

ANTENATAL GUIDELINES

No. 23 Management of Preterm Labour / PPROM

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1.PPROM Definition:

Preterm pre labour rupture of membranes is the confirmed rupture of membranes before 37 weeks gestation of pregnancy and prior to established labour .

2. Management of PPROM

Advise women to be assessed in hospital. The diagnosis of spontaneous rupture of the membranes is best achieved by maternal history followed by a sterile speculum examination, which can be performed by a doctor or midwife.

Do NOT perform a digital vaginal examination (VE).

If SROM confirmed:



- Admit to hospital for at least 48 hours as high risk of pre-term labour
- Bethamethasone if less than 34 weeks gestation (note: raised WCC after steroids for 2-4 days)
- Send HVS for culture and sensitivity, and review results
- Erythromycin 250mg 6 hourly from 24 weeks gestation for 10 days or until delivery, if sooner
- Observe for signs of infection: regular fetal heart rate (FHR) BD whilst in-patient or twice weekly as out-patient – no CTG prior to 26 weeks, 4 hourly maternal pulse and temperature, twice weekly FBC count + CRP
- Ultrasound examination for fetal assessment and presentation.
- Neonatal team should be informed and see the parents
- Delivery should be considered if any signs of infection or fetal / maternal complications develop.
- Commence MgSO₄ if delivery expected within 24 hours – see below, for treatment regime.

NB. Tocolytics should be avoided due to the high association with intrauterine colonisation/frank infection in the presence of preterm ruptured membranes. In utero transfer should be at the registrar's discretion, particularly if the patient is contracting.

2.1 Management of PPRM in community

It would be considered reasonable to maintain the woman in hospital for at least 48 hours before a decision is made to allow her to go home. Women should be considered for outpatient monitoring of PPRM only after rigorous individual selection by a consultant obstetrician. Women should be instructed to take regular temperature recordings at home every 12 hours or to be aware of the symptoms associated with infection.

The patient should be advised to return if she notices signs of infection, reduced fetal movement, and change in colour of liquor, bleeding, pain and / or contractions or other concerns. A documented discussion of risk factors should be recorded in the patient record.

2.2 Management on DAW

Twice weekly - CTG, midwifery antenatal assessment to include vital signs, CRP, FBC

USS for growth every 3 – 4 weeks

Medical review with documented long term management, if not already done.

3. Delivery of the Fetus

Delivery should be considered between 34 and 37 weeks of gestation.



4. Diagnosis of Preterm Labour

Diagnosis of preterm labour should be categorised according to NICE guidance –

Women may be clinically assessed as in ‘suspected’, ‘diagnosed’ or ‘established’ preterm labour. This guideline excludes multiple pregnancies which has its own guideline. Women reporting symptoms of preterm labour should be offered a clinical assessment to determine whether further diagnostic testing is appropriate or required. Please see Appendix 1 for a flowchart of the NICE guideline for preterm labour and birth /PPROM.

Occasionally a patient may present without contractions, but with a dilated cervix (silent cervical dilatation) and may warrant therapy. Treatment and testing are gestation dependent and this guideline outlines what should be considered/ offered at different gestations.

5 Baseline Investigations

Baseline investigations should include

1. Full maternal observations and risk assessment
2. Assessment of fetal heart rate, CTG only to be performed over 26+0 gestation and then in discussion with both mother and obstetrician in recognition of the difficulty with interpretation of fetal monitoring at lower gestation. Current NICE guidance states that in the absence of other risk factors intermittent auscultation can be acceptable in preterm labour as per term intrapartum care.
3. Speculum examination should be performed with consent and the following tests/observations undertaken:
 - Cervical assessment – if obviously dilated >4cm treat as established preterm labour
 - Exclusion of rupture of membranes or bleeding
 - Fetal fibronectin (fFN) test if indicated (see appendix 2)
 - Microbiology – HVS
 - DO NOT perform digital examination if PROM is suspected or before fetal fibronectin test

Once preterm labour is diagnosed or established the following treatments may be considered:

6. Corticosteroids

Betamethasone should be given for the following groups of women:-

- Those between 24+0/40 and 33+6 /40
- Consideration should be given to those between 34/40 and 35+6/40, particularly where there are concerns or there is a higher chance of a caesarean section. However there is limited evidence for the efficacy of steroid for these groups.
- Discussion should be had with women and the neonatal and obstetric team for patients below 24/40 as evidence of steroid efficacy in this group is extremely poor.



Antenatal corticosteroid administration can impair diabetic control; therefore insulin dependent diabetics requiring steroid therapy should start on an appropriate top up sliding scale.

