



FETAL OUTCOME IN PROM (PREMATURE RUPTURE OF MEMBRANES) AT TERM PREGNANCY – A STUDY IN 450 BEDDED MATERNITY HOSPITAL OF DELHI

Mohini Paul

Senior Specialist, Unit Incharge, Obstetrics and Gynaecology, Kasturba Hospital, Daryaganj, Delhi - 110002

Sangita Nangia Ajmani

Head of Department, Officer Incharge HRRC Obstetrics and Gynaecology, Kasturba Hospital, Daryaganj, Delhi – 110002

Aayushi Jain

Senior Resident, Kasturba Hospital, Deepali, Pitampura, Delhi – 110034 - Corresponding Author

ABSTRACT **Background:** Premature Rupture of Membranes (PROM) remains a subject of great clinical relevance. The present study was conducted to study perinatal morbidity and mortality in patients with PROM at term. **Methods:** A prospective case control study was conducted at the Department of Obstetrics and Gynaecology, Kasturba Hospital, Daryaganj, New Delhi. 100 pregnant patients presenting to the labour room with features of PROM at term (POG \geq 37 weeks) were taken as cases and 100 term pregnant women (age and parity matched) with intact membranes were taken as controls and compared in terms of perinatal outcome. **Results:** Current study reported perinatal morbidity rate of 25% in cases which was significantly higher than in control group (5%). The major causes of perinatal morbidity were perinatal sepsis (15%), birth asphyxia (5%), low birth weight (31%), pneumonia (4%), meningitis (1%), hyperbilirubinemia (5%) and low Apgar scores (15%). 25% of the babies of the case group were admitted to NICU as compared to only 5% babies born to the control group. Perinatal mortality rate was 3% in the term PROM group as compared to only 1% in the control group. **Conclusions:** In patients with Term PROM, perinatal morbidity and mortality was significant.

KEYWORDS : Term PROM, Septicemia**Introduction**

Spontaneous rupture of Membranes beyond 37 weeks of pregnancy but before onset of labor is called Term Premature Rupture of Membranes (PROM). The incidence of PROM is about 10% and 70% occur at term [1].

Ascending infection from the vagina and cervix leading to neonatal infection remains the most serious complication associated with PROM.

Perinatal complications include higher incidence of non – reassuring CTG patterns (7.9%) due to cord compression and sepsis [2]. Major causes of perinatal morbidity include birth asphyxia, septicemia, pneumonia, meningitis, hyperbilirubinemia, low APGAR scores, higher CRP positivity.

Methods

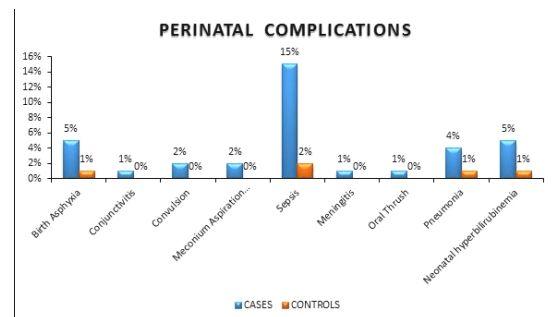
After approval from the institutional ethical committee and informed consent from the patients, a prospective case control study was conducted at the Department of Obstetrics and Gynaecology, Kasturba Hospital, Daryaganj, New Delhi. 100 pregnant patients presenting to the labour room with features of PROM at term (POG \geq 37 weeks) were taken as cases and 100 pregnant women (age and parity matched) in labor with term gestation with intact membranes were taken as controls and they were compared in terms of perinatal outcome.

Study group comprised of 100 patients with following criterion - Single live pregnancy with cephalic presentation at term, presenting with leaking per vaginum, PROM confirmed by - leaking of clear fluid on per speculum examination, FERN test and pH test, cervical dilatation of less than 3cms (<3cm) and lack of uterine contractions for at least 1 hour from the onset of PROM. Exclusion criteria included gestational age <37 weeks, cervical dilatation >3 cms, previous LSCS. Perinatal outcome parameters were assessed after delivery for APGAR score at 1 and 5 minutes, birth weight, sex, congenital anomalies, signs of respiratory distress, signs of asphyxia, meconium aspiration, CRP. Sepsis, hyperbilirubinemia and other associated complications in neonates were recorded. In the presence of complications the babies were admitted in NICU and followed up for 1 week.

Suitable tests of significance were applied and p-values less than 0.05 was considered significant.

Results

Commonest cause of perinatal morbidity was Sepsis (15%). Other causes were neonatal hyperbilirubinemia (5%), birth asphyxia (5%), pneumonia (4%), convulsion (2%), meningitis (1%), conjunctivitis (1%), oral thrush (1%), meconium aspiration syndrome (2%).



Out of 100 cases of term PROM, 25 babies were admitted to NICU. In the control group only 5 babies were admitted in NICU.

