Several large clinical studies and a meta-analysis (Crowther, Hiller, Doyle, Haslam, & Australasian Collaborative Trial of Magnesium Sulphate Collaborative, 2003; Doyle, Crowther, Middleton, Marret, & Rouse, 2009; Marret, Doyle, Crowther, & Middleton, 2007; Rouse et al., 2008) have evaluated the evidence regarding magnesium sulfate and fetal neuroprotection and suggest that pre-delivery administration of magnesium sulfate reduces the occurrence of cerebral palsy when given with neuroprotective intent. Magnesium sulfate reduces the severity and risk of cerebral palsy in surviving infants if administered when birth is anticipated before 32 weeks' gestation. (ACOG, 2012)

Recommendations

- Women with preterm labor, preterm PROM, or fetal indication for delivery at 23 to 31 wks 6 days gestation should receive magnesium sulfate for fetal neuroprotection.
- Exclusions: evidence of renal insufficiency or other medical conditions (e.g. myasthenia gravis) for which magnesium sulfate would be contraindicated.

Recommended Treatment Protocol*

- Magnesium Sulfate: 6-gram loading dose over 20 minutes then 2 grams per hour for at least 12 hours (or until delivery). After 12 hours, unless delivery is anticipated, the infusion should be stopped.

Retreatment

- Retreatment is given any time labor recurs or delivery is anticipated except:
    - Deterioration in maternal or fetal status contraindicating the delay in delivery necessary for retreatment.
    - Gestational age is greater than or equal to 32 weeks 0 days.
- Magnesium sulfate: 6-gram loading dose over 20 minutes followed by 2 grams/hour. If the previous infusion was discontinued within six hours of retreatment, skip the 6-gram loading dose and start the infusion at 2 grams per hour.

*Based on the US NICHD RCT(Rouse et al., 2008)

In June 2013, the FDA changed the classification of magnesium sulfate injection from Category A to Category D based on a small number of neonatal cases of osteopenia with prolonged, continuous MgSO4 exposure (>7 days). ACOG and the Society for Maternal-Fetal Medicine continue to support the use of magnesium sulfate in obstetric care for appropriate conditions and for appropriate, short term (usually less than 48 hours) durations of treatment.(ACOG, 2013)

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