Dose and Administration:

Two doses of Betamethasone 12 mg intramuscularly 24 hours apart
If unavailable Dexamethasone 12mg is an acceptable alternative

Repeat doses of corticosteroids should not be routinely offered but interval since the last course should be considered on an individual basis.

7. Tocolysis

Tocolysis is indicated:

- In suspected or diagnosed preterm labour between 24/40 and 33+6/40
- With intact membranes and cervical dilatation less than 4cm
- Or for transfer to neighbouring unit

(Relative) Contra-indications / cautions for tocolysis:

- Established labour
- Ruptured membranes
- Fetal distress
- Intrauterine infection
- Antepartum haemorrhage
- Any maternal or fetal condition that warrants delivery (e.g. pre-eclampsia)
- Any maternal medical disorder where chosen tocolytic drug is contra indicated (see below).

Tocolytics

Oral Nifedipine 20mg should be administered as an initial dose, followed by doses of 10-20mg 3-4 times daily according to uterine activity. This should be continued for a maximum of 48 hours. A total dose of 60 mg and above has been associated with adverse side effects such as headache and hypotension and should therefore be considered carefully. The nifedipine must be discontinued once the patient is in active labour and the MgSO₄ has been commenced.

Where nifedipine is contraindicated atosiban is an acceptable alternative.

Please see below for the atosiban regime:



1. Loading dose:

Withdraw 10mls from a 100ml Normal Saline infusion bag (Keep infusion bag to one side for use with initial infusion – see step 2). Draw up 0.9mls Atosiban (6.75mg) in a 1ml syringe (**small vial** containing 0.9ml of 7.5mg/ml solution of Atosiban for injection). Add to the syringe containing 10mls of N/Saline. Administer IV as slow bolus injection over minimum time of one minute (may cause nausea if given more quickly).

2. Initial infusion:

A high dose infusion of 300 micrograms/min of Atosiban for 3 hours only.

Preparation: Using the Normal Saline infusion bag from Step 1 (with 10mls already removed) add 10mls of Atosiban 7.5mg/ml concentrate (using two 5ml vials). Commence infusion using a Grasby 500 infusion pump set at an initial **rate of 24mls/hr** and the **total volume to be infused set to 72mls**. (This will ensure that the pump alarms after 3 hours, so that the rate can then be reduced – see Step 3)

3 Maintenance infusion:

A low dose infusion of 100 micrograms/min Atosiban for up to 45hrs; stop earlier once contractions settle for 4 hours. Most patients are expected to settle in 13 hours.

Preparation: **Reduce infusion rate of initial infusion to 8mls/hr** (there will only be 28mls left in this bag, so set total volume to be infused at 28mls). When the next bag of the maintenance infusion is required, make up as for Step 2 and commence infusion at 8mls/hr, with total volume to be infused at 100mls.

Monitoring for first 3 hours: Half hourly recordings of pulse, B/P and frequency/strength of contractions, hourly temperature and continuous CTG. Frequency of subsequent observations will be decided following review by the obstetric registrar.

8. Magnesium Sulphate

There is evidence to suggest that Magnesium Sulphate ($MgSO_4$) administered to women at risk of preterm labour reduces the incidence of cerebral palsy (CP) and gross motor dysfunction in the newborn.

$MgSO_4$ should be offered to all women between 24/40 and 29+6/40 and consideration for administration to women between 30+0 and 33+6/40 with at least one of the following:

- In established preterm labour
- delivery anticipated within 24hrs
- planned preterm birth

In situations where urgent delivery is necessary because of actual or imminent maternal or fetal compromise, then birth should not be delayed to administer $MgSO_4$.



Ideally it should be commenced at least 4hrs before birth but there may still be a benefit if given for less than 4hrs before delivery. Data on the latest that MgSO₄ can be given before delivery in order to be of benefit is not currently available.

In the event that birth does not occur after giving MgSO₄ for neuroprotection of the infant, and preterm birth again appears imminent (before 32/40) a repeat dose of MgSO₄ maybe considered at the discretion of the attending health professional.

The regime used for neuroprotection of the fetus is

Loading dose: 4g MgSO₄ as a SLOW BOLUS over 40 minutes (less side-effects)

- Draw up 8ml of 50% MgSO₄ solution (4g) followed by 12ml of 0.9% saline into a 50ml syringe
- Mix well
- This will give a total volume of 20ml
- Place the syringe in a syringe driver and run it at 30ml/hr
- The i.v. infusion will then run over 40 minutes

Maintenance dose: 1g/hr

- Draw up 10ml of 50% MgSO₄ solution (5g) followed by 40ml of 0.9% saline into a 50ml syringe
- This will give a total volume of 50ml
- Place the syringe into a syringe driver and run at 10ml/hr

The maintenance infusion should be continued for 24 hours or until delivery (whichever is sooner). It does not need to be continued postnatally (unlike in pre-eclampsia).

