Analysis of Maternal and Perinatal Outcome in Cases of Preterm Premature Rupture of Membranes

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Abstract

Introduction: **PROM is an obstetric conundrum which is poorly defined, with an obscure aetiology, difficult to diagnose and is associated with significant maternal and neonatal morbidity and mortality. It complicates 3-8% of pregnancies and leads to one third of preterm deliveries. It increases the risk of prematurity and leads to other complications with 1-2% risk of foetal death. It has diverse and controversial management strategies.**

Objectives: **1. To study the outcome of labour in preterm premature rupture of membranes. 2. To find out the maternal and perinatal morbidity and mortality trends in preterm premature rupture of membranes.**

Material and Methods: **It is hospital based prospective observational study of 100 patients of preterm premature rupture of membranes in between 28-37 weeks gestation with singleton pregnancy admitted in our tertiary care centre.**

Results: **In this study 45% patients went into spontaneous labour and 55% needed induction or augmentation. 65% patients had vaginal delivery and 25% required LSCS. The main indications for LSCS being malpresentation (28%) followed by foetal distress (24%). There was no maternal mortality; morbidity was found in 16% patients.**

Perinatal morbidity was seen in 33% and was mainly due to RDS (21%), sepsis (10%) and hyperbilirubinaemia (23%). Perinatal mortality was seen in 15% and was due to sepsis in 27%, RDS in 53% and birth asphyxia in 20%.

Conclusion: **PPROM is one of the important causes of preterm birth that can result in high perinatal morbidity & mortality along with maternal morbidity. Looking after a premature infant puts immense burden on the family, economy and health care resources of the country. Therefore management of PPROM requires accurate diagnosis and evaluation of the risks and benefits of continued pregnancy or expeditious delivery. An understanding of gestational age dependent neonatal morbidity and mortality is important in determining the potential benefits of conservative management of preterm PROM at any gestation.**

Introduction

The normal development, structural integrity and function of the foetal membranes are essential for the normal progress and outcome of pregnancy. One of the most important functions of the membranes is to remain intact until the onset of labour at term in order to maintain the protective intrauterine fluid environment; the amniotic fluid upon which foetus depends for its survival in utero.

Indeed in most pregnancies labour

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begins at term in the presence of intact foetal membranes. Without interventions their spontaneous rupture usually occurs near the end of the first stage of labour. The onset of labour following PROM is directly related to gestational age at the time of rupture: after 36 weeks more than 80% of patients will be in labour within 24 hours; before 28 weeks only 48% will be in labour within 3 days of rupture.[2]

Definition

Premature rupture of membranes (PROM) is defined as the spontaneous rupture of amniotic membrane with a release of amniotic fluid at least one hour before the onset of labour. If the membranes rupture after 37 weeks of gestation it is called term PROM. If the rupture of membranes (ROM) occur after 28 weeks but before 37 weeks of gestation is termed as the preterm premature rupture of membrane (PPROM).[1]

Latent period- It is the time interval between the rupture of membranes and the onset of uterine contractions.

Prolonged PROM - It is the term used when more than 24 hours have elapsed before the labour ensues.

High rupture of Membranes- It is due to the rupture of amniochorion at a site distant from internal os and spontaneous cessation of leakage can occur.[2]

PROM is usually followed by labour. The onset of labour after PROM is directly related to the gestational age at the time of rupture. Labour started within 24 hours of PROM in 81% of patients carrying babies larger than 2500 grams but early in gestation. Only 48% of the patients develop labour within three days of PROM.[2]

It is an obstetric conundrum which is poorly defined, with an obscure aetiology, difficult to diagnose and is associated with significant maternal and neonatal morbidity and mortality and has diverse and controversial management strategies.

