Magnesium Sulfate for Neuroprophylaxis Guidelines: Division Protocol, University of Wisconsin Perinatal Service

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Rationale: To standardize management regarding use of magnesium sulfate specifically used for the purpose of neuroprophylaxis in context of imminent risk for severely preterm delivery at Meriter Hospital.

Justification: Provision of a referent set of guidelines aimed at reducing adverse neurologic outcome in at-risk fetuses prior to imminent spontaneous preterm delivery.

Guidelines:

I. Inclusion Criteria for Neuroprophylaxis = risk for viable (> 23 5/7 wks) preterm delivery prior to 32 weeks with any of the following:
   a. threatened preterm labor with cervical change
   b. new diagnosis of advanced cervical dilation (4cm or more)
   c. preterm premature rupture of membranes in context of uterine activity/cervical change
   d. indicated preterm delivery for chorioamnionitis, growth restriction with Doppler/EFM abnormality

II. Exclusion Criteria:
   a. Absolute contraindications:
      i. Maternal renal insufficiency, creatinine > 1.5, or oliguria < 25 cc/hr
      ii. Use of magnesium sulfate tocolysis in previous 6 hours
      iii. Maternal severe pre-eclampsia (these patients are placed on magnesium for seizure prophylaxis)
      iv. Maternal/fetal cardiac arrhythmia
      v. Myasthenia gravis or significant maternal neuromuscular disease
      vi. Acute hemorrhage with possibility of hemodynamic instability
      vii. Intrauterine fetal demise
      viii. Fetuses with lethal anomalies
      ix. Consider that if calcium channel blocker is being given, you cannot reverse MgSO4 with calcium gluconate. Denney’s contraindication is co-administration of nifedipine; ie, no reported increase in adverse outcomes in studies but a clinical tool is removed (Calcium gluconate) in this context. I say this knowing that this is in opposition to UW paradigm.
b. Suggested Guidelines Relative contraindications (to start):
   i. Imminent delivery = anticipated within 2 hours, cervix 9 cm or more dilation, patient already in second stage of labor, fetal distress/nonreassuring fetal status requiring urgent/emergent Cesarean in next two hours.
   ii. Please note: no lower limit of treatment duration at which magnesium sulfate treatment is effective/ineffective has been established. Indicated urgent/emergent delivery should not be postponed to allow for magnesium sulfate treatment. Consideration might be given in some circumstances to administration even if delivery is likely within 2 hours.

III. Magnesium Sulfate Dosing Protocol:
   a. Loading Dose of 6gm
   b. Continuous infusion at 2gm/hr for 12 hours to adequate neuroprophylaxis
   c. If delivery is anticipated, continue infusion through the time of delivery.

IV. Timing
   a. Magnesium sulfate should be administered to women with a high likelihood of delivering within 24 hours or before an indicated preterm delivery.
   b. Emergent delivery should not be delayed for magnesium sulfate administration for neuroprotection
   c. Dosing may be discontinued after 12 hours and should not be continued for longer than 24 hours
   d. If induction of labor is going to take longer than 24 hours (indicated preterm births), administration of magnesium sulfate can be delayed until cervical ripening has been achieved.
   e. Prior to scheduled cesarean delivery (IPTB), the loading dose should be administered and maintenance therapy initiated.

V. Readministration/Subsequent Prophylaxis Criteria.* If delivery does not occur as initially feared and MgSO4 prophylaxis was previously given for 12 hour period, all criteria must be met as follows:
   a. more than 6 hours have passed since the prophylaxis dosing was completed;
   b. delivery prior to 32 weeks is yet again thought relevent;
   c. primary inclusion criteria are again relevant in absence of excluding factors;
   d. Recommendation: retreat/give prophylaxis for the 12 hour period to achieve standard of care.

*Retreatment is controversial at best. Data are inadequate to make a firm evidence-based recommendation. The B.E.A.M. trial allowed retreatment of a full dose of magnesium sulfate if delivery was again believed to be imminent.
the patient was less than 34 weeks, and the initial magnesium infusion had been discontinued for more than 6 hours. Clinician discretion is advised/ permissible.

References:


