

Section: Division of Nursing

Index: 6160.019a

PROCEDURE

Page: 1 of 3

Approval: _____

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Issue Date: November 12, 1991

Revised Date: February 2010

HACKETTSTOWN REGIONAL MEDICAL CENTER

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MATERNAL SERVICES

TITLE: ADMINISTRATION OF MAGNESIUM SULFATE

PURPOSE: To outline the procedure for using magnesium sulfate for treatment of patients in preterm labor (as evidenced by regular contractions occurring at least every 10 minutes and lasting 30 seconds and/or progressive cervical changes) and patients with pre-eclampsia prenatally and post partum.

SUPPORTIVE DATA: See Protocol 6160.028a

Patient needing Magnesium Sulfate treatment will receive it in a safe environment with close monitoring of physiological and psychological responses.

EQUIPMENT: Prenatal records
EFM (if undelivered)
Cerner computer system
Toxemia box
Abbott Plum IV pump (2 required for Magnesium therapy)
Mainline IV on pump
Magnesium Sulfate IV bolus (4 grams in 100 ml SW = standard dilution)
Magnesium sulfate drip (20 grams in 500 ml SW = standard dilution)
Oral suction
Oxygen setup
BP cuff manual or automatic (properly sized to the patient)
OB Flow Record
Foley catheter with urimeter or labeled specipan if Foley not ordered

CONTENT:	PROCEDURE STEPS:	KEY POINTS:
	1. Explain procedure to patient, answer questions.	Discuss potential side effects: flushing, nausea, vomiting, headache, blurred vision.
	2. Apply EFM if patient not already monitored and is undelivered. Antepartum monitoring (depending on gestation) may be intermittent and intrapartum monitoring continuous. Record baseline and uterine activity q 30 min.	Use QS system for documenting labor notes.
	3. Assess baseline vital signs, DTR, and urine output before titration of therapy. Include pulse oximetry.	Record in QS labor annotations. Use Magnesium Sulfate Flow sheet for ease of recording interventions and trending observations.
	4. Fax mainline IV orders and Magnesium Sulfate orders to pharmacy for profiling in patient's e-mar. Start mainline IV fluids as ordered per IV protocol via Plum pump, after scanning both patient and iv bag. Magnesium is compatible with D5W, Lactated Ringers, NS, or any combination of these fluids.	All fluids must be on IV infuser pumps, no free flow. Limit fluid intake to 90 ml/hr (2500 ml/day) or per provider orders.

5. Obtain Magnesium sulfate bolus from Pharmacy or Pyxis. Scan patient's wristband and Magnesium sulfate IV bag using C5 after medication is profiled. Use second Plum pump for Magnesium Sulfate infusion.
6. Administer bolus as follows:
Magnesium Sulfate 4 grams (50% solution) in 100 ml. SW to infuse over 30 minutes via infusion pump.
Monitor for side effects. Flushing, "warmth", and nausea are common side effects.
Record time of bolus in QS and on Flow Record.

Run at 200 ml per hour on pump.
Total volume in IVPB to equal 100 ml.
Monitor for side effects, record time of bolus in QS and on flow sheet. Inform patient that flushing and diplopia sometimes occur during bolus and will lessen with maintenance.
7. Piggyback Magnesium Sulfate into primary line at connector closest to venipuncture site via second pump. Too rapid infusion can cause vomiting, severe discomfort, burning, and respiratory depression. Warn patient of hot flush sensation.
8. Obtain stat magnesium blood level according to provider order. See ranges below.
9. After bolus infused, begin maintenance dose via Plum pump. Standard dilution obtained from Pharmacy = 20 grams in 500 ml SW or from Pyxis. Magnesium infusions are run via Plum pump using preprogrammed medication library.
1 gram/hour = 25 ml/hour
2 grams/hour = 50 ml/hour
10. Record vital signs as follows:
BP, P, R, neuro status (include DTRs) – q. 15 min during bolus,
then q. 30 minutes x 4,
then q. 60 min during maintenance.
Temperature – q. 4 hours (q. 2 hours if ROM)
Urine output – q. 1 hour
Maintain accurate documentation of all assessments using OB Flow Record.
Notify provider if output less than 30 ml/hour.
May use foley with urimeter.
Be aware that patient may have earlier received fluid bolus as first line treatment for preterm labor is hydration.
11. Restrict po fluid intake. Record hourly intake on OB Flow Record.
12. Provide quiet restful environment (dim lights and limit visitors for pre-eclamptic, PIH patient). Decrease CNS irritability.
13. Review laboratory values
RANGES:
1.8 – 3 Normal
4.8 – 8 Therapeutic
10 – 14 Loss of DTRs
18 Respiratory arrest
25 Cardiac arrest; Paralysis
Magnesium levels usually ordered q 1-6 hours.
Report lab values to provider.
14. Monitor for signs and symptoms of worsening condition:
Edema
Frontal headache
RUQ or epigastric pain
Abdominal pain
Visual disturbances
Dizziness
Hyperreflexia
Notify provider.

Oliguria
Proteinuria increase

15. Assess for and record signs and symptoms of Magnesium toxicity:

Absence of DTRs
Respirations less than 16/min
Urine output less than 30 ml/hour
O2 Sats less than 95%
Dyspnea

Calcium Gluconate 1 gram of 10% solution (3 doses avail. in toxemia box) is antidote for Magnesium toxicity.

Notify provider immediately. Discontinue Magnesium infusion. Have resuscitation equipment readily available.

Treatment of hypermagnesemia:
At Mg plasma concentrations of 5 to 10 mEq/L (2.5 to 5 mmol/L), the ECG shows prolongation of the PR interval, widening of the QRS complex, and increased T-wave amplitude. Deep tendon reflexes disappear as the plasma Mg level approaches 10 mEq/L (5.0 mmol/L); hypotension, respiratory depression, and narcosis develop with increasing hypermagnesemia. Cardiac arrest may occur when blood Mg levels exceed 12 to 15 mEq/L (6.0 to 7.5 mmol/L).

Treatment of severe Mg toxicity consists of circulatory and respiratory support.
1. IV administration of Calcium Gluconate 10%, 1gram (10mL) over 5 minutes, repeated as necessary (usually up to 20mL may need to be administered) may reverse many of the Mg-induced cardiac changes, and also respiratory depression.
2. Administration of IV furosemide can increase Mg excretion if renal function is adequate and volume status is maintained. Hemodialysis may be valuable in severe hypermagnesemia.

16. Assess for complications of PIH (if applicable):

DIC
Abruptio
Pulmonary edema

Check for alterations in lab values.
Assess pain levels at least q. 4 hours.

Auscultate chest sounds. Observe for signs of pulmonary edema.

17. Provide emotional support to patient and family.

18. After Magnesium Sulfate is discontinued, monitor vital signs:

q 1 hour x 4 then
q 2 hours x 2 then
q 4 hours unless otherwise per provider

Magnesium Sulfate should not be discontinued for 24 hours after delivery.
Nurse:patient ratio is 1:1.

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