Incidence of PROM

PROM occurs in approximately 10% of all pregnancies and in 70% of the cases at term. Although there is some morbidity when PROM occurs in term pregnancies, the fundamental clinical problem is preterm PROM, a condition that occurs in 3% of all pregnancies and is responsible for approximately 30% of all preterm deliveries.[1]

Preterm PROM complicates 3-8% of pregnancies and leads to one third of preterm deliveries.[2] It increases the risk of prematurity and leads to other perinatal and neonatal complications with 1-2% risk of foetal death. PROM is associated with increased risk of chorioamnionitis, dysfunctional labour, increased caesarean rates, postpartum haemorrhage and endometritis in the mother. In the foetus, there is increased occurrence of hyaline membrane disease, intraventricular haemorrhage, sepsis, cord prolapse, foetal distress and increased foetal wastage. Thus, earlier the gestational age at the time of PROM, longer is the latency and more the complications. Management of PROM remains controversial and challenging. Controversy surrounds the role of tocolytics, steroids and antibiotics.[3]

Aims and Objectives

Aim

To study maternal and perinatal

outcome in patients with preterm premature rupture of membranes

Objectives

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2. To find out the maternal and perinatal morbidity and mortality trends in preterm premature rupture of membranes.

Material and Methods

Source of Data

100 patients of preterm premature rupture of membranes in between 28-37 weeks gestation admitted in labour room were studied after considering inclusion and exclusion criteria.

Study Design: Hospital based prospective observational study

Study Period: Over a period of one year from March 2013 to Feb 2014

Study Place: Tertiary care hospital

Sample Size: 100

As per statistical formula sample size was 100.

(Ref. www.surveysystem.com)

In last year (2012) population of PPROM was 135

(calculated by considering all inclusion and exclusion criteria).

Confidence level 95%

Confidence interval 5

Inclusion criteria

All pregnant women with a singleton pregnancy between 28-37 weeks of gestational age with preterm premature rupture of membranes.

Exclusion criteria

1. Multiple pregnancies
2. Intrauterine growth restriction
3. Uterine anomalies
4. Foetal anomalies
5. Myoma uteri
6. Hypertensive disorders and pregnancy induced hypertension
7. Gestational diabetes mellitus
8. Antepartum haemorrhage
9. Chronic renal failure
10. Class II to IV cardiac diseases.

Method of collection of data

A detailed history was taken including age, booking, socio-economic status, time of onset of draining, amount of fluid lost, its colour, odour, association with pain or bleeding per vagina and perception of foetal movements.

General examination was done , Height and weight were noted. Systemic examination included cardiovascular, respiratory systems and CNS systems.

In the obstetric examination, following were noted.

- Height of uterine fundus, lie, presentation and position of foetus, engagement of presenting part, condition of uterus whether contracted or relaxed. Uterine tenderness was looked for as a sign of chorioamnionitis. Foetal heart sound was auscultated and its rate, rhythm and tone were noted.
- A sterile speculum examination was done and amniotic fluid pooling in posterior fornix was observed. The colour and smell of fluid was noted.

  If no fluid was seen, the patient was asked to cough and drainage of fluid was looked for. In doubt, vaginal fluid specimen was collected and subjected to litmus paper test.

Cervical swab was taken and sent for Gram stain and culture sensitivity.

- A single pelvic examination was done to note the Bishop's score, adequacy of pelvis, assessment of CPD and to rule out cord prolapse.

Investigations like total count, differential count and C-reactive protein were done. Prophylactic antibiotic in the form of injection ampicillin 1gm IV every 6 hourly was given.

Depending upon the gestation age and Bishop's score labour was induced with prostaglandins or augmented with oxytocin. Time of induction was noted. Progress of labour was monitored, Induction to delivery interval and PROM to delivery interval were noted. Maternal pulse, blood pressure, foetal heart rate and its variations were checked frequently.

The onset of any complications like foetal distress, foetal heart rate variations, chorioamnionitis (clinical) were looked for. Progress of labour was monitored.

If there was any evidence of foetal jeopardy or any other obstetrical complications, labour was cut short by instrumental delivery or caesarean section as required.

