so that preterm labour can be prevented and preterm birth is allowed to happen electively for the benefit of the mother-fetus.

Premature rupture of membranes, maternal genitourinary infections, antepartum hemorrhage, multiple pregnancy, previous history of preterm labour and IUD are major causes of preterm labour. A study conducted by Eimel⁷ considered antepartum hemorrhage as one of the important factor leading to preterm birth followed by infections. Arif⁸ stated that male fetus is one of the risk factors of preterm birth. He concluded that there is a greater synthesis of active prostaglandins in the placenta with male fetuses in a state of inflammation, which may explain the higher incidence of preterm birth. Mahajan et al⁹ in their study, 100 preterm births (cases) and 100 term births (control cases) were enrolled in the study. A detailed questionnaire was used to record sociodemographic factors, maternal and antenatal characteristics of current and previous pregnancies. Pre-eclampsia, preterm prelabour rupture of membranes, previous history of preterm births, IUD, genitourinary infections and polyhydramnios or oligohydramnios were determined as significant risk factors for preterm birth. 53.1% preterm babies were late preterm babies. Macones GA et al performed a case-control study of patients admitted to our institution with preterm labor and minimal cervical dilatation. A case patient was a patient who sought treatment with uterine contractions between 24 and 34 weeks' gestation with cervical dilatation ≤ 2 cm, who received tocolysis with magnesium sulfate, and who was delivered within 7 days of admission. They estimated that we would need 50 case patients and 150 control subjects to detect an odds ratio of 2.5 for risk factors with a prevalence of 20%, an alpha error of .05, a beta error of .20, and a control subject/case patient ratio of 3:1. Three variables were eligible for inclusion in our logistic models according to the bivariate analyses-bleeding on admission, substance abuse, and admission white blood cell count $\geq 14,000$ cells/microL. The simplest and most favorable model included only 2 variables, bleeding and substance abuse, and yielded a sensitivity of 46% and a specificity of 76%. The full 3-variable model had similar test characteristics. The results of their case-control study suggested that combinations of clinical factors do not yield an adequate level of discrimination to be used alone for predicting the likelihood of delivery within 1 week among patients with minimal degrees of cervical dilatation.¹⁰

CONCLUSION

Preterm labor and preterm birth are increasing nowadays. Various risk factors are PROM, smoking, multiple gestation, APH and idiopathic.

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