Maternal and Foetal outcome in cases of PROM

Swati Pandey, Anupama Dave, S. Bandi
M.G.M. Medical College, Indore

Summary : 100 Patients with premature rupture of membranes at 28-42 weeks gestation without any associated medical or obstetrical complications, who presented to the Department of Obstetrics & Gynaecology, M. Y. Hospital, Indore were studied. Equal number of normal deliveries were taken as controls. The incidence of PROM was found to be 7.71% (69% term % 31% preterm PROM). Incidence of LSCS (31%) and other abnormal deliveries was high, compared to controls. There were no maternal deaths but incidence of maternal infectious morbidity was 9%. Prematurity was the main contributor (41.6%) to the high perinatal mortality rate. The perinatal mortality rate was 120/1000 births compared to 40/1000 births in the control group.

Introduction:

Amongst the many etiologies of perinatal death, prematurity is the most frequent offender and when specific etiologies within this premature group are assessed. PROM is observed in 35% of preterm deliveries (Arias & Tomich 1982). Clearly, any serious attempt to decrease the morbidity and mortality of prematurity must address the prevention and proper therapy of PROM. Increasing the obstetrician's woe is the fact that much of literature available is that pertaining to studies in the developed countries where neonatal salvage rates in preterm deliveries are high, and stringent asepsis is followed. The situation in the developing countries is often different.

PROM is such a common and important event in obstetrics that it is surprising to find a tremendous divergence of opinion concerning its proper management.

The present study was carried out to identify those critical areas of controversy relating to the management of PROM and to review the recent literature bearing on these areas, suggesting directions both for management protocols as well as clinical research.

Material and Methods:

The present study was carried out in the Department of Obstetrics and Gynaecology, M.G.M. Medical College and M.Y. Hospital, Indore. The study comprised of 200 cases - 100 study and 100 control.

All cases with gestational age between 28-42 weeks, in which spontaneous rupture of membranes was documented at least one hour prior to the onset of labour were included in the study.

A detailed history and careful clinical examination of the patient was carried out to find out the gestational age, period of latency, the course of labour, the incidence of maternal and foetal morbidity and mortality. For diagnosis of chorioamnionitis, clinical criteria (i.e. maternal pulse and temperature, foetal tachycardia, uterine irritability and tenderness) were used. Amniotic fluid culture (by cervical swab) was done in 50 cases and all the study cases were given prophylactic antibiotic (Inj. Ampicillin 1gm. at admission and then 500 mg 6 hourly).

The variables were studied in each group separately and compared with controls.

Observations:

The incidence of PROM was found to be more in patients of lower socio-economic group (61%) and in those who were nulliparous (62%).

Table - 1 depicts, the risk factors which could have been responsible for PROM in those cases, in which they were present. There was previous history of preterm PROM in 08% cases in study group while 14% patients gave history of recent coitus. In 11% cases malpresentation could have been the possible etiological factor.

69% patients had rupture of membranes at term (rest of 31% patients had preterm PROM i.e. rupture before 36 wks. gestation). All the 5 cases in 28-30 weeks gestation and 3 out of 4 cases in 31-33 week group had latent periods longer than 24 hours, while only 2 out of 66 cases in 37-40 week group had latent periods longer than 24 hours. Thus the shorter the period of gestation, the longer the latent period and vice-versa.

Table - 1

Risk Factors for PROM

Risk Factors	Study Group (%)	Control Group (%)
1. Unknown	61	-
2. Malpresentations:		
- Breech	09	03
- Shoulder	02	01
3. History of recent coitus	14	05
4. Previous History of Preterm PROM	08	02
5. History and other evidences suggestive of Incompetent os.	03	-
6. Poly-hydramnios	02	01
7. Twins	01	-

Table II

Mode of Delivery

Mode of Delivery	Study Group (%)	Control Group (%)
1. Normal vaginal delivery	37	78
2. Vaginal breech delivery	08	02
3. Outlet forceps delivery	03	01
4. Pitocin induced labour	05	04
5. Pitocin accelerated labour	15	02
6. Caesarean Section	31	12
7. Twin delivery	01	-

Table III

Maternal infectious morbidity : Incidence of Chorioamnionitis

	Clinical evidence of infection (Pyrexia)	Bacteriologic evidence of infection
Total No. of cases studied	100	50
No. of positive cases	06	07
Percentage	6%	14%

Table IV

Bacteriological Examination of Amniotic Fluid

Organisms Grown	Percentage
1. E.Coli	28.57%
2. Klebsiella	21.14%
3. Bacteroides Fragilis	14.2%
4. Peptostrepto coceus	7.1%
5. Staph. aureus	14.2%
6. B.hemolytic streptococcus	7.1%
7. Enterotococcus	7.1%

Table - V

Causes of Perinatal Mortality

Causes	Study Group No.	(%)	Control Group No.	(%)
1. Prematurity	05	41.6%	01	25%
2. Neonatal Sepsis	03	25%	01	25%
3. Perinatal Asphyxia with Respiratory Distress Syndrome (RDS)	03	25%	02	50%
4. Congenital Malformation (Anencephaly)	01	8.33%	-	-
	12	100%	04	100%

The mean of total duration of labour in nulliparae in study group was 14.54 hours while in control group it was 11.78 hours. There was no significant difference in the total duration of labour in multiparae in the two groups.