Following facts were noted

- Soon after delivery, APGAR score at 1 and 5 minutes birth weight, sex, congenital anomalies, immediate complications and birth injuries, signs of asphyxia, meconium aspiration, sepsis and other associated complications were recorded.
- The babies were followed up in the postnatal period. Neonatal morbidity and mortality were noted.
- Mothers were watched for third stage complications like PPH and retained placenta.
- They were followed up in puerperal period. Vital parameters like temperature, pulse, blood pressure were frequently monitored. Women were specifically asked for foul smelling lochia and the presence of febrile morbidity. Episiotomy wound and caesarean section wound was observed and regular follow-up was done. Maternal morbidity like puerperal sepsis, urinary and respiratory tract infection and wound infection were looked for.
- Both mother and the baby were followed up till their stay in the hospital.

Statistical Analysis

Variables like age, parity, duration of pregnancy, and mode of delivery, maternal and foetal condition will be recorded. The results would be illustrated in the form of tables and graphs. All relevant data will be compiled and entered into computer using computer based software SPSS for appropriate analysis.

Quantitative variable like maternal age, gestational age, and Bishop score will be presented by mean ± standard deviation. Frequency and percentage will be computed for presentation of parity, cervical ripening, mode of delivery, induction to delivery interval and maternal complications. Quantitative data will be analysed by proportion and Chi square test at $p < 0.05$ level of significance.

Result and Discussion

Table 1: Analysis of PPROM cases according to maternal age.

Age in years	No. of cases	Percentage
<20 6	6	
20-29	79	79
>30 15	15	

From the above Table it can be observed that highest number of PPROM cases were in the Age group of 20-29 years.

In this study PPROM was present in 79% of cases in the age group of 20-29 years this is comparable with the study conducted by Okeye[13] et al (58.2%).

The age of the general population delivering in this Institute in the age group of 20-29 years was 74.5%. This may be the reason for preponderance of cases in this age group

Table 2 : Analysis of PPROM according to socio-economic status.

Socio-economic status	No. of cases	Percentage
Upper	12	12
Middle	30	30
Lower	58	58

In this study the patients of low socioeconomic status were 58% and middle socioeconomic status were 30% which is comparable with the study by Swathi Pandey[3] which is 61% and 39% respectively.

Studies have shown that defects in the amniotic membranes occur due to low socio-economic status associated with factors like malnutrition, over exertion, poor hygiene, stress, high parity, recurrent genitourinary infection and anaemia. The risk of PPROM increases with decrease antibacterial activity in the amniotic fluid of patients with low socio-economic status.

Table 3 : Analysis of PPROM according to booked and un-booked cases.

	No.of cases	Percentage
Booked	16	16
Un-booked	84	84

Cases are considered booked if the patients had 3 antenatal checkups of which at least one in third trimester.

In this study the booked cases were 16% and unbooked cases 84%. This is not comparable with the study by Anjana Devi[15] which shows unbooked cases as 52%. In unbooked cases there is lack of antenatal care leading to lack of identification of recurrent risk factors like PPROM, preterm delivery, induced abortions and their managements. Also urogenital infections are not detected and treated due to lack of antenatal care leading to PPROM.

Table 4 : Analysis of PPROM according to obstetric score (Parity).

	No. of cases	Percentage
Primigravida	48	48
Multigravida	52	52

No. of primigravida in the study were 48% and multigravida were 52%.

Multiparity is a risk factor for PPROM due to long standing infection, previous trauma to cervix and patulous os.

In this study multipara were 52% and primipara were 48% which is comparable to the study by Swathi Pandey[3] (multipara 48% and primipara 52%) and Fatemeh Tavassoli,[8] Iran (primipara 55.9% and multipara 44.1%)

Table 5 : Analysis of PPROM according to mode of delivery.

Mode of delivery	No. of cases	Percentage
Spontaneous labour	45	45
Inductionof labour	13	13
Augmentation of labour	28	28
Induction and augmentation	14	14

Spontaneous vaginal deliveries were in 45% of the cases and induction or augmentation or both were done in 55% of the cases.

PPROM is usually followed by labour. The onset of labour after PPROM is directly related to the gestational age at the time of rupture.

In this study 45% developed spontaneous labour and 55% needed induction or augmentation. Our study is also comparable to that of Kadikar[10] et al where 79.19% of the patients required Induction.

Table 6 : Analysis of PPROM according to Bishop score at the time of admission and mode of delivery.

