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A Study of Premature Rupture of Membranes - Management & Outcome

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Summary:

The incidence of PROM was 11.5% among 3,442 deliveries over a period of one year. A hundred patients with PROM from 32 to 40 weeks of gestation were studied, and another 100 patients without PROM were taken as controls, 67 cases were term PROM and 33 were preterm PROM. Genital tract infection with associated coital activity was the major etiological factor (56%). 27% had spontaneous onset of labour. 47% required augmentation. The C. Section rate was higher (15%) than in controls (5%). In term PROM intrapartum amnio infusion had improved the neonatal outcome with good Apgar scores in 88.8%. The use of tocolytics, corticosteroids, antibiotics and amnio-infusion in preterm PROM cases had reduced the neonatal morbidity and mortality. The overall perinatal mortality was 4% and there was no maternal mortality in this study.

Introduction:

PROM is a significant event as it can cause maternal complications, increased operative procedures, neonatal morbidity and even mortality. It has been well recognized that such an accident is usually followed by the initiation of labour pains and therefore well might be the sole cause of abortion or preterm labour. It is therefore evident that PROM demands a careful consideration.

The present study was undertaken to evaluate the incidence, risk factors, efficacy of tocolytics, corticosteroids, antibiotics and intrapartum amnioinfusion, maternal and perinatal morbidity and mortality associated with this important obstetric problem, were also studied.

Materials and Methods

This prospective case control study was carried out in the Department of Obst., & Gynaecology at Government General Hospital, Guntur, over a period of one year from 1996-'97. The study group comprised of 100 cases with a history of draining per vaginam from 32 to 40 weeks of gestation. The patients were chosen in whom there was a cervical dilation of less than 3 cms. 100 patients who had no PROM formed the controls for this study.

In these cases, after sterile speculam examination, diagnosis was confirmed by bed side tests. Gestational age was determined by the available parameters. A detailed history was taken including age, parity socioeconomic status, antenatal care, complication if any, time of rupture of membranes, time of onset of labour pains and outside interference, if any. General examination was done followed by obstetric examination including height of uterus, presentation and position, fetal heart rate and uterine contractions. Then a vaginal examination was done to note the nature, dilatation of cervix, presence

or absence of membranes and for pelvic assessment in term PROM cases. Baseline investigations were done. A high vaginal swab was obtained before vaginal examination, for culture and sensitivity.

In cases of term PROM, with favourable cervix, labour was induced immediately with oxytocin and if cervix was unfavourable, these cases were observed for spontaneous onset of labour for 6 to 12 hours. Prophylactic antibiotic, ampicilin 500 mg. was given 8 hourly, for all cases. Caesarean was done in cases where there was an indication at any stage. In cases with thick meconium stained liquor, labour was augmented after giving transcervical amnioinfusion.

In preterm PROM, conservative line of management was chosen. In those patients with uterine contractions, latent period was prolonged with terbutaline. Dexamethsone 12mg. I.M. for 2 doses, 24 hrs. apart to accelerate the fetal pulmonary maturity, and prophylactic ampicillin 500mg 8 hourly was given for all cases. Labour was induced 48 hrs. after the 1 dose, of steroid. Prophylactic intrapartum amnioinfusion was given before hand, where warmed up Normal saline or Ringerlactate was infused transcervically into the amniotic cavity continuously aided by gravity, to a maximum of 500 – 600ml.

The condition of the baby was noted on delivery and followed up till discharge from the hospital. Condition of the mother in the puerperium was noted and compared.

Observations

There were 398 cases of Spontaneous PROM out of 3,442 deliveries, during the study period of one year giving an incidence of 11.5%. Of these, PROM at term were70.3% and Preterm PROM were 29.7%. The incidence of term & preterm PROM in the study group was 67% and 33% respectively (Table-I).

Table – I

G.A. in Weeks	PROM Total No. of Cases 398		Study Group (100 Cases)	Controls (100 Cases)
	No.	%	%	%
32-34	22	05.5	10	08
35-37	96	24.2	23	17
38-40	280	70.3	67	75
	398	100.0	100	100
No. of Deliveries			3442 (1996-97)	
No. of Spontanous PROM			398	
Incidence of PROM			11.5%	

Table-II shows the risk factors in relation to PROM. It was evident that genital tract infection along with recent coitus was a major risk factor (56%). The Organisms isolated were E.Coli, Staphylococci, Streptococci and atypical coliforms.

Table-II
Risk Factors in Relation to PROM

Risk Factors	100 Cases %
Genital Tract Infection	40
Coitus	16
Malpresentations	14
Vaginal examination	13
Hydramnios	10
Travel	05
Incompetent Cervix	02
	100

Table-III shows the mode of delivery. Spontaneous vaginal delivery was less (27%) when compared to the control (52%). 47% required augmentation, 11% had forceps delivery and 15% required caesarean section, the indications being, failed induction, fetal distress and malpresentations. The average duration of latent phase of labour was 11 hours in the study group as against 7 hour in the controls.