During administration of MgSO₄, women should be regularly assessed. Resuscitation and ventilator support should be immediately available if needed during administration of MgSO₄.

The BP, RR and patellar reflexes should be assessed prior to the loading dose being given, halfway through the loading dose and at the end of the loading dose. The infusion should be stopped if:

- RR<12
- DBP falls more than 15mmHg below the baseline level

While the maintenance infusion is running, observe for any adverse effects. BP, pulse, RR, oxygen saturations, UO and patellar reflexes should be documented hourly. The infusion should be stopped if:

- RR<12
- Hypotension
- Patellar reflexes are absent
- UO<100ml in 4hours

NB. If urine output is normal there is no need to insert a urinary catheter. Fluid input and output must still be recorded.

Magnesium toxicity is unlikely if the above regime is followed and serum magnesium levels do not need to be routinely measured. In women with renal compromise, serum magnesium monitoring is recommended.



Overdose is treated with 10ml of 10% Calcium Gluconate i.v. over 10 minutes

Women should be advised that they may experience minor side effects such as flushing, nausea and vomiting, sweating and injection site problems. These adverse effects should not prompt discontinuation of the medication.

9. Fetal Monitoring and FBS

As previously stated the evidence for continuous fetal monitoring in an otherwise uncomplicated preterm labour is concurrent with that of term labourers. Clinicians do, however, need to give careful consideration as to the cause of preterm labour and discuss with the attending obstetrician whether CEFM is indicated.

Fetal Scalp Electrodes should not be used for women under 34/40 gestation unless the following apply:

- Clinician is unable to monitor the fetal heart using either intermittent auscultation or continuous monitoring
- It has been agreed by a senior obstetrician
- The benefits outweigh the potential risks
- Alternatives (immediate delivery, intermittent ultrasound or no monitoring) are discussed and unacceptable to the patient

Fetal Scalp electrodes can be considered between 34+0/40 and 36+6/40 where it is not possible to use either external monitoring (either continuous or intermittent)

The NICU team should be informed of any women labouring before 37/40.

Fetal Blood Sampling should not be carried out on women less than 34+0/40

Women between 34+0/40 and 36+6/40 should have a discussion about the possible use of FBS, using guidance from the term intrapartum guideline.