Bishop score	No. of cases	Normal Delivery	Perce-ntage	Outlet forceps	Perce-ntage	LSCS	Perce-ntage	P value
0-5	52	24	46	8	15	20	39	
6-10	42	35	83	2	5	5	12	0.0015
11-13	6	6	100	--	--	--	--	

The P value = 0.0015 which was statistically significant for the mode of delivery according to Bishop score.

Mode of delivery	**Trinity[14] (2008)**	**Shehla Noor[9] (2010)**	**Kadikar[10] (2014)**	**Present study**
Normal delivery	71.4 %	65.88 %	77%	65 %
Caesarean section	26.7 %	14.11 %	10%	25 %
Instrumental delivery	1.9 %	20 %	4%	10 %

Maximum number of LSCS (38%) were seen in the group with bishop score 0-5.

The mode of delivery in our study is also comparable with the mode of delivery in general population delivered in our hospital (ND 62.7%, LSCS 26.2% and outlet forceps11.1%). LSCS were more when cervix was unripe and induction was done compared to cases with Bishop score > 5. Also malpresentations, failure of induction and foetal distress due to oligohydramnios resulted in LSCS. Cases with unfavourable cervix are better off with a wait and watch policy for 24-48 hours period. Prostaglandins offer a considerable benefit in these cases and local PGE2 gel may be used to ripen the cervix and induced labour followed by oxytocin supplementation, if required.

Table 7: Analysis of PPROM according to mode of delivery and parity.

Mode of delivery	**No. of cases**	**Primi-gravida**	**Percen-tage**	**Multi-gravida**	**Percen-tage**	**P value**
ND	65	35	54	30	46	
Outlet forceps	10	5	50	5	50	0.176
LSCS	25	8	32	17	68	

There was no statistical significance found between primigravida and multigravida. The number of cases of LSCS in this study was 25% of which 68% percentage were in the multigravida.

In this study normal vaginal delivery in primigravida was 54% and multigravida 46%, outlet forceps were 50% in both the groups but LSCS were 68% in multigravida and 32% in primigravida. The mode of delivery according to parity did not show any significant difference in the ND and outlet forceps groups but LSCS were more in the multipara than in the primipara. There was no statistical significance in these groups.

Table 8 : Analysis of PPROM according to induction to delivery interval.

Induction to delivery interval	**No. of cases**	**Percentage**
<12 hours	43	78.18
13-24 hours	9	16.36
25-48 hours	2	3.36
>48 hours	1	1.83

In this study induction/ augmentation was done in 55 cases of which 78% of the cases delivered within 12 hours, 16% delivered in 24 hours and 5% delivered

after 24 hours. According to studies by Maternal foetal medicine network[11] induction has several benefits including a shorter time to delivery (14 vs 36 hours), shorter maternal hospital stay and less chorioamnionitis. Neonatal hospital stay was also shorter and hence neonatal sepsis in the induction group was less (28 vs 60%). There was no difference in the rates of LSCS, postpartum infection and neonatal survival.

The evolving concern of intrauterine infection causing cerebral palsy adds strength to the argument for induction in the presence of lung maturity. The study by Mercer[6] showed that intentional delivery reduce the length of maternal hospitalisation and also reduce infection in both mother and the new born.

Table 9 : Analysis of cases according to PPROM to delivery interval.

PPROM in hours	No. of cases	Percentage
<12	29	29
13-24	19	19
25-36	24	24
>36	28	28

Duration of PPROM is inversely related to gestational age when the membranes ruptured.[17] Many studies have shown that earlier in gestation (23-28 weeks), 30-40% of pregnancy will advance more than 1 week after PPROM. 20% will advance for more than 4 weeks. On the other hand later in gestation (32-34 weeks) fewer women will deliver after 1 week and 40% will deliver within 3 days.

Table 10 : Analysis of PPROM according to indications for LSCS.

Indications	No. of cases	Percentage
Breech	7	28
Foetal distress	6	24
Failure of induction	3	12
Oligohydramnios	3	12
Previous LSCS	3	12
Transverse lie Persistent	2	8
Occipito-posterior	1	4

The main indication for LSCS was mal-presentation and foetal distress.