Table – III
Mode of Delivery

Mode of Delivery	Study Group (%)	Controls (%)
Spontaneous Vaginal	27	52
Augmented with Oxytocin	47 [illegible]	[illegible]
Forceps Delivery	11	13
C-Section	15	8
	100	100

Out of 67 term PROM cases, 60(89.5%) babies had good APGAR score, 5 were asphyxiated (07.5%) and there were two still births (3%) (Table-IV).

Table – IV
Condition of the Baby at Birth in Term PROM

Condition at Birth	No. of Babies	%
Vigorous	60	89.5
Asphyxiated	05	07.5
Still Births	02	03.0
	67	100.0

Table-V shows the Neonatal outcome after amnio-infusion in cases with thick meconium stained liquor in term PROM cases. In 9 cases, intrapartum amnio infusion was given to dilute the liquor and compared with 15 cases of controls who also had thick meconium

and who did not receive amnio-infusion. In the study group 88.8% of babies had good Apgar and there was no fetal death, whereas in controls 33.3% of babies had good apgar, 26.7% were asphyxiated and there were 6 fetal deaths (40%).

Table - V
Amnio Infusion in Thick Meconium Stained Liquor in Term PROM

Neonatal Outcome	Study group with Amnio Infusion 9 cases		Control Group without Amnio infusion 15 cases	
Vigorous	8	88.8%	5	33.3%
Asphyxiated	1	11.2%	4	26.7%
Still Birth	-	-	6	40.0%
	9	100%	15	100%

With the administration of tocolytics, corticosteroids, antibiotics and intrapartum amnio-infusion in preterm PROM cases, the neonatal out come was good (85%) and there were two neonatal deaths (6%) when compared to the controls in whom labour was induced immediately without the above mentioned protocal (Table VI), where 52% of babies were asphyxiated and the neonatal deaths were 12%.

Table VI
Tocolytics, Cortiocosteroids, Antibiotics & Intrapartum Amnioinfusion in PROM-Neonatal Outcome.

Neonatal Outcome	Study Group		Controls	
	No. n	33 %	No. n	25 %
Vigorous	28	85	9	36
Asphyxiated	3	9	13	52
Neonatal Death	2	6	3	12
	33	100%	25	100%

There was no difference in the neonatal morbidity like conjunctivitis, Jaundice, sepsis, aspiration etc., in the study group (17.9%) and controls (17.4%) in term PROM cases; but in Preterm PROM, the morbidity was less (24%) as compared to the controls (44%). The maternal morbidity was 4% and 3% in the study group and controls respectively. There was no maternal death in this study.

Discussion:

The incidence of PROM in our study was 11.5%, comparable to 12.5% of Rovinsky and Shapiro (1967). Gunn et al (1970) quoted an incidence of 2-18%. Genital tract infection was the major etiological factor (40%) along with coitus (16%). Kodkany & Telang (1991) observed that coitus in the last timester of pregnancy led to a 6 fold increase of PROM. In our study PROM was associated with Malpresentations in 14% and hydramnios in 10%. Vaginal deliveries were 85%, 47% required augmentation with oxytocin and C. Section rate was resorted to in 15% as against 5% in the controls. Anjanadevi and Reddy (1996) has reported a high incidence of C. Section (15.2%) rate.

Of the term PROM cases, 89.5% had good apgar score, 7.5% were asphyxiated and there were two still births. Among 9 cases of term PROM with thick meconium stained liquor who received amnio infusion 88.8% of babies were vigorous, when compared to controls.

In preterm PROM cases with antenatal steroid therapy, short term tocolysis and intrapartum amnio infusion, good perinatal outcome was observed. There were two neonatal deaths (6%) as against 12% in controls.

Prophylactic intrapartum amnio-infusion in PROM cases was found to be advantageous in reducing the incidence and severity of variable decelerations (Nageotte et al 1995).

In this study, amnio infusion was found to improve the neonatal outcome.

The overall fetal loss was 4%, 2 babies died due to aspiration and 2 died due to prematurity & umbilical sepsis. The maternal morbidity was 4% and there was no maternal mortality. The fetal loss in the control group was 9%.

Conclusions:

Correction of potentially remediable risk factors for PROM might allow selective reduction in the incidence of PROM.

Antenatal steroid therapy and tocolysis are certainly helpful in PROM cases. Prophylactic antibiotics and intrapartum amnio infusion in all cases of PROM and term PROM with thick meconium stained liquor would certainly improve the neonatal outcome by preventing the pressure over the umbilical cord, diluting the meconium and improving the metabolic status of the neonate. So its routine use may be recommended during labour in these cases.

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