Protocol for Magnesium Sulphate (MgSO₄) Administration

MgSO₄ is the drug of choice for the prevention of seizures in patients with imminent eclampsia or prevention of recurrent seizures in patients who have had an eclamptic fit.

1. INDICATIONS:

1.1. Eclampsia
1.2. Threatening signs of eclampsia during labour
1.3. Threatening signs of eclampsia during initial stabilisation in labour ward
1.4. Threatening eclampsia / severe pre-eclampsia during transfer to Tygerberg

2. RELATIVE CONTRAINDICATIONS

2.1. Renal failure, severe renal compromise or oliguria
2.2. Hypocalcaemic states
2.3. Myasthenia gravis
2.4. Cardiac conditions with conduction problems or myocardial damage
2.5. Respiratory depression
2.6. Seizures not due to eclampsia

NB! REMEMBER MgSO₄ may:
× Lower BP
× Have Tocolytic effect
× Decrease FHR variability
× Cause loss of reflexes
× Should be used cautiously in presence of calcium channel antagonists

3. LOADING DOSAGES:

3.1. Loading dose - Pritchard Regime [For transfer]
   • 4g MgSO₄ (20ml of a 20% solution) slowly intravenous (3-5 minutes)*
   [Alternate loading dose is 4g MgSO₄ in 200ml normal saline over 10-15 mins]
   • 5g undiluted in left buttock (intramuscularly)
   • 5g undiluted in right buttock (intramuscularly)
   • Repeat 5g IM in alternative buttock every 4 hours if transfer delayed

NB! Poor urinary output is not a contra-indication for administering a loading dose.
3.2. Loading dose and maintenance – Zuspan Regime [for ward use]

3.2.1. Loading:
- 4g MgSO₄ (20ml of a 20% solution) slowly intravenous (3-5 minutes)*

[Alternate loading dose is 4g MgSO₄ in 200ml normal saline over 10-15 mins]

3.2.2. Maintenance:
- 1g hourly intravenous.
- Continue with 4g MgSO₄ in 200ml N/S IVI at a rate of 1g per hour (i.e. 50ml/h) until 24 hours after delivery or since the last fit.
- Alternative, if no IVAC available use 12g (12 ampoules) MgSO₄ in 1 liter Ringers lactate. Give 80 ml per hour intravenous using an in-line flow regulator.

4. SUPPORTIVE CARE FOR PATIENTS ON MgSO₄

4.1. All patients on MgSO₄ must have a Foley’s catheter in with hourly monitoring of urinary output

4.2. Hourly observations (BP, reflexes, urinary excretion, respiratory rate) must be done using the appropriate documentation.

4.3. Start with maintenance directly after the loading dose

4.4. Continue for 24 hours after delivery or after the last fit (or less if the patient is well sedated, e.g. after Caesarean section)

4.5. If a patient has further convulsions during maintenance, administer a further 2g (20% solution) MgSO₄ slowly intravenously. IV dose can be increased to 2g/hour if needed (increase the concentration and not the fluid volume)

*20% solution: Dilute 4 ampoules (one ampoule is 1g diluted in 2 ml water) in 12 ml water; that is 4g in (8ml+12ml)=20ml water which is a 20% solution.

**NB!** Stop administration if any of the following occur:
- Suppressed reflexes
- Respiration rate <15/min
- Urinary output < 30ml/uur

**ANTIDOTE:** 10ml of a 10% Calcium Gluconate solution intravenously [i.e. 1 gram] slowly over 5-10min
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<th><strong>AUTHORISED BY</strong></th>
<th>GS Gebhardt</th>
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<td><strong>COMMITTEE RESPONSIBLE</strong></td>
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<td><strong>EVIDENCE</strong></td>
<td>Evidence basis for the above decision is available on request</td>
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Signed: GS Gebhardt

Head: general specialist services; Obstetrics and Gynaecology