In this study LSCS was done in 25% of the cases, the main indications being malpresentation 28% followed by foetal distress 24%, failure of induction 12% and transverse lie 8% which is comparable to the study by Kamala Jayaram,[4] the indications being failed induction, foetal distress and malpresentation

The number of LSCS were very high in the study by Singhal[5] 49%. The main indications were foetal distress and failed induction. In the study by Swathi Pandey[3] the indications were foetal distress 45.16% and failed induction 16.5%.

Table 11 : Analysis of PPROM according to investigations for evidence of infection

Investigations	No. of cases	Percentage
Cervical swab positive	23	23
CRP positive	19	19
TC> 12,000	38	38

Cervical swab positive in 23% of the cases. Organisms isolated were 10 cases of normal vaginal flora, 4 cases of E.coli, 2 cases of Klebsiella, 2 cases of Group B streptococcus, 1 case of staphylococcus aureus, 1 case of coagulase negative staphylococcus,1case of coagulase positive staphylococcus and 2 cases of candida species.

The investigations like total count, C-reactive protein and high vaginal swab for culture and sensitivity were done to evaluate for the evidence of infection. Leucocytosis can be affected by pregnancy and labour.

CRP estimates seem to be reliable monitoring tool.[17] But in more detailed studies WBC and CRP were poor

predictors of the presence of a positive amniotic fluid or foetal blood culture.

The commonest organisms isolated by Swathi Pandey[3] in cervical swab was E.coli and by Kamala Jayaram[4] E.coli, staphylococci, streptococci and atypical coliforms. In this study the organisms isolated were E.coli, coagulase positive staphylococcus, providential organisms, candida and normal vaginal flora.

An increase rate of PTD/PPROM occurs in women with cervical colonisation with group B streptococci Nisseria gonorrhoea, Chlamydia trachomatis, Ureaplasma, urealyticum, Treponema pallidum, Trichomonas vaginalis and Gardenella vaginalis. Metronidazole therapy can reduce the incidence of PTL in colonised women by 50%. Due to the limited C/S facilities in our institute we did not find any anaerobic organisms in our study.

Table 12 : Analysis of a PPROM according to AFI < 5 and LSCS.

No. of cases of AFI < 5	No. of cases of LSCS	Percentage
33	10	30.3

30% of the cases underwent LSCS when AFI was < 5.

The findings of this study correlate with the studies by Hoskins and Sedigheh Borna. Both concluded that oligohydramnios had an increased operative deliveries for foetal distress. These patients with reduced AFI on NST had spontaneous deceleration. These studies suggest that NST could be used to monitor for low AFI and cord compression in patients with PPROM.

Table 13 : Analysis of PPROM according to duration of PPROM and maternal morbidity

Duration of PPROM in hours	No. of cases	Percentage
<12	1	6.25
13-24	2	12.50
>24	13	81.25

81.25% patients had morbidity when duration of PROM exceeded 24 hours.

No mortality was seen.

As the duration of PPROM increases the maternal morbidity also increases.

Studies	Swathi[3]	Anjana[15]	Okeye[13]	Kadikar[10]	Present study
Maternal morbidity	9%	21%	20%	8%	16%

Table 14 Analysis of Maternal Morbidity in PPROM according to its causes

Morbidity	No.	%
Febrile Morbidity	12	12
Wound Infection	1	1
LRTI	1	1
MROP	1	1
PPH	1	1

In this study 84% of patients were healthy and febrile; morbidity was seen in 12 % of cases.

Table 15 : Analysis of PPROM according to weight distribution & Gestational age

Weight	28-32	33-35	36-37
<1000 gms	6	--	--
1001-1500	18	3	--
1501-2000	7	14	2
2001-2500	4	12	10
>2500	--	3	21

In this study 6% of the cases were < 1000 gms in weight, 21% were between 1001 - 1500 gms, 23% of cases were between 1501-2000 gms and 26% were between 2001-2500 gms and 24% were above 2500 gms.

