



Journal Homepage: - www.journalijar.com
**INTERNATIONAL JOURNAL OF
 ADVANCED RESEARCH (IJAR)**

Article DOI:10.21474/IJAR01/2802
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/2802>



RESEARCH ARTICLE

PRETERM LABOUR: A STUDY OF ETIOLOGICAL RISKFACTORS AND PERINATAL OUTCOME.

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Manuscript Info

Manuscript History

Received: 15 November 2016
 Final Accepted: 17 December 2016
 Published: January 2017

Key words:-

preterm labour, perinatal outcome,
 preterm premature rupture of
 membranes,

Abstract

Objective: To study the causes associated with preterm labour and the perinatal outcome in preterm labour.

Methods: This prospective observational study was conducted in the department of obstetrics and gynaecology NDMC Medical College and Hindu Rao Hospital over a period of 6 months (Jan to June 2016). All patients presented with preterm labour, preterm premature rupture of membrane and with conditions where labour was iatrogenically induced prematurely were included in the study. All the patients were divided into four groups depending upon the gestational age – less than 28 weeks, 28 to 31 weeks, 32 to 34 weeks and more than 34 weeks. Risk factors and the perinatal outcome were analyzed.

Results: Out of 4382 patients delivered 946 were preterm delivery (21.5%). 54 out of 946 preterm deliveries had come with intrauterine death. The commonest risk factor of preterm delivery was preterm premature rupture of membrane followed by infection, anemia, preeclampsia and abruption. 73.2% of patients went into spontaneous preterm labour and 26.8% had caesarean section. Maximum perinatal complications and death were seen in group with gestational age less than 28 weeks.

Conclusions: The most common associated cause for preterm birth was preterm premature rupture of membrane. Perinatal outcome improves with gestational age. All preterm deliveries should be conducted in tertiary care hospital where better neonatal care is available.

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Introduction:-

WHO defines preterm birth as the delivery of an infant between 20 and less than 37 weeks of gestation. Preterm delivery is responsible for 70% of mortality and 75% of morbidity in the neonatal period [1]. Approximately 12.9 million babies worldwide are born too early every year, representing an incidence of preterm birth of 9.6% [2]. About 85% of all preterm births occur in Africa and Asia [3]. Preterm birth can be due to spontaneous preterm labour with intact membrane, preterm premature rupture of membranes and delivery for maternal and fetal indications. Spontaneous preterm labour and PPRM contributes to 70% of cases [4]. About 70% of cases are seen at late gestational age (34-36 weeks) [5]. The precise etiology is still unknown. Many factors like prior preterm

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deliveries, low social-economic status, extremes of maternal age, (<17, >35 years of age) and present obstetric complications like over distension of uterus, pre-eclampsia and antepartum haemorrhage are thought to be mainly responsible for onset of preterm labour [6].

Aims and objective:-

1. To find out the incidence, etiological risk factors responsible for preterm labour.
2. To evaluate the perinatal outcome in preterm births.

Material and Methods:-

This prospective observational clinical study was carried out in 946 cases, between 20 weeks to less than 37 weeks of gestation, who presented with preterm labour, preterm premature rupture of membrane and with conditions where labour was iatrogenically induced prematurely were included in the study. The patients who presented with following signs and symptoms were included in the study:-

1. Painful uterine contractions four in 20 min with progressive cervical changes.
2. Cervical effacement of more than 80% and dilatation more than 1 cm.

The duration of study was 6 months. All the cases were admitted in the labour room and the progress of labour was monitored. Obstetric management was done as per the findings in the individual case. Paediatricians were available at the time of delivery. All subjects and their babies were followed throughout their hospital stay. Associated maternal risk factors and perinatal outcomes were analyzed. Babies were transferred to premature baby care unit for neonatal care and neonatal outcome was analyzed.

Results:-

Total number of delivery in 6 months study period were 4382. Out of 4382 deliveries, 946 were preterm birth (21.5%). It was observed that 40% women were from poor social-economic status. 44.5% of cases had pregnancy duration of 34 to 37 weeks. 70% cases had some associated risk factor responsible for preterm labour. PPROM, hypertension and anemia were the common risk factors associated with preterm labour (Table 1). 73.2% delivered vaginally and 26.8% cases were delivered by caesarean section. Perinatal mortality was 17.8% (Table 2). Early neonatal death was seen in 7.1% of cases. 4.4% of preterm deliveries came with intrauterine death. Antepartum haemorrhage, hypertension and fetal congenital malformation were common causes of still births (Table 3) whereas respiratory distress syndrome, birth asphyxia and septicaemia were common causes of early neonatal deaths (Table 4). Neonatal outcome was directly proportional to gestational age (Table 5) and birth weight of the baby. Neonatal mortality was highest in the babies born with birth weight less than 750 grams.

