

Evaluation of Cases of Pre-Term Deliveries: A Retrospective Institutional Based Study

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ABSTRACT

Background: Beyond the elevated health care costs of newborn premature infants, however, those born preterm have an appreciable risk of long-term neurological impairment and developmental delay. Hence; the present retrospective study was conducted to analyse various pre-term delivery cases.

Materials & Methods: The present study planned to retrospectively evaluate data records of the patients with pre-term deliveries. Data records of a total of 25 subjects were analysed. Collection of complete demographic and clinical details of all the subjects was done from their record files. Complete past medical and family history of all the subjects by analysing their case-history data was also recorded. All the results were evaluated by SPSS software.

Results: In 56 percent of the subjects, mean gestational age were more than 35 weeks, while in 32 percent of the subjects; it was between 31 to 35 weeks. Active phase of labor followed by acute fetal distress and antepartum haemorrhage were the commonest cause preterm delivery.

Conclusion: Most frequent etiologic factor leading to preterm labor is active phase of labor.

Key words: Birth, Delivery, Preterm.

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Article History:

Received: 03-10-2016, **Revised:** 01-11-2016, **Accepted:** 27-11-2016

Access this article online

Website: www.ijmrp.com	Quick Response code 
DOI: 10.21276/ijmrp.2016.2.6.067	

INTRODUCTION

The importance of reducing the risk of low birth weight and preterm birth has long been recognized if for no other reason than that the health care costs associated with an extremely small or early birth are many times higher than those of infants of normal weight. Lowering the risk of infant mortality through reductions in high-risk preterm births would likely be much more cost-effective than the current reliance on improving their survival with high-risk intensive care services after they are born.¹⁻³ Beyond the elevated health care costs of newborn premature infants, however, those born preterm have an appreciable risk of long-term neurological impairment and developmental delay. The ongoing medical and support service needs of these infants and their families add to the overall health care system cost burden over time and emphasize the continuing health and developmental problems that some preterm infants face.^{4,5}

Finally, the high preterm birth rates in the United States have been identified as a major contributor to this nation's relatively poor ranking in infant mortality among other developed countries. Although low birth weight has often received greater attention than preterm birth as the leading factor underlying poor pregnancy outcomes in the United States, it has been recognized that to

successfully address these problems, the "key goal is prevention of preterm birth".⁶⁻⁸

Hence; the present retrospective study was conducted to analyse various pre-term delivery cases.

MATERIALS & METHODS

The present study carried out in the Department of Obstetrics & Gynecology, Grant Government Medical College, Mumbai, Maharashtra, India. It involved retrospective evaluation of data records of the patients with pre-term deliveries. Informed consent was taken for carrying out the present investigation. Patients with presence of any other systemic illness, or any co-morbid condition were excluded from the present study. For the present study, after meeting the exclusion criteria, data records of a total of 25 subjects were analysed. Collection of complete demographic and clinical details of all the subjects was done from their record files. Complete past medical and family history of all the subjects by analysing their case-history data was also recorded. All the results were evaluated by SPSS software. One way ANOVA was used for assessment of level of significance. P- value of less than 0.05 was considered as significant value.

RESULTS

Retrospectively analyzed the data records a total of 25 subjects with preterm labor. Mean maternal age of the subjects was 26.5 years. In 56 percent of the subjects, mean gestational age were

more than 35 weeks, while in 32 percent of the subjects; it was between 31 to 35 weeks. Active phase of labor followed by acute fetal distress and antepartum haemorrhage were the commonest cause preterm delivery.

Table 1: Details of the subjects

Parameter	Number
Maternal Mean age (years)	26.5
Maternal mean weight (Kg)	64.1

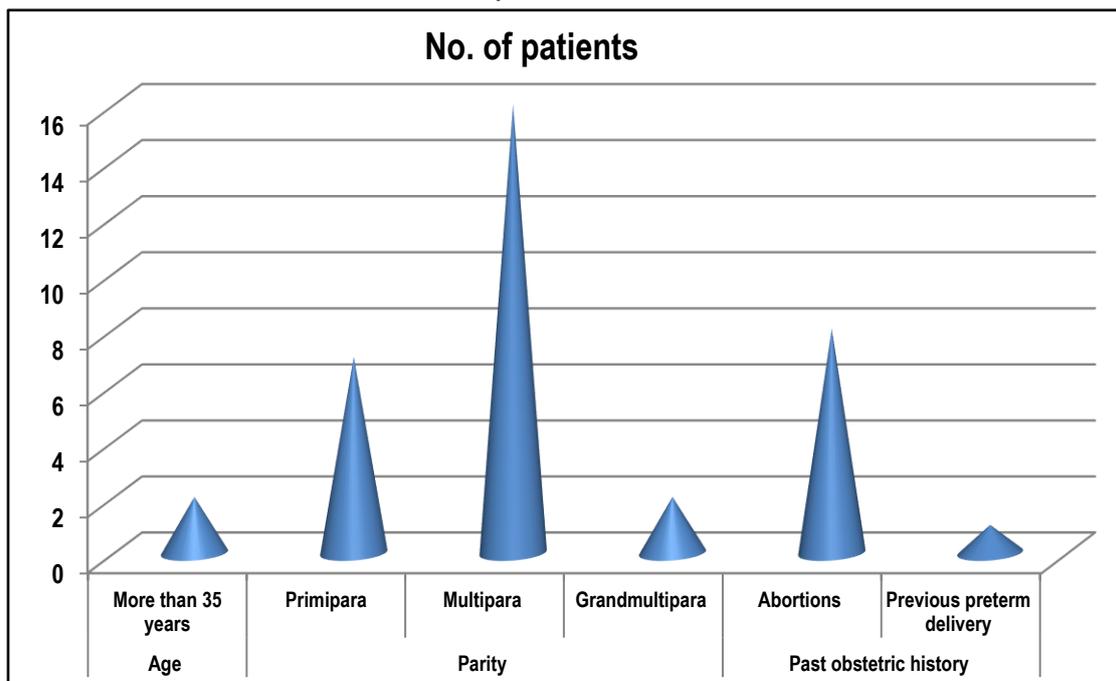
Table 2: Distribution of subjects as per gestational age at the time of delivery