The most common complication of prematurity was Hyperbilirubinaemia

followed by RDS and sepsis. The study conducted by Arul Kumar[7] showed that after 32 weeks of gestation the common causes of perinatal morbidity were RDS, perinatal asphyxia and infection, but with good supportive neonatal care most of the infants can survive.

Table 16 : Analysis of PPROM and perinatal morbidity

Causes	No. of cases	Percentage
Hyperbilirubinaemia	23	69.69
Sepsis	10	30.30
RDS	21	63.63
NEC	4	12.12
ROP	2	6.06
HIE	2	6.06
IVH	2	6.06
Birth Asphyxia	3	9.09

	Kamala Jayaram[4]	Shehla Noor[9] 2010	Kadikar[10] 2014	Present Study
Perinatal Morbidity	24 %	28.23 %	61 %	33 %

In this study perinatal morbidity was 33% of which 23% were hyperbilirubinaemia, 10% sepsis and 21% RDS.

Table 17 : Analysis of PPROM according to perinatal mortality

Causes	No. of cases	Percentage
RDS	8	53.3
Sepsis	4	26.7
Birth Asphyxia	3	20

The main cause of perinatal mortality was RDS in 53.3% cases followed by Sepsis and Birth Asphyxia.

In this study, perinatal mortality was 15% of which 26.6% were due to sepsis, 53.3% were due to RDS and 20% were due to birth asphyxia.

Study	Swathi[3] 2000	Anjana Devi[15]	Shehla Noor[9] 2010	Okeye[13] 2014	Present study
Perinatal Mortality	12%	5%	12.94%	8.9%	15%

The high incidence of maternal and neonatal infection may be consequence of decreased antibacterial activity in the amniotic fluid which is low in early pregnancy and increases with gestational age. Another factor is the limited ability of a preterm infant to fight infection.

Table 18 : Analysis of Perinatal morbidity and mortality in relation to duration of PPROM

Duration of PROM	No. of cases	Perinatal morbidity	Percentage	Perinatal Mortality	Percentage
<12 hours	29	3	10.34	1	3.44
12-24 hours	19	7	36.84	1	5.26
24-36 hours	24	6	25	5	20.83
>36 hours	28	17	60.71	8	28.57

As the duration of PPROM increases, perinatal morbidity and mortality also increases. Perinatal morbidity was 60.71% and perinatal mortality was 28.57% with PPROM to delivery interval more than 36 hours.

The studies by Russel[19] showed that the danger of infection to both mother and foetus increases with duration of PPROM. But prolongation of latent period decreases the incidence of RDS.

In this study RDS occur in 53.3% of the cases which is comparable to the studies by Richardson. RDS was present in 64% of the cases, when the gestational age was less than 32 weeks and duration of PPROM was < 24 hours and 32% when gestational age was 30 weeks and duration of PPROM was > 24 hours.

According to Yoon[12] RDS occurred in 24.6% when PPROM was < 24 hours and 12.5% when PPROM was > 24 hours

Table no. 19 : Analysis of perinatal morbidity and mortality according to birth weight

Birth Weight	No. of cases	Perinatal morbidity	Percentage	Perinatal morbidity	Percentage
Upto 1000 gms	6	5	83.33	4	66.6
1001-1500 gms	21	16	76.19	8	38.81
1501-2000 gms	23	7	30.43	3	13.04
2001-2500 gms	26	3	11.53	--	--
> 2500 gms	24	2	8.33	--	--

In this study perinatal mortality was highest - 66.6 % when the birth weight was upto 1000 gms. As the weight increases perinatal morbidity and mortality decreases. When the weight was more than 2000 gms there were no mortalities.