Table 1: Risk factors associated with Preterm Labour

RISK FACTORS	No. OF CASES	PERCENTAGE
PPROM	180	19.1
HYPERTENSION	159	16.9
ANAEMIA	104	11
ANTEPARTUM HAEMORRHAGE	58	6.2
IUD	54	5.7
HYDRAMNIOS/MULTIPLE PREGNANCY	52	5.4
CONGENITAL MALFORMATIONS	30	3
OTHERS	25	2.7
TOTAL	662	70

Table 2: Perinatal mortality in Preterm Births

TYPE OF DEATH	NO. OF CASES	PERCENTAGE
MACERATED STILL BIRTH	42	4.4
FRESH STILL BIRTH	59	6.3
EARLY NEONATAL DEATH	68	7.1
TOTAL	169	17.8

Table 3: Risk factors associated with Still Birth in Preterm Labour

RISK FACTORS	NO. OF FRESH STILLBIRTHS	NO. OF MACERATED STILL BIRTHS
ANTEPARTUM HAEMORRHAGE	22	10
PREGNANCY INDUCED HYPERTENSION	19	10
FETAL CONGENITAL MALFORMATION	6	8
MATERNAL ANAEMIA	-	6
BIRTH ASPHYXIA	4	-
MATERNAL HEPATITIS	2	4
OTHERS	6	4
TOTAL	59	42

Table 4: Causes of Neonatal Deaths

CAUSES	NO. OF CASES	PERCENTAGE
R.D.S	26	38.3
BIRTH ASPHYXIA	16	23.5
SEPTICAEMIA	11	16.3
FETAL CONGENITAL MALFORMATION	5	7.3
MECONIUM ASPIRATION	6	8.8
PULMONARY HAEMORRHAGE	4	5.8
TOTAL	68	100

Table 5: Association of Perinatal Mortality with Gestational Age.

GESTATIONAL AGE (weeks)	NO. OF CASES	PERCENTAGE
<28	63	37.6
28-32	50	29.8
32-34	33	19
>34	23	13.6
TOTAL	169	100

Discussion:-

This clinical prospective study was carried out in a tertiary care teaching hospital for duration of 6 months. In the present study, the incidence of preterm birth was 21.5% which was higher than reported by Bangal et al [7] and Devi et al [8] where incidence were 13.2% and 12.18% respectively. The higher incidence could be due to many preterm high risk pregnancies referred to our hospital and associated risk factors necessitating a preterm birth for maternal and fetal indication. In the present study, 40% women were from poor socio-economic status whereas in a study reported from Bangal et al [7] 95% of cases were from poor socio-economic class. The reason for high poor socio-economic class was that their study was carried out in a rural tertiary care teaching hospital catering patients from surrounding villages.

In the present study, it was found that 70% of preterm deliveries had associated risk factors. Molly et al [9](1970) found that 67% of premature births had some obvious risk factors associated with preterm labour and Bangal et al [7](2012) found the associated risk factor in 57% of cases. In the present study the common risk factors were preterm premature rupture of membrane followed by hypertension, anemia and antepartum haemorrhage.

In the present study, 44.5% of preterm births were between 34 to < 37 weeks of gestation. Similar reports were reported by Bangal et al [7]. In their study 50% cases had pregnancy duration of 32 to 34 weeks. The reason for the selective rise in the "late preterm" group possibly was due to an increase in medical reasons necessitating a preterm delivery, changes in obstetric practice or both [10].

The perinatal mortality among premature babies is very high in developing countries due to low birth weight and prematurity. In the present study it was observed that perinatal mortality was directly related to birth weight and

gestational age of the baby. Similar outcome was observed by Devi et al (1974) [8], Singh et al (1980) [11] and Bangal et al (2012)[7].

In the present study, the perinatal mortality was 17.8% as compared to 42.4% seen in a study conducted by Bangal et al [7]. The reason for low perinatal mortality in our hospital was due to availability of better neonatal care unit. The main risk factor associated with fresh still birth in the present study are acute placental insufficiency as a result of antepartum haemorrhage and severe hypertension. Fetal congenital malformation, severe anemia and hepatitis were responsible for antepartum fetal death. The most common cause for early neonatal death was respiratory distress syndrome seen in 38.3% of cases followed by birth asphyxia and septicaemia. Similar results were observed by Bangal et al (2012) [7] in their study.

