HEALTH HOLDING
HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Obstetrics and Gynecology (L&D)		
Document:	Departmental Policy and Procedure		
Title:	Magnesium Sulphate Protocol for Pre-Eclampsia		
Applies To:	All Obstetrics and Gynecology Staff		
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1. PURPOSE:

1.1 To clarify the methodology of giving MgSO4 to obstetric patients in a comprehensive and easy way.

2. DEFINITIONS:

2.1 **Eclampsia**- refers a condition in which one or more convulsions occur in a pregnant woman suffering from high blood pressure, often followed by coma and posing a threat to the health of mother and fetal.

3. POLICY:

3.1 Magnesium Sulphate is the anticonvulsant of choice as first line of treatment, control and prevention of convulsion in-patient with eclampsia and preeclampsia.

3.2 Mechanism of action: not entirely clear
- 3.2.1 Blocking neuromuscular transmission at the motor end plate.
- 3.2.2 Depressant effect on the CNS.
- 3.2.3 Peripheral vasodilation.
- 3.2.4 NMDA receptor antagonist.

3.3 Indications:
- 3.3.1 Prophylactic for cases of severe PET (impending eclampsia) before delivery and twenty four (24) hours postpartum.
- 3.3.2 Therapeutic to abort convulsions in cases of eclampsia and to prevent the recurrence over the next forty eight (48) hours.

3.4 Caution:
- 3.4.1 Hepatic impairment.
- 3.4.2 Cardiac disease.
- 3.4.3 Renal disease (including acute renal failure).
- 3.4.4 Neuromuscular disease.

3.5 The use of Magnesium Sulphate prior to delivery must be discussed with a physician in patients with impaired renal function; half of the maintenance dose of Magnesium Sulphate is given.

3.6 Normal range of Magnesium Sulphate level in non-infused person 0.7-1.0 mmol/L (1.5-2.5 meq/L). Therapeutic Level 1.25-3.25 mmol/L (2.5-5 meq/L)(3-6 mg/dl).

3.7 Adverse reactions and toxicity: These include flushing, sweating, hypotension, depressed reflexes, flaccid paralysis, hypothermia, circulatory collapse, cardiac and central nervous system depression and respiratory paralysis.

3.8 Caution: Artificial ventilation must be provided until Calcium Gluconate is available by anesthetist on duty.

4. PROCEDURE:

4.1 There must be a physician order to start Magnesium Sulphate infusion on order sheet.

4.2 Nurse or midwife in-charge of the patient should start an IV line with at least 18 gauge cannula if not already in place.

4.3 Magnesium Sulphate is supplied in a plastic ampule each contains 2 grams (10% concentration) in a 20 ml ampoule equivalent to 2 gm/20 ml of sterile water.

4.4 The loading dose is 4 grams (40 ml), (2 vials). This is given via IV infusion pump over 30 minutes.

4.5 Continuous Maintenance IV infusion of Magnesium sulphate 1-2 grams per hour as specified in the Physician's order, Nurse in charge of the patient should add twenty (20) grams of Magnesium Sulphate, i.e. 200 ml (10 ampules of a 10% solution in 20 ml) 2 gm. in 20 ml.

4.5.1 For 1 gram/hour, run at 10 ml per hour

For 2 grams/hour, run at 20 ml per hour, until delivery and as long as symptoms persist (at least 24 hours post-delivery).

4.6 Using the perfusion pump:

4.6.1 This is the "First Choice" as it delivers the dose correctly and it avoids any volume overload.

4.6.2 Withdraw 2 ampules of MgSO4 (40cc=4gms MgSO4) into perfusion pump syringe.

4.6.3 Adjust the pump to a rate of 10 cc/hour (it will deliver 1gm/ hour) so it will cover a 4 hours period. Every 4 hours you have to prepare the infusion.

4.7 Duration of therapy (Postpartum):

4.7.1 Eclamptic women 24 hours after last seizure.

4.7.2 Severe PET: if the patient is generally well, 24 hours are enough.

4.8 Monitoring effects of Magnesium Sulphate on hourly basis.

4.8.1 Nursing staff duties (Assigned nurse):

4.8.1.1 Blood Pressure

4.8.1.2 Pulse

4.8.1.3 Temperature

4.8.1.4 Respiratory Rate

4.8.1.5 Input

4.8.1.6 Output

4.8.1.7 Oxygen saturation

4.8.1.8 Infusion Rate

4.8.2 Physician on duty:

4.8.2.1 Knee jerk

4.8.2.2 Lung base auscultation

4.8.3 Biochemical monitoring check Mg levels in blood every 6-8 hourly provided that the urine output is >100 cc/4 hours and there is no clinical signs of toxicity.

4.8.4 Patients should be treated in intensive care unit.

4.8.5 CTG for pregnant patients

4.9 Patients with toxicity:

4.9.1 Inform physician on call.

4.9.2 Stop Magnesium Sulphate infusion.

4.9.3 Give Lasix 20 mg IV stat and observe urine output (if oliguria/increased Serum Creatinine), ECG

4.9.4 Auscultate lung bases (risk of pulmonary edema)

4.9.5 Check Magnesium levels

4.9.6 Oxygen mask (10 litres/minute)

4.9.7 Check oxygen saturation

4.9.8 Give antidote "Calcium Gluconate" 1 gram by slow IV injection over 10 minutes. If severe respiratory depression, call anesthetist to consider endotracheal intubation and mechanical ventilation.

4.10 Recurrent convulsions:

4.10.1 This occurs in 15-20% of cases.

4.10.2 Check Mg levels.

4.10.3 Give a bolus dose of Magnesium Sulphate 2 grams IV over 10 minutes.

4.10.4 Call physician on call.

4.10.5 Call anaesthetist.

4.10.6 Transfer to ICU for observation.

4.10.7 If Mg levels are sub therapeutic, increase the maintenance dose to 2 grams/ hour and check Mg level hourly.
4.10.8 After stabilization, arrange for brain CT scan.
4.10.9 Documentation

5. MATERIALS AND EQUIPMENT:

N/A

6. RESPONSIBILITIES:

6.1 Physician
6.2 Nurses
6.3 Midwives
6.4 Pharmacist

7. APPENDICES:

N/A

8. REFERENCES:

8