Summary

1. The prevalence of PPROM (7.72%) is observed to be comparable to various other centres.
2. Highest number of PPROM cases were observed in the age group of 20-29 (79%) years and comparatively less in both the extremes of age.
3. PPROM was observed to be highest in low socio-economic status (58%)and unbooked (48%) cases.
4. The risk of recurrence of PPROM, (23%) PTD (10%) and induced abortions (21%) are considerable prompting patient education and close follow-up in the subsequent pregnancy.
5. The potential residual effect of trauma to cervix due to induced abortions can be minimised by evacuation techniques and limited dilatation of the cervix.
6. Corticosteroids do play a role in reducing the RDS in premature babies
7. Tocolytics do not have much role in PPROM. These patients could be offered initial labour inhibition to achieve 48 hours of corticosteroids benefit in the absence of infection.
8. Although infection remains a problem in PPROM, the greatest threat to neonate in frequency and severity is RDS (53.3%).
9. Strong evidence suggest reduced neonatal mortality and IVH with the use of steroids in PPROM.
10. Prophylactic antibiotics do not seem to have much role in the prevention of neonatal sepsis. However, they do have some role in the prevention of puerperal sepsis.
11. Perinatal mortality is not influenced by the mode of delivery.
12. Management selected in PPROM should be one that has least risk to mother and foetus. A gestational age approach to therapy is important and should be adjusted for each hospital's NICU outcome.
13. Maternal morbidity (16%), perinatal morbidity (33%) and mortality (15%) is definitely related to the duration of PPROM. As the duration of PPROM increases, maternal morbidity, perinatal morbidity and mortality also increases.
14. Perinatal morbidity was mainly due to RDS, sepsis and hyperbilirubinaemia. Perinatal mortality was mainly due to sepsis, RDS and birth asphyxia.

Conclusion

In this study the prevalence of PPROM

in our institute was comparable to that of other studies. The mode of delivery in PPROM was not different from that of general population delivering in our institute. Rate of caesarean section was not high and indications being foetal distress from oligohydramnios and malpresentation. The maternal morbidity, perinatal morbidity and mortality increases as the duration of PPROM increases. Also perinatal morbidity and mortality were high in very premature babies and infants with low birth weight. As the weight increases the morbidity and mortality decreases.

PPROM is a significant obstetric problem. Despite exhaustive research most of the aspect of PPROM remain enigmatic. It contributes to increased maternal morbidity as well as perinatal morbidity and mortality. Careful antenatal monitoring, detection and prompt treatment of infection is necessary. Strict aseptic precautions, appropriate therapy, regular antenatal follow-up are important factors in the prevention and management of PPROM.

We feel that recent measures like CRP, band neutrophil count and therapeutic use of specific human gamma globulin against vaginal flora as well as preventive measures like coital abstinence will definitely help to reduce the morbidity and mortality.

These patients are at a high risk for infection and amniocentesis can be used to evaluate early markers for infection and provide a sample of amniotic fluid for culture. Any evidence of infection by amniocentesis should be considered carefully as an indication for delivery.

Close antenatal monitoring, identification of risk factors like cervico-vaginal infection and their management play an important role in the prevention of PPROM.

From this study we arrive at the conclusion that management should not be a generalised regime. Multi factorial study of individual cases and management has to be planned accordingly, varying from expectant to aggressive therapy. Danger of infection to both mother and foetus increases with increased duration of PPROM.

Our experience to date from available sources suggest that management of PPROM still requires critical study.

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Safety of new oral anticoagulants

We need reliable tools to predict risk of gastrointestinal bleeding

Two linked papers reported additional evidence on the risks of gastrointestinal bleeding among patients taking the novel oral anticoagulants dabigatran and rivaroxaban.

By age 75, the risk of gastrointestinal bleeding associated with rivaroxaban exceeded that with warfarin, for patients with or without atrial fibrillation.

In a second study, Chang and colleagues found no significant differences in risk of gastrointestinal bleeding between the newer agents and warfarin in a propensity weighted analysis of 46000 members of a commercial insurance plan who had new prescriptions for warfarin dabigatran, or rivaroxaban.

Studies based in the United States by Abraham, Chang and others evaluate dabigatran only at doses of 150 mg and 75 mg, most commonly 150 mg; dabigatran 110 mg is not approved there.

Larsen et al, using the same data source, reported a 40% lower risk of gastrointestinal bleeding in patients taking dabigatran 110 mg, compared with warfarin.

Although older age is predictably associated with increased risk of gastrointestinal bleeding during treatment with any anticoagulant, how age influences the relative risk among different agents is not entirely clear.

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