

MANAGEMENT OF PATIENTS AT RISK FOR PRETERM DELIVERY

The American College of Obstetricians and Gynecologists' Committee Opinion Number 455 (March 2010) recommends that "Physicians electing to use magnesium sulfate for fetal neuroprotection should develop specific guidelines regarding inclusion criteria, treatment regimens, concurrent tocolysis, and monitoring in accordance with one of the larger trials."¹ The following guideline has been developed in response to this Committee Opinion and recognizes that a uniform approach to the management of patients at risk for preterm delivery will enhance patient safety.

ENHANCEMENT OF FETAL PULMONARY MATURITY:

For patients at risk for preterm delivery for any indication, administration of either betamethasone delivered in two doses of 12 mg IM 24 hours apart or dexamethasone delivered in four doses of 6 mg IV 6 hours apart should be accomplished in pregnancies between 24 weeks 0 days and 33 weeks 6 days unless there is some contraindication to that treatment.

FETAL NEUROPROTECTION:

Magnesium sulfate (6 gm loading dose administered intravenously over 30 minutes followed by a maintenance infusion of 2 mg/hr for 12 hours) should be administered to patients at risk for preterm delivery between 23 weeks 0 days and 31 weeks 6 days. If a patient has completed a course of magnesium sulfate and returns with a risk of preterm delivery and meets appropriate criteria and it has been more than six hours since the conclusion of the initial course of therapy, the entire course should be repeated. If less than six hours has passed since the last treatment, the magnesium sulfate infusion should be restarted at 2 grams per hour until delivery or up to 12 hours. (Note that there is currently no evidence that magnesium sulfate is an effective tocolytic agent and we do not recommend its administration for that indication. Also, note that if the patient is being treated for pre-eclampsia, the dosages used for that treatment will take priority over that prescribed for neuroprotection.)

TOCOLYSIS:

If tocolysis is indicated, we recommend using one of either of the following regimens:

Indomethacin: 50 mg oral or per rectum loading dose followed by 25 to 50 mg every six hours for a total of up to 48 hours.

Nifedipine: 10 mg oral loading dose every 20 minutes up to a total of 30 mg or uterine activity declines (whichever occurs first), then 10 to 20 mg every six hours for a total of up to 48 hours.²

¹ ACOG Committee on Obstetric Practice; Society for Maternal-Fetal Medicine. Committee opinion No. 455: Magnesium sulfate before anticipated preterm birth for neuroprotection. *Obstet Gynecol* 2010;115:669-71.

² Reeves SA, Gibbs RS, Clark SL. Magnesium for fetal neuroprotection. *Am J Obstet Gynecol* 2011;204:202.e1-4.

Note that there are potential contraindications for the use of each of these drugs:

Betamethasone: hypersensitivity to betamethasone , other corticosteroids or any component of the formulation, systemic fungal infections

Dexamethasone: hypersensitivity to dexamethasone , other corticosteroids or any component of the formulation, systemic fungal infections

Magnesium sulfate: myasthenia gravis, certain severe pulmonary disorders, renal failure

Indomethacin: gestational age greater than 32 weeks, platelet dysfunction, gastrointestinal or ulcerative disease, and anaphylactic reactions to aspirin

Nifedipine: patients with hypotension (blood pressure less than 90/50 mm Hg), cardiac disease, and severe renal impairment

Algorithm for selection of candidates and administration of magnesium sulfate for fetal neuroprotection

Maternal candidates for magnesium sulfate for fetal neuroprotection

- 24 – 32 weeks gestational age
- Preterm labor with cervical change and high likelihood of delivery within 12 hours
- Preterm Premature rupture of membranes
- Suspected cervical insufficiency with a high likelihood of delivery within 12 hours
- Planned delivery for medical indications or obstetric complications that can safely be delayed for magnesium therapy

Does the patient meet any exclusions?

YES

**Do not initiate
Magnesium therapy
For neuroprotection**

NO

Exclusions from Protocol:

- Intrauterine fetal demise
- Maternal severe preeclampsia (these patients are placed on magnesium for seizure prophylaxis)
- Fetuses with lethal anomalies
- Maternal contraindications to magnesium sulfate (e.g. Myasthenia gravis, renal failure)

Implementation

1. Load the patient with 6 g of magnesium sulfate IV over 20 minutes.
2. Run a maintenance infusion of 2 g per hour until delivery or 12 hours have elapsed.

**The patient returns with risk of preterm delivery and meets the above criteria.
Has the patient been off of magnesium for more than 6 hours?**

YES

Load 6 g of magnesium sulfate IV over 20 minutes, and continue at 2 g per hour until delivery or up to 12 hours.

NO

Restart magnesium at 2 g per hour IV until delivery or up to 12 hours.