

A Study of Feto-Maternal Outcome in Cases of Premature Rupture of Membrane.



Medical Science

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ABSTRACT

Objective-Every mother has the right to conclude her pregnancy safely. A live and healthy baby is the desire of all pregnant women and of course of all family. Obstetricians from the very ancient days were of the opinion that premature rupture of membranes can cause maternal complications, increased operative procedures and neonatal morbidity and mortality. We studied cases of PROM during and after delivery and studied maternal morbidities, common perinatal morbidities as well as mode of delivery. Study design-This was a prospective observational study where patients with confirmed PROM between 28 weeks to 40 weeks were recruited. Patients were divided in Full term PROM and Preterm PROM. Patients were monitored for progress of labour as well as for mode of delivery. Maternal and neonatal morbidities were noted and compared in both the groups. Results and Conclusion- PROM is responsible for large number of preterm delivery. Higher incidence of induced labour, cesarean section and instrumental deliveries were noted in study group. Incidence of neonatal sepsis and subsequently antibiotics given were significantly higher in study group. It has also increased total hospital stay of cases. Proper screening of high risk cases and appropriate use of antibiotics in mother can be suggested to reduce perinatal morbidities.

Introduction

Spontaneous rupture of membranes at any time beyond 28th week of pregnancy but before the onset of labour is called Pre-labour rupture of membranes (PROM). It remains a subject of great clinical relevance and interest for each and every obstetrician. The incidence of PROM is about 10% of all pregnancies and 70% of them occur at term. Most Indian studies document an incidence of 7-12% for PROM of which 60-70% occurs at term.1

Situation in developing countries is different. The available facilities for diagnosis, treatment are different and age of viability is also less. Unrecognized and inadequately treated conditions can lead to maternal asymptomatic and symptomatic chorioamnionitis. Neonatal complications include higher incidence of non reassuring cardio tocography patterns (7.9%) due to cord compression subsequent to leaking and higher incidence of sepsis.2

80% of the Term PROM cases enter labour spontaneously within 24 hours and 95% within 72 hours if managed expectantly which includes continuous observation of maternal and fetal condition, antibiotics and amnioinfusion if required. However if cervical dilatation and effacement are not favorable (Bishop's Score d"4), than induction with various methods is recommended. Use of various Prostaglandins is the commonest method used for induction of labour.3, 4, 5. The investigators focus is the maternal and perinatal outcome in cases of PROM.

Methodology

This was a prospective observational study carried out on 100 patients from June 2008 to June 2010 in the Department of Obstetrics and Gynecology, Government Medical College and Sir-T General Hospital, Bhavnagar after approval from the ethical committee.

Patients with singleton pregnancy and diagnosed having PROM between 28 weeks to 40 weeks of gestational age with vertex presentation were included in this study. Patients were divided in full term (between completed 37 weeks up to 40 weeks) and preterm (completed 28 weeks up to 37 weeks). Diagnosis of PROM was confirmed by leaking of clear fluid in per speculum examination and fern test in all cases. Patients with less than 28 weeks of gestational age, abnormal presentation, history of previous cesarean section, ante partum hemorrhage, meconium stained liquor were excluded.

All patients were admitted to labour room, detailed history, general examination, local examination were carried out. Cervical swab was sent for culture and sensitivity in all cases. All patients

were observed for spontaneous onset of labour. Induction was advocated when latent period was more than 12 hours. Induction was done with oxytocin in patients with favourable cervix (Bishop's score d"6). Patients with unfavourable cervix, cervical prime gel was used to ripen the cervix (Bishop's d"4) and induce the labour. Prophylactic antibiotics in the form of injectable Cefotaxime 1 gm IV BD and injectable Metronidazole 500 mg TDS were given followed by oral antibiotics in cases with episiotomy and in cases of cesarean section.

PROM delivery interval and mode of delivery, course of labour with spontaneous labour and after induction, fetal complications, effect of gestational age on fetal outcome and maternal morbidity were noted.