The incidence of abnormal and operative deliveries was higher in cases with premature rupture of membranes as compared to that in controls. As Table-II shows there were 31% caesarean deliveries in study group, as compared to 12% in control group.

Foetal distress (45.16%) and failed oxytocin induction (16.12%) were the commonest indications for caesarean section in the study group.

As depicted in Table-III, 6% patients had clinical evidence of chorioamnionitis (had pyrexia in latent period), out of which 4% had latent periods longer than 24 hours. 14% of patients had bacteriologic evidence of infection (Positive amniotic fluid culture).

33.3% of those patients who had latent periods of 49 hours or longer,developed pyrexia.

It is obvious from Table IV, that E.Coli (28.57%) and Klebsiella (21.14%) were the commonest aerobic and Bacteroides fragilis (14.2%) were the commonest anaerobic organisms isolated.

Table-V clearly indicates that prematurity was the most common offender (41.6%) in all perinatal mortalities, followed next by neonatal sepsis and perinatal asphyxia with RDS (Respiratory distress syndrome) (25% each).

The perinatal mortality rate was 120/1000 total births (40/1000 total births in control group) while there were no maternal mortalities.

Discussion:

7.71% incidence of PROM in the present study is in accordance with the study by Bourgeois et al, 1988 (7.35%).

Decreased antibacterial activity in the amniotic fluid of patients of low socio-economic status could be the reason of higher incidence of PROM in these patients (Tafari et al, 1977). Naeye (1982) reported that preterm delivery due to PROM was 11 times more frequent with recent coitus. The fact that preterm PROM tends to recur in subsequent pregnancies, offers an opportunity for prevention (Poma P.A., 1996). 69% patients in the present study had term PROM. This coincides with the report by Allen (1991) who also found that about 60-80% of cases of PROM occur in term patients. Michalas & Lampe (1996) found that 70-80% of patients with PROM go in spontaneous labour within 24 hours (as was found in preent study too). Newton et al (1989) found 4.2% and Soper et al (1989) found 10.5% overall incidence of chorioamnionitis which is comparable with the results in present study (6% incidence). The statement by Gillibrand (1967), that high perinatal loss in PROM is attributed to prematurity rather than infection, is in good agreement with the present study.

Conclusion:

Despite exhaustive research, most aspects of PROM remain enigmatic. PROM is increasingly associated with malpresentations and operative deliveries and thus, adversely affects the course of labour. It also seems to predispose to compromised foetal well being. Antibiotics don't seem to have much role in prevention of neonatal sepsis when given prophylactically. However, they do have some role in prevention of puerperal sepsis. Corticosteroids, once anathema for PROM patients, are now considered to be of almost universal benefit in all cases from 26 to 36 weeks gestation. Tests of foetal well being are currently sophisticated enough that expectant management can be supported by evidence of continued uncompromised fetal health.

Continually changing views on the optimal management of PROM at any gestational age will frustrate some, but will give others, the motivation necessary to keep up to-date.

References

1. Allen S.R. : Clin. Obstet Gynecol. 34(4): 685, 1991
2. Arias F. and Tomich P.: Obstet. Gynecol. 60: 277, 1982
3. Bourgeouis F.J., Harbert G.M. Jr, Anderson W.A., Thiagrajah S., Duffer J., Hendrickx K.: Am.J. Obst. Gyn. 159:742, 1988
4. Gillibrand P.N.: J. Obst. Gyn. Brit Commonwealth, 74: 678, 1967
5. Michalas S. & Lampe L.G.: Eur. J. of Obst. Gyn and Rep. Biol. 65: 71, 1996.
6. Naeye R.L.: Obstet. Gynecol. 60: 93, 1982
7. Newton E.R., Prihoda T.G., Gibbs R.S., Obstet. Gynecol. 75, 571, 1989.
8. Poma P.A,: J. Natl. Med. Assoc. 88(1): 27: 1996
9. Soper D.E., Mayhall C.G. & Dalton H.P.: Risk factors for intraamniotic infections: A prospective epidemiologic study. Am. J. Obstet. Gynecol. 161 : 562: 1989.
10. Tafari N., Ross S.M., Naeye R.L., Galask R.P., Zaar B.: Am. J. Obst. Gyn. 128: 187, 1977.