NICU ADMISSIONS	CASES	CONTROLS	TOTAL
Yes	25 (25.00%)	5 (5.00%)	30 (15.00%)
No	75 (75.00%)	95 (95.00%)	170 (85.00%)
TOTAL	100 (100.00%)	100 (100.00%)	200 (100.00%)

($\chi^2 = 5.647, df = 1$) (p value = 0.017)

Perinatal mortality was seen in 3 out of 100 cases in term PROM group. All neonatal deaths occurred in cases where PROM-delivery interval was > 24 hours. All babies had septicemia, one had pneumonia with oral thrush; second one developed meningitis and third baby had septicemia, meconium aspiration and SBA. In control group, one baby expired due to SBA.

Significantly higher number of neonates had Apgar score at 5 minute < 7 (15%) as compared to only 5% in control group.

Significant number of neonates (35.85%) had complications when PROM to delivery interval was greater than 24 hours.

PROM TO DELIVERY INTERVAL (HOURS)	PERINATAL MORBIDITY
0-6	0 (0.00%)
6.1-12	1 (5.56%)
12.1-24	5 (9.43%)
>24	19 (35.85%)
TOTAL	25 (25.00%)

Discussion

The results of present study were comparable to other studies. Septicemia and lower respiratory tract infection being the major contributors to perinatal mortality.

PERINATAL COMPLICATIONS	Anjana Devi et al[3]	Kadikar et al[4]	Revathi V et al[5]	Present study
Septicemia	11.5%	7%	10%	15%
Neonatal hyperbilirubinemia		5%	2%	5%
Birth asphyxia		2%	2%	5%
Pneumonia	5.8%		5%	4%
Meningitis	2.9%		1%	1%
Oral thrush		2%		

In study group, statistically significant number (25%) of babies were admitted to NICU as compared to 5% in the control group. Endale T et al[6] observed that 25.4% babies required NICU admission in term PROM.

Perinatal mortality rate was 3% in the term PROM group and only 1% in the control group. Comparable results were found by Gandhi M et al [7] (2.86%). Kadikar et al[4] (3%), Sanyal et al [8] (5%) and Chakraborty S et al [9] (3.14%).

15% of cases with term PROM had APGAR <7 at 5 minute needing NICU admission as compared to only 5% of the control group. The difference was found to be statistically significant. Similar results(18%) were noted by Revathi V et al[5]. Yabuq U et al[10] (2015) in a study on 384 cases of term PROM noted APGAR <7 in 8.6% of cases. Fabiana de GracaKrupa et al[11] and Bangal V et al[12] observed Apgar score at birth to be 5.3% and 6% respectively. Endale T et al[6], in a study of 185 neonates of term PROM found Apgar < 7 in 23.8%.

While studying the association of perinatal morbidity with PROM-Delivery Interval it was observed that significantly higher number of neonates (35.85%) had complications when PROM to delivery interval was greater than 24 hours. No complications were seen in babies delivered within 6 hours of PROM. Perinatal morbidity rate increased to 5.56% when the interval was 6.1 -12 hour and further increased to 9.43 % in 12.1-24 hour interval. Hence, perinatal morbidity increased with increasing PROM -delivery interval.

Rakholia S et al[13] noted no perinatal morbidity if PROM delivery interval was less than 6 hour, however it increased to 18.8% to 31.2% to 37.5% if the interval increased to 6-12 hour, 12-24 hour and > 24 hour respectively. Revathi V et al [5] noted perinatal morbidity to be 14.28%, 15.9% and 30.55% in cases respectively if PROM - Delivery interval was less than 12 hours, 12-24 hours and more than 24 hours respectively. Ahirwar G et al[14] made an interesting observation between rates of neonatal septicemia and PROM-delivery interval. They noticed that if the duration of leaking was for less than 12 hour, development of septicemia was 16% whereas, 47% neonates developed septicemia if the leaking was more than 24 hour. Endale T et al[6] in 2016 concluded that 68.2% neonates had unfavourable outcome if the duration of PROM was more than 12 hours.

The increasing perinatal morbidity with increasing PROM to delivery interval can be attributed to the prolonged exposure of the baby to ascending infection. With rupture of membranes, the clock of infection starts to tick. Therefore, early intervention in the form of prophylactic antibiotics and termination of pregnancy will help in reducing the perinatal morbidity in terms of infection and hypoxic damage.

Conclusion

Term PROM is a significant complication of pregnancy which leads to higher maternal morbidity and significant perinatal morbidity and mortality.

Comprehensive antenatal care can reduce the incidence of PROM and associated neonatal morbidity.

Increased NICU admissions of these babies and longer hospital stay is an added burden to our health resources.

Health care strategies should strive to decrease and eliminate genital tract infections with the help of a low cost tool such as syndromic approach. A better understanding of the diagnosis and management of term PROM will allow obstetric care providers to develop protocols to optimize perinatal outcome and minimize the morbidity and mortality associated with it.

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