

PROTOCOL #6 - Maternal Fetal Medicine, University of New Mexico

PRETERM LABOR

I. Definition:

Preterm labor will be defined as regular uterine contractions, every 5-10 minutes or 6-10 in one hour, before 37 weeks gestation associated with:

1. Progressive cervical effacement or dilatation or
2. ≥ 2 cm dilation or $\geq 80\%$ effacement.

II. General

Preterm labor resulting in preterm delivery continues to be the leading cause of perinatal morbidity and mortality. Occult infection has been recognized as one of the major causes of preterm labor and of failed tocolysis. Studies suggest that inflammatory processes may account for perhaps 20-30% of cases of preterm delivery.

III. Requirements for Consideration of Labor Suppression

1. Lack of evidence supporting fetal lung maturity with a live fetus.
2. Absence of maternal or fetal conditions dictating delivery.
3. Generally should not be attempted if cervix is 6 cm or more dilated. However, tocolysis may still be considered to allow time for corticosteroid therapy. Betamethasone 12.5mg IM q 24hrs x 2 doses is the preferred agent. If Betamethasone is unavailable, Dexamethasone 6mg IM q 12hrs x 4 doses may be substituted.
4. Generally should not be attempted if gestation is less than 24 weeks, careful consideration should be given to maternal side effects if tocolysis is attempted.
5. In the event of PPRM, tocolysis should only be considered in order to achieve maternal transport.

IV. Management

1. If the patient is < 34 weeks gestation and has demonstrated cervical change, she is a candidate for tocolysis.
2. If the patient has premature uterine contractions but does not experience cervical change, the contractions may be treated with judicious hydration and sedation and observed over several hours for cervical change. On transvaginal ultrasound, a cervical length < 25 mm ($< 10\%$ ile) increases the likelihood of PTD. Such data may help triage patients.
3. If the patient is ≥ 34 weeks with reliable dates, allow delivery.
4. If the patient is ≥ 34 weeks with unreliable dates, consider establishing pulmonary maturity by amniocentesis, and if mature, allow delivery.
5. If the patient is 23-34 weeks gestation, perform an ultrasound to rule out fetal anomalies, confirm EGA and establish EFW.
6. Perform a sterile speculum exam to rule out occult PPRM.
 - a. Culture the cervix for Gonorrhea and Chlamydia
 - b. Perform microscopic evaluation of vaginal discharge via wet mount

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- c. Obtain vaginal and rectal swabs for GBS
7. Send a clean catch or in-and-out cath specimen for urinalysis, culture and sensitivity.
8. If clinically indicated, consider amniocentesis to rule out intra-amniotic infection.
9. If available in a timely manner, fetal fibronectin may be used. A negative result is highly predictive of maintaining the pregnancy for 14 days. This may be of value in determining management.

V. Therapy

A. General

1. Hydration - hydrate with 1000mL Lactated Ringer's solution over 30-60 minutes, then maintain with D₅ ½ NS at 100mL/hr.
2. Bedrest, preferably on left side.
3. Monitor maternal vital signs.
4. Minimize digital exams.
5. If indicated, antenatal corticosteroids should be given.
6. IV antibiotics should be given for GBS prophylaxis. (Ampicillin 2g IV load then 1g q 4hrs; Ancef 2g IV load then 1g q 8hrs if mild PCN allergy; Vancomycin 500mg IV q 6hrs if severe PCN allergy)

B. Specific – Tocolysis

Management of preterm labor has traditionally involved using medications for tocolysis. Options for tocolysis in clinical use at UNM and elsewhere include magnesium sulfate, Beta agonists, calcium channel blockers and non-steroidal anti-inflammatory agents. While tocolysis may delay delivery for a few days, little data in the literature suggests that there is a long-term effect on pregnancy maintenance. Hence, the use to tocolytics should be balanced with a risk/benefit considerations and is most helpful when steroids are to be administered. Each class of drug had unique risks. Clinical trials have showed that only one agent (indomethacin) significantly prolongs gestation for more than 7 days. However, use of indomethacin may decrease urine output and amniotic fluid volume. Furthermore, there are some concerns about construction of the fetal ductus arteriosus, IVH and NEC. Therefore, the use of indomethacin should be restricted to 48-hour courses.

1. Magnesium Sulfate-First line therapy
 - a. MgSO₄ should be given by controlled infusion pump and run “piggy back” into primary IV.
 - b. Loading dose: 4-6g IV bolus over 15 minutes.
 - c. Maintenance dose: 2-3g IV per hour.
 - d. Follow DTRs every hour.
2. Indomethacin

If a second-line agent is needed, in a gestation < 32 weeks, after an ultrasound is obtained confirming normal amniotic fluid volume, and as the patient is receiving a MgSO₄ IV bolus the patient should also receive indomethacin 50mg po if not contraindicated (history of impaired renal function, peptic ulcer disease, aspirin

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allergy, etc). If the patient is nauseated and cannot tolerate the first oral dose, a 100mg indomethacin rectal suppository should be used. This will be followed by indomethacin 25-50mg po to be given every 6 hours. After the administration of indomethacin, the MgSO₄ drip may be discontinued based on clinical judgment after contractions have ceased.

For patients who are transferred to University Hospital on IV tocolytics, upon arrival, the patient should receive indomethacin 50mg po and within 2 hours, IV tocolytics should be discontinued and the patient should be switched to the indomethacin protocol.

Before any patient can be considered for treatment with indomethacin for longer than 48 hours, serial ultrasounds for amniotic fluid volume are necessary as well as serial fetal echocardiography to evaluate possible constriction of the fetal ductus arteriosus.

3. Other agents such as terbutaline (IV, SC, PO) and nifedipine (PO) may also be considered for tocolysis but are not recommended in dual therapy with MgSO₄ secondary to maternal side effects.

CONSULTATION: Twenty-four hour consultation is available by calling the Maternal Fetal Medicine service at the University of New Mexico Hospital. 1-888-866-7257.