Preventive measures like regular antenatal check-ups, screening of high risk cases, diagnosis and treatment of lower genital tract infections [12][13] by performing prophylactic encirclage in cases of cervical incompetence [14], use of short term tocolysis and glucocorticoids for improving lung maturity [15,16], improving maternal nutrition leads to reducing the incidence of preterm labour and thereby reducing perinatal mortality. Neonatal septicaemia can be reduced by improving the aseptic conditions in the labour room and in the neonatal care unit and by use of broad spectrum antibiotics in preterm labour. Birth asphyxia can be reduced by improvement in neonatal care facilities.

Conclusion:-

Preterm onset of labour has a multifactorial etiology. Early detection and correction of risk factors like control of blood pressure in preeclampsia, correction of anemia, treatment of cervicovaginal infections and asymptomatic bacteriuria, avoidance of coitus in late pregnancy and cervical encirclage in proven cases of cervical incompetence can reduce the incidence of preterm labour. Maternal betamethasone for enhancing the fetal pulmonary maturity and reducing the incidence of respiratory distress syndrome in new born babies should be administered. All preterm deliveries should be conducted in tertiary care hospital where better perinatal care is available.

Declaration of interest statement:-

The authors report no declarations of interest.

References:-

1. Mc Cormick MC.(1985): The contribution of low birth weight to infant mortality and childhood morbidity. *N Engl J Med.*, 312: 82-90
2. Beck S, Wojdyla D, Say L, et al. (2010): The worldwide incidence of preterm births, a systematic review of maternal mortality & morbidity. *Bulletin of world health org* 88:31.38
3. World Health Organization (2006): Neonatal and perinatal mortality: country, regional and global estimates. WHO, Geneva
4. Tucker JM, Goldenberg, RL, Davis RO, et al. (1991): Etiologies of preterm birth in an indigent population: Is prevention a logical expectation. *Obstet Gynecol.*, 77: 343-347
5. Raju TNK.(2006): Epidemiology of late (near-term) preterm birth. *Clin perinatal.*, 33:751-763
6. Preterm labour in Textbook of obstetrics by D.C Dutta 6th ed. (2004): Published by new central book agency, Calcutta. Page 314-315
7. Bangal VB, Shinde KK, Gayatri KK, Patil NA. (2012): A study of risk factors and perinatal outcome in preterm labour at tertiary care hospital. *International journal of Biomedical research.*,3(3):147-150
8. Devi PK, Krishna Menon MK, Bhasker Rao K. (1980): Post Graduate Obstetrics and Gynaecology, 3rd ed., Published by orient Longman Ltd Madras. Page 204-209
9. Molly.P, Jain P.C and Prasad B.G. (1970) Environmental factors in preterm labour. *J.Obstetrics and Gynae India.*,20: 728.
10. Preterm birth trends in Greece, (1980-2008): A rising concern. Baroutis G, Mousiolis A, Mesogitis S, Costalos C, Antsaklis A. *Acta obstet Gynecol Scand.* 2013;29.
11. Singh M, Khare UN and Bhargava SK. Third International seminar on Maternal Mortality, Perinatal Mortality and Sterilisation, 3rd -5th October 1980, New Delhi
12. Leitich H, Bonder-Adler B, Brunbauer M, Kaider A, Egarter C, Husslein P. (2003): Bacterial vaginosis as a risk factor for preterm delivery: A meta-analysis *Am J Obstet Gynecol.*,189(1): 139-147
13. Morency AM, Bujold E. (2007):The effect of second trimester antibiotic therapy on the rate of preterm birth, *J Obstet Gynecol Can.*, 29(1):35-44

14. BerghellaU, Baxter JK, Hendrix NW. Cervical assessment by ultrasound for preventing preterm delivery. Cochrane database of systematic reviews 2009; Issue 3. Art.no; CD 007235
15. American college of Obstetrician and Gynaecologists. Antenatal corticosteroid therapy for fetal maturation. Committee opinion no 419. (2008): Obstet Gynecol., 112: 963- 965.
16. American College of obstetrician and gynaecologists. (2008): Antenatal corticosteroid therapy for fetal maturation. COG committees opinion no 402. Obstet Gynecol., 111: 805.