THE TWEED/BYRON HEALTH SERVICE GROUP

EMERGENCY DEPARTMENT ADULT DRUG GUIDELINES

Policy Number: NC-TWE-CLP-868

Date Issued: Next Review:

Authority:

April 2001 15/11/2021 Last Review Date: 15/11/2017

Dr Robert Davies

Network Director Emergency Medicine

Authority Initial:

MAGNESIUM SULFATE (MgSO₄) in PRE-ECLAMPSIA OR ECLAMPSIA

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This protocol should only be used in consultation with specialists who are familiar with the management of pre-eclampsia and eclampsia.

INDICATIONS

- Seizure prophylaxis in a woman who has already had an eclamptic seizure
- Seizure prophylaxis in a woman with severe pre-eclampsia who is at risk of eclampsia (although the efficacy for this is uncertain)

PRESENTATION	AMPOULE: 5mL of 49.3% solution MgSO ₄ = 2.47g MgSO ₄ = 10mmol magnesium	PRE-MIXED BAG: 8g MgSO ₄ in 100mL water for injection (available at BCH ED). 40g MgSO ₄ in 500mL water for injection (available from TTH Women's Care). Each 100mL contains 32mmol magnesium 12.5mL=1g MgSO ₄
MIXING INSTRUCTIONS	 From 500mL bag of 0.9% sodium chloride remove 50mL. Add 50mL of 49.3% MgSO₄ (10 amps). The resulting solution will have the following: 20mL = 1g MgSO₄ 	 No further mixing is required. 12.5mL=1g MgSO₄
LOADING DOSE	 Infuse 4g (80mL) prepared MgSO₄ over 15 to 30 minutes through Baxter Pump. 	 Infuse 4g (50mL) premixed MgSO₄ over 15 to 30 minutes through Baxter Pump.
MAINTENANCE INFUSION	 Infuse 1g (20mL) prepared MgSO₄/hour. If convulsion occurs, give another loading dose (4g=80mL) over 15 to 30 minutes. Run the maintenance infusion for at least 24 hours after the last convulsion or delivery. 	 Infuse 1g (12.5mL) premixed MgSO₄/hour. If convulsion occurs, give another loading dose (4g=50mL) over 15 to 30 minutes. Run the maintenance infusion for at least 24 hours after the last convulsion or delivery.

NOTES

- Monitor for signs of hypermagnesaemia (see page 2).
- Maintenance infusion can be titrated between 0.5 to 2g/hr to achieve therapeutic levels.
- If the infusion is running above 1g/hr it needs to be lowered by 0.5g/hr until a maintenance dose of 1g/hr is reached prior to ceasing the infusion.
- Total MgSO₄ dosage should not exceed 30 40g over 24 hours.
- Rapid infusion may cause hypotension and cardiac arrhythmia
- Infusion concentrations less than 0.2g/mL recommended.
- Maximum infusion rate recommended 0.15g/min (=9g/hr).
- Rate and duration of infusion determine clinically or by magnitude of magnesium deficiency.

ANTIDOTE for MAGNESIUM TOXICITY

Calcium chloride or calcium gluconate (10mL of 10% solution) by slow IV injection over 3 minutes.

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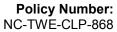
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CONTRAINDICATIONS for magnesium sulfate

Date Issued:

Magnesium sulfate can be extremely hazardous in the following circumstances:-

- Renal failure, severe renal compromise or if oliguria is present (magnesium concentration can reach toxic levels as elimination is predominantly renal).
- Half dose MgSO₄ should be considered if there is renal compromise.
- In association with hypocalcaemic states.
- Myasthenia gravis.
- Cardiac conditions, in particular conduction problems or myocardial damage.

OTHER CONSIDERATIONS for magnesium sulfate

Magnesium Sulfate:-

- May lower blood pressure (secondary to vasodilation). Dose of any current antihypertensive medication may require adjustment.
- May have some tocolytic effect.
- May decrease foetal heart rate variability.
- May cause loss of reflexes (patellar reflexes will be absent well before toxic serum levels of magnesium are reached.
- Should be used with caution in the presence of calcium antagonists or other respiratory depressants (e.g. diazepam).

Common Maternal Side Effects of magnesium sulfate

- Sensation of pain and warmth in arm.
- Flushing of hands, face and neck.
- Nausea.

Signs of Maternal Toxicity of magnesium sulfate

- Loss of patellar reflexes.
- Respiratory rate <10.
- Slurred speech, weakness, feeling extremely sleepy, double vision.
- Muscle paralysis.
- Respiratory/cardiac arrest.

CARE AND OBSERVATIONS DURING INFUSION of magnesium sulfate

- Close observation and assessment (maternal and fetal) is required for the duration of the infusion.
- Where patient condition is unstable, the frequency of observation will need to be increased.

Routine observations:-

- 1-2 hourly recording of maternal blood pressure, respiratory rate, heart rate and urine output. (Cease infusion if respiratory rate is <10 per minute or if urine output is <80mL over 4 hours)
- Patellar reflexes at completion of loading dose and then 2 hourly. (Cease infusion if unable to elicit reflexes and ED MO
 must be notified). Use arm reflexes in patients with an epidural.
- Fetal heart rate monitoring as clinically indicated.
- Serum magnesium levels may be measured 60 minutes after commencing the infusion and thereafter as clinically indicated. Normal therapeutic levels are 1.5 to 3.5 mmol/L. (Blood for serum levels SHOULD NOT be collected from the limb receiving the infusion).

Reference:

PD2011_064 NSW Health Management of Hypertensive Disorders of Pregnancy.