Outcomes after Expectant Management of Extremely Preterm Premature Rupture of Membranes EPPROM

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OBJECTIVES

- Audit the existing practice in EPPROM
- Review the outcome of EPPROM and extract information to enhance counseling
AIMS

- To assess outcomes in pregnancies managed expectantly after extremely preterm premature (≤24 weeks) rupture of membranes (EPPROM).
- To compare the existing practice in our unit with existing guidelines and practice in other units in UK and elsewhere.
- To develop a departmental guideline.
- To formulate patient information leaflet based on the information derived.
STANDARDS

- Existing guideline in the unit
- Draft guideline- RCOG
- Survey from ANZCOG
- Benchmarking- From leading maternity/fetal medicine units in UK.
Study Design

- Retrospective case-note analysis of patients with EPPROM, identified from Fetal medicine database.

- Neonatal outcomes for the survivors/non-survivors from the neonatal notes.

- Study period-2001 to early 2006.
Sample population

- **Inclusion criteria:**
  Any patient with definite rupture of membranes before 24 completed weeks presenting to FMU, Cardiff.

- **Exclusion criteria:**
  All patients with oligohydramnios due to any other reason.

- **Sample size:**
  132 patients were identified from the database with search criteria as oligohydramnios or anhidramnios. After extensive review of the details from the database and notes, 36 patients were eligible to be included in the study.

Out of 36 patients, 1 patient was with a twin gestation and 35 were singletons.
Meeting of standards

- Speculum at presentation
- Antibiotics at presentation
- Home monitoring
- Weekly visits
- Weekly monitoring of infection
- Weekly Scans
- Prophylactic Steroids
- Referral to neonatalogist for counselling
- Time of delivery

All the standards in all the patients - achieved in 100%
Objective-2

- Assess the outcome of EPPROM to enhance counseling (preliminary)
Characteristics of mothers with EPPROM (N=36)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal age (median, range)</td>
<td>28 years (19-34)</td>
</tr>
<tr>
<td>Gravidity (median, range)</td>
<td>2 (1-7)</td>
</tr>
<tr>
<td>Prior miscarriage (no., %)</td>
<td>4 (11%)</td>
</tr>
<tr>
<td>Prior Termination (no., %)</td>
<td>5 (15%)</td>
</tr>
<tr>
<td>Prior preterm birth (no., %)</td>
<td>3 (8%)</td>
</tr>
<tr>
<td>Procedure before EPPROM</td>
<td>2 amniocentesis</td>
</tr>
<tr>
<td>Smoker</td>
<td>4 (11%)</td>
</tr>
</tbody>
</table>
Gestational age at steroids

- Variable 24 to 28 weeks.
- 4 patients – repeat course, first dose at 24 weeks - no difference in outcome.
Gestational age at EPPROM

Median = 18 weeks
Maternal morbidity

Antenatal

- Infection: 50%, (N=18); treated with further antibiotics; (4 needed IV antibiotics (suppurative CA)

- Repeated Hospital admissions- 12 (33%)

Intrapartum

- Caesarean sections-9/36 (25%)-all LUS
  - Elective: N=1
    - (absent EDF, oligo-33 weeks-died)
  - Emergency: N=8 (2 died)
    - 5 suboptimal CTG
    - 1 abruption
    - 1 failed IOL
    - 1 maternal reason

- Vaginal Breech delivery-3/36 (2 survived)
- PPH-none
- Abruption: N=1
Fetal and neonatal outcome

EPPROM<24/40
N=36 (37 fetus)
Median GA 18 weeks

Elected TOP
N=4 (5 Fetus)

Elected Continuation of pregnancy
N=32

Laboured with Live infants
N=24

Preivable
No resuscitation
N=4

Survived to Discharge
N=11

Admitted
N=18

IUD
N=8

Neonatal Deaths
N=7
Amnioinfusion

With Amnioinfusion
N=18 (3 outcomes awaited)

7 live born
4 IUD
3 TOP
1 mis carriage
5 survived
2 died
Pulmonary Hypoplasia: N=1
HIE: N=1

Without Amnioinfusion
N=18

10 live born
4 IUD
3 TOP
4 mis carriage
5 died
Pulmonary Hypoplasia: N=4
Extreme Prematurity: N=1
Outcomes in neonates who survived to discharge

Survived to Discharge
N=11

Admitted to NICU
N=9 (82%)
Median stay=42.5 days (10-74)
GA= 30 weeks (28-36 weeks)
Weight- 1315g (830g-2390g)

To ward
N=2

Acute Morbidity
RDS/HMD: N= 9 (82%)
Sepsis: N=5 (45%)
Prolonged jaundice:3 (27%)

Chronic Morbidity (residual complications at discharge)
Chronic Lung Disease: N=5 (45%), 3 discharged on O2
Feeding Problems (GOR): N=2 (20%)
Talipes (physiotherapy): N=3 (30%)
Other-Hypospadias, Hydronephrosis, Hernia
No IVH
Neonatal Mortality

- Neonates died: N=7
- GA: 28 weeks (24-33 weeks)
- Weight: 810 g (400g-1710g)
- Age at time of death: 1 day (0-11 days)

- Cause of Death
  - Extreme prematurity and Pulmonary hypoplasia: 5
  - Severe IUGR with pulmonary hypoplasia: 1
  - HIE, IVH: 1

- Postmortem-5/7
Discussion

- Higher rate of infection - antibiotics

- Amnioinfusion - role?

- Limitation of study - does not include patients with EPPROM not referred to the tertiary care if they chose elective TOP at their hospital
Conclusions-1

- High mortality
- Survival Rate – 30.5%
Gestation at ROM

- Survived – 15 to 22 weeks (median 17.5)
- Not survived – 13 to 23 weeks (median 18)
Conclusions-3

Gestation at delivery (Latency period)

- Survived – 9 to 19 weeks (median 12.5)
- Not survived – 1 to 18 weeks (median 8)

![Box plot showing latency period for survived and died cases with a p-value of 0.014.](image)
Further work.

Comparison of surviving and nonsurviving infants

- Gestational at ROM
- Gestation at delivery
- Latency period
- Birth weight
- Amnioinfusion
- Infection
- Survival rate for EPPROM infants at <28 weeks versus all other preterms at <28 weeks

Aim - to find the predictors of prognosis.