Record keeping

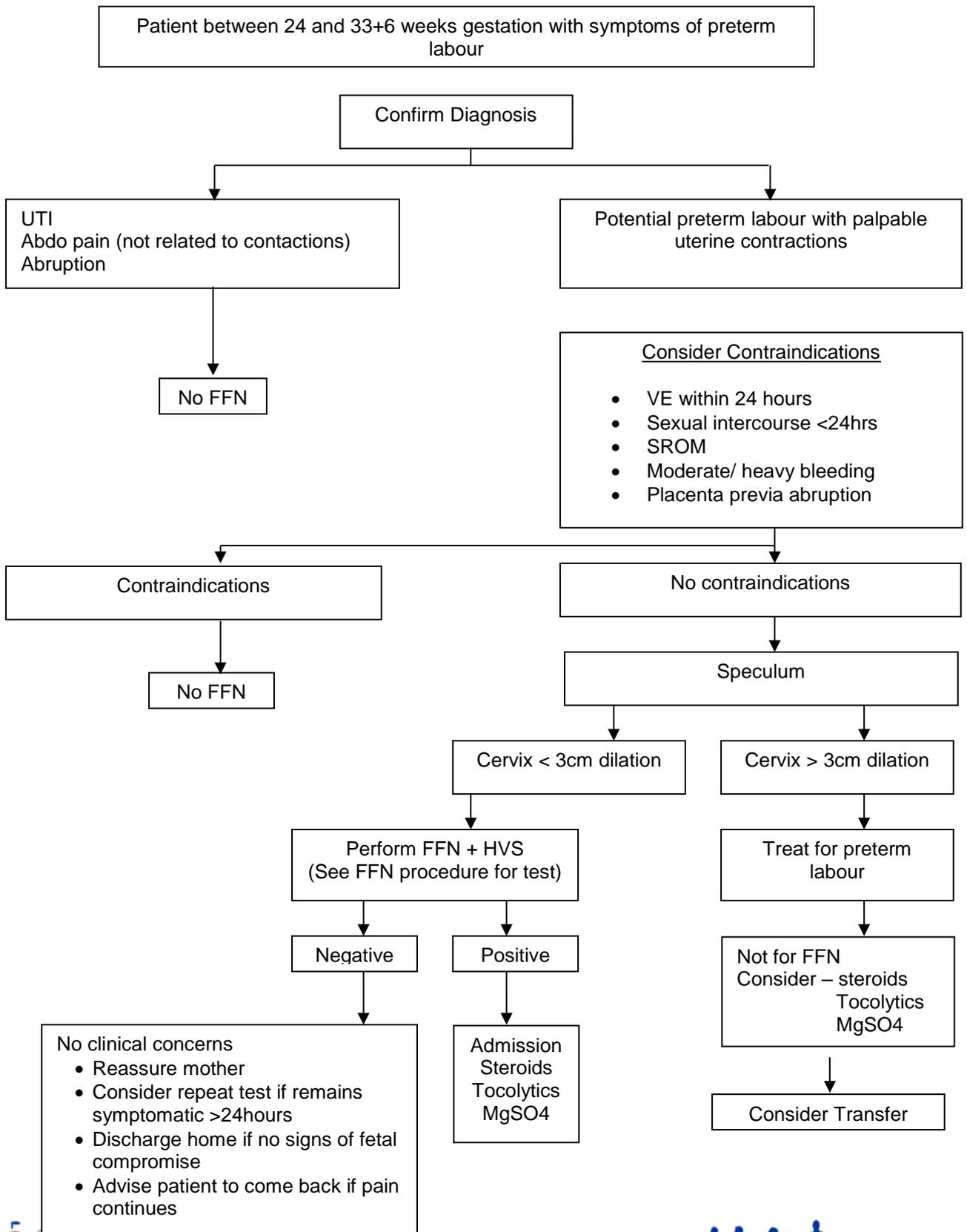
It is expected that every episode of care be recorded clearly, in chronological order and as contemporaneously as possible by all healthcare professionals as per Hospital Trust Policy. This is in keeping with standards set by professional colleges, i.e. NMC and RCOG.

All entries must have the **date and time** together with **signature and printed name**.



Appendix 1

Fetal Fibronectin Flow Chart



Appendix 2

Fetal fibronectin testing

Before performing test see indications / contraindications and fetal fibronectin flowchart

- During speculum examination, lightly rotate the supplied swab across the posterior fornix of the vagina for 10 seconds to absorb cervicovaginal secretions (do not saturate the tip as this may invalidate the test).
- Remove swab and immerse tip in buffer solution and gently mix the swab in the buffer solution and remove if the test is to be performed immediately.

***Note:** Refer to transportation and storage notes if test is to be performed at a later time (found in CDS sluice).*

Using fetal fibronectin analyser

- Select Test Patient (1) on Main Menu
- Enter user ID (user initials)
- Enter lot no.
- Enter patient ID
- Insert the Rapid fFN Cassette and press Enter
- Pipette 200µL from the sample collected in the buffer solution into the well of a rapid fFN cassette and press Enter
- A positive or negative result will be printed in approx. 15 minutes, which must be placed in patient notes



Monitoring and Audit

Auditable standards:

Please refer to audit tool, location: 'Maternity on cl1-file02', Guidelines

Reports to:

Clinical Effectiveness Committee – responsible for action plan and implementation of recommendations from audit

Clinical Governance & Risk Management Committee

Frequency of audit:

Annual

Responsible person:

CDS midwife

Cross references

TRW/MMA/POL/271/5 Intravenous Drug Administration Policy

TRW/MMA/POL/265/2 Policy for the Safe and Secure Handling of Medicines

Antenatal Guideline 44 – Guideline Development within the Maternity Services

Clinical Records Keeping Policy – Derriford Hospital

References

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Kenyon SL, Taylor DJ, Tarnow-Mordi W. Broad-spectrum antibiotics for preterm, prelabour rupture of fetal membranes: the ORACLE I randomised trial. *Lancet* 357: 979-988, Mar 2001.

Royal College of Obstetricians and Gynaecologists Clinical guideline No 1 (B). **Tocolytic drugs for women in preterm labour.** 2002 October.

Royal College of Obstetricians and Gynaecologists Scientific Advisory Committee Opinion Paper 29 August 2011. **Magnesium sulphate to prevent cerebral palsy following preterm birth.** RCOG, London.

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