Age group	Number of subjects	Percentage
Less than 30 weeks	3	12
31 weeks to 35 weeks	8	32
More than 35 weeks	14	56
Total	25	100

Table 3: Preterm delivery cause

Cause	Number	Frequency
Active phase of labor	14	56
Acute fetal distress	4	16
Antepartum haemorrhage	4	16
Others	3	12
Total	25	100

Graph 1: Risk factors



DISCUSSION

In the present study, it was observed that active phase of labor followed by acute fetal distress and antepartum haemorrhage was the commonest cause preterm delivery. Previous authors contended that the failure of current approaches to predicting preterm delivery reflects an inadequate understanding of the

underlying pathogenesis. Clinical and experimental evidence support the concept that most cases of preterm delivery reflect four pathogenic processes, which share a common final biological pathway leading to uterine contractions and cervical changes with or without premature rupture of membranes. These pathogeneses are: (1) activation of the maternal or fetal hypothalamic-pituitary-

adrenal axis; (2) decidual-chorioamniotic or systemic inflammation; (3) decidual haemorrhage (i.e. abruption); and (4) pathological distention of the uterus. Their research seeks to combine the most useful biophysical and biochemical markers of such processes with optimal clinical and epidemiological predictors into a composite, easily applied risk tool. This integrated approach has the potential to identify at-risk asymptomatic patients with high sensitivity, specificity, and positive and negative predictive values, and also to ascertain underlying pathogenic processes that can lead to targeted therapy.^{9,10}

Tekesin I et al estimated the effectiveness of cervical fetal fibronectin assayed by the rapid fetal fibronectin assay in predicting preterm delivery in patients with signs or symptoms of preterm labor. Patients with preterm labor between 24 and 34 weeks of gestation were included. At the time of speculum examination, fetal fibronectin samples were collected from the cervix. The probe was analyzed for fetal fibronectin using the rapid fetal fibronectin assay. Managing obstetricians were blinded to fetal fibronectin results. Outcome data were collected after delivery. One hundred seventy patients had fetal fibronectin samples and outcome data. The mean (+/- standard deviation) gestational age at delivery was 38.63 +/- 2.5 weeks among those with negative fetal fibronectin results (n = 124) and 35.71 +/- 3 weeks for those with positive results (n = 46; P < .001). The admission-to-delivery interval was 27.3 days shorter in the group with positive fetal fibronectin results (36.1 +/- 29.9 compared with 63.4 +/- 29.2; P < .001). The rapid fetal fibronectin assays were useful in predicting risk of delivery within 7, 14, or 21 days. In a population of patients with signs and symptoms of preterm labor, the presence of cervical fetal fibronectin is effective in predicting risk of delivery within 7, 14, or 21 days. The negative predictive values of fetal fibronectin using the Tli systems compared well with data from previous reports using enzyme-linked immunosorbent assay-based assays.¹¹ Thorsen P et al assessed whether specific markers of infection (primarily interleukin (IL) 1beta, tumour necrosis factor (TNF) alpha, IL-6, and IL-10) obtained from maternal blood during pregnancy, alone or in combination with other risk factors for PTD, permit identification of women at risk for spontaneous PTD. The first study consists of a completed Danish regional cohort of 3000 pregnant women enrolled in a study of microbiological causes of PTD, upon which a nested case-control study of PTD in 84 cases and 400 controls has been performed. The second study is a nested case-control study of 675 PTD cases (equally divided into three gestational age categories of 24-29 weeks' gestation, 30-33 weeks' gestation, and 34-36 weeks' gestation) and 675 controls drawn from the ongoing Danish National Birth Cohort study of 100 000 pregnant women enrolled during 1997-2001. The second study will provide the opportunity to refine and retest hypotheses from the first study, as well as to explore new hypotheses. Our preliminary work suggests that a single predictive marker effectively accounting for a large proportion of PTD is unlikely to be found. Rather, a search for multiple markers indicative of the multifactorial aetiology of PTD is likely to be more successful. Knowledge gained from the proposed studies will be implemented in a third, clinical intervention study against PTD. The first phase of the clinical intervention study will be to establish a risk-assessment model based on the "best" combination of biological/biochemical measures and other factors

associated with PTD in order to identify pregnant women at very high risk of PTD. The second phase will be to apply an intervention model of tailored obstetric care to the very high-risk pregnant women for PTD identified in phase one.¹²

CONCLUSION

Under the light of above mentioned data, it can be concluded that most frequent etiologic factor leading to preterm labor is active phase of labor. However; further studies are recommended in future for better exploration of results.

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Source of Support: Nil.

Conflict of Interest: None Declared.

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Cite this article as: Mugdha L. Jungari. Evaluation of Cases of Pre-Term Deliveries: A Retrospective Institutional Based Study. *Int J Med Res Prof.* 2016; 2(6):318-20. DOI:10.21276/ijmrp.2016.2.6.067