Neonatal management-After delivery Apgar Score at 1 minute and 5 minute, sex, birth weight, congenital anomalies, complications like birth injuries, signs of asphyxia, meconium aspiration, sepsis and other associated complications were noted. In the presence of complications the babies were admitted to NICU and were followed up in the postnatal period.

Results and Data analysis

All data were tabulated and results were analysed.

Table 1: Relation of PROM with Gestational Age

Present study		V.Kamala 2001
PROM	Number =100	Number=100
Full term	69	67
Preterm	31	33

Out of 100 cases of PROM, 69 cases occurred in full term pregnancy where as 31 cases in preterm pregnancy. Table 1 shows that incidence of PROM with gestational age in present study were similar to the study done by V.Kamala et al.6.

Table 2: Relation of Mode of Onset of labour and PROM

PROM	Mode of onset of labour	
	Spontaneous	Induction
Full term	23	46
Preterm	15	16

Spontaneous onset of labour occurred in 38 cases of which 23 cases were full term (61%) and 15 cases were preterm (39%). Induction of labour was required in 62 cases of which 46 cases were full term (74%) and 16 cases were preterm (26%).

Table 3: Relation of latent period and PROM

PROM	Latent period	
	<24 Hours	>24 Hours
Full term	58	11
Preterm	14	14

Latent period was less than 24 hours in 75 cases of which 58 cases were full term (77%) and 17 cases were preterm (23%). Latent period was more than 24 hours in 25 cases of which 11 cases were full term (44%) and 14 (56%) cases were preterm.

Table 4: Relation of Induction Delivery, PROM Delivery Interval and PROM

PROM	Induction delivery interval (Duration)	PROM delivery interval (Duration)
Full term	5Hours and 50 minutes	24 Hours
Preterm	4Hours and 45 minutes	30Hours and 30 minutes

PROM delivery interval was on average 24 hours in full term cases where as it was on average 30 hours and 30 Minutes in preterm cases. Induction delivery interval was 5 hours and 50 minutes in full term cases where as it was 4 hours and 45 minutes in preterm cases.

Table 5: Relation of Mode of Delivery and PROM

PROM	Mode of delivery		
	Vaginal	LSCS	Instrumental
Full term	33	28	08
Preterm	24	03	04
Present study (n=100)	57	31	12
V.Kamala 2001 (n=100)	74	15	11

In full term PROM 33 cases had vaginal delivery (48%), 28 cases had cesarean section (41%) and 08 (11%) cases had instrumental delivery. In preterm PROM 24 cases had vaginal delivery (77%), 03 cases had cesarean section (10%) and 04 had instrumental delivery (13%). Present study corresponds to V.Kamala et al study in subject to mode of delivery.

Table 6: Relation of culture and PROM

PROM	Culture Positive	Culture Negative
Full term	14	55
Preterm	14	17

Culture was positive in 14 cases of full term PROM (20%) where as in 14 cases of preterm PROM (67%).

Table 7: Fetomaternal outcome and PROM
Table 7.1

PROM	No of cases	Still birth	Neonatal death	Perinatal death
Full term	69	0	2	2 (3%)
Preterm	31	4	6	10 (32%)

Table 7.2

Perinatal complications	Full term PROM(N=69)	Preterm PROM(N=31)
Septicemia	7	6
Jaundice	5	7
Oral thrush	2	0
NEC	0	2
RDS	2	3
Birth asphyxia	2	0
Umbilical cord sepsis	0	1
TOTAL	18 (26%)	19 (61%)

Perinatal complications were present in 18 cases of full term PROM and 19 cases of preterm PROM.

Table 7.3

Maternal Complications	No.of patient(n=8)
Puerperal Pyrexia	02
Chorioamnionitis	01
Urinary Tract Infection	02
Wound infection	03

Maternal morbidity occurred in only 8% of PROM cases.

Discussion

PROM occurred in 31 cases in preterm pregnancy which shows that it is a common cause of preterm delivery and so responsible for increased neonatal morbidity in preterm babies. The risk of perinatal mortality related to PROM and subsequently preterm delivery is inversely related to gestational age. In preterm pregnancy cervix is usually unfavourable, so PROM delivery interval was prolonged. The frequency of preterm PROM increases with increasing gestational age, but the duration of PROM prior to the delivery decreases with gestational age.

Induction was required in 62 cases of PROM which reflects poor Bishop's score after latent period of 12 hours. Latent period is longer at earlier gestational age. Average induction delivery interval was less than 6 hours in 95% of induced labour which reflects that it has several benefits including shorter time to deliver leading to reduction in maternal morbidity and perinatal morbidity and mortality.

There is increased incidence of induction of labour and operative intervention in PROM cases. Non reassuring fetal states and non-progress of labour were the common indications of LSCS in both induced and spontaneous onset of labour. Induction increases the rate of operative intervention either due to fetal distress or due to non progress of labour.

Culture was positive in 28% of PROM cases which shows that infection is a major etiological factor responsible for PROM.

Neonatal morbidity and mortality are directly related to latent period and PROM delivery interval. Perinatal morbidity was mainly due to RDS (Respiratory Distress Syndrome), sepsis, hyperbilirubinemia and mortality was mainly due to sepsis, RDS and birth asphyxia.

Conclusion

In developing countries like India, incidence of perinatal morbidities is still higher especially in resource poor setting.

Regular antenatal care, good hygiene, nutritious diet, early diagnosis of vaginal infection, literacy, and health education can decrease the incidence of PROM. Timely referral of PROM cases to tertiary care hospitals and timely intervention can further improve perinatal outcome. Use of cervical swab for culture and sensitivity and accordingly of sensitive antibiotics can further decrease rate of such morbidities. More and more institutions worldwide now accept early induction in cases of PROM to improve perinatal outcome 7,8,9,10,11. In 2006 Concrane library published that induction of labour does not increase the risk of

rates of cesarean section or operative intervention.

However, randomized controlled trials involving large sample size is needed to draw further conclusions.

REFERENCE

1. Bradley et al, Phillips et al, A quick review of PROM. The internet journal of gynecology and obstetrics 2002, vol.1 No.2. | 2 Merowits et al, Anthony et al.Effect of labour on Infant Morbidity And Mortality with PROM.Obstetrics and Gynecology.2001; 97:494-498. | 3 Ozden S et al.Intra vaginal misoprostol versus expectant management in PROM with low Bishop,s scores at Term. IJOG. May 2002; 77(2):109-115 | 4. V. Wagner et al. A comparision of early and delayed induction of labour with PROM at Term.Journal of Obstetrics and Gynecology of India.1989; 74:93-96. | 5. Hidar S. et al. Contribution of intracervical PGE2 administration in PROM at Term. Prospective Randomised Clinical Trials. Journal Obs & Gynec Bioreproduction.Oct 2000; 29(6):6017-13. | 6. V.Kamala Jayaram, Scaila Sudha. A study of premature rupture of membranes-Management and outcome.Journal of Obstetrics and Gynecology of India 2001;51(2):58-60. | 7. Duffe Huff et al,Management of PROM-An unfavourable cervix in term pregnancy.Obst & Gynec.1984;5:697-98. | 8. Morgan Ortiz F et al. Misoprostol and Oxytocin for induction of cervical ripening and labour in patients with term pregnancy and PROM. Mexican Obst. & Gynec.Oct.2002;70: 469-476. | 9. Kabiraj et al & Dutta et al. Induction of labour in women with misoprostol with PROM at Term.IJOG.Nov-Dec 2007; 57(6):505-508. | 10. Enhrom et al, Simmons et al. Dinoprost gel versus misoprost for cervical ripening in patients with PROM at 34 completed weeks ar more Feb 2002;99:206-210. | 11. Kimberly et al & Kelly et al. Randomised comparision of oral misoprostol & Oxytocin for labour induction in Term PROM.ACOG. 1999; 94:994-999. |