I. Purpose:

A. To establish indications, guidelines, and the standard procedures for administering IM magnesium for obstetrical emergencies, or urgent transfers.

II. Authority:

A. Health and Safety Code, Section 1797.220, 1798. Title 22, Section 100170.

III. Background:

A. There is one hospital in Imperial County with obstetric and neonatal specialty care available. Expedited transport can be between 20-30 minutes by ground between the two hospitals.

B. Critical care transport is not available 24/7, and when a patient could be close to delivery, or is immediately postpartum, it is critical to be able to expediently transfer them, while administering life-saving medications.

C. Eclampsia - Magnesium should be provided for symptoms concerning for eclampsia.

IV. OB Medication Policies:

A. Magnesium

1. Therapeutic Effects
   a. Causes smooth muscle relaxation
2. Indications
   a. Suspected eclampsia
   b. Should be considered in patients delivering in the last six weeks, or pregnant patients with last menstrual period or ultrasound confirmed pregnancies > 20 weeks, OR fundal height greater than the umbilicus if gestational age unknown
3. Symptoms of eclampsia include:
   i. New-onset seizures in the absence of other causative conditions such as hypoglycemia or drug/alcohol withdrawal.
   ii. Eclampsia can occur during pregnancy or up to 6 weeks postpartum.
4. Symptoms of preeclampsia that may precede eclampsia include:
   i. Swelling of face or hands
   ii. Severe headache
   iii. Vision changes or seeing spots
   iv. Abdominal or shoulder pain
   v. Nausea and vomiting

vi. Pedal edema
vii. Difficulty breathing

5. Contraindications
   a. Absolute:
      i. Known allergy or sensitivity to the medication
   b. Relative:
      i. If patient is demonstrating signs of magnesium overdose including: loss of deep tendon reflex or decreased respirations
6. Dosage – Standing Order
   a. IM (intramuscular)
      i. A 10 gram IM loading dose of magnesium sulfate (5 grams, 10 mL in each buttock) may be administered.
      ii. The initial dose of 5 g (10 mL as a 50% solution) of magnesium sulfate deep in the ventrogluteal location (10 g total magnesium sulfate).
      iii. The Z-track method should be used.
      iv. Massaging the buttock after the injection will help disperse the magnesium in the tissue.
7. There are no data on IO administration of magnesium sulfate in eclamptic seizures.
8. Adverse Effects
   a. Poor muscle tone/hypotonia
   b. Lethargy
   c. Nausea or vomiting
   d. Respiratory depression
   e. Cardiac arrhythmias
9. Special Considerations
   a. Magnesium can affect the fetus in utero. Note if patient has delivered all pregnancies prior to administration of magnesium. Magnesium can be administered both pre and post-delivery.
   b. If magnesium administration occurs prior to delivery of the fetus(es), be alert for lethargy and decreased muscle tone of both parent and infant if administered prior to delivery.

i. Document respiratory effort and strength checks for all patients every 5 minutes

c. If symptomatic toxicity suspected, contact Base Hospital MICN for 10 mL of 10% Calcium Chloride administration x 1 IV, may repeat per BH.

10. Destination
    a. If a patient is receiving magnesium for an obstetric-related complaint, that patient's hospital destination should be a hospital with obstetric specialists available 24/7
        i. Contact Base Hospital if patient destination requires clarification

V. All Medication Administrations:

1. Supplemental oxygen available and pulse oximeter continuously monitoring with goal of SpO2 $\geq$ 95%.
2. Cardiac monitor to be placed and treat arrhythmias according to standard protocols.
3. Paramedic confirms the five "rights" of medication administration.
4. If patient develops signs or symptoms of an adverse drug reaction, allergic reaction, or anaphylactic reaction:
    a. Immediately stop administration
    b. Follow the standing orders for allergic reaction, anaphylaxis, and/or shock
    c. Notify Base Station of the allergic reaction or anaphylaxis
    d. Notify receiving and sending hospitals of reaction at completion of transport

VI. Quality Assurance

A. Document the following in the patient care record:
    1. Signs and symptoms indicating need for medication
    2. Base Hospital contact as needed
    3. Any complications or side effects from treatment
    4. Response to treatment

B. Documentation:
    1. This protocol applies to paramedics who have completed LEMSA-approved training on IM magnesium administration.
    2. The medication needs to be documented in the medication section and the narrative sections.
    3. The provider agencies shall review 100% of these cases each month.
    4. Submit any adverse outcomes to the EMS agency within 48 hours.

5. The provider agencies need to submit summary report to the EMS agency per quality assurance plan.

APPROVED:

Signature on File

Katherine Staats, M.D.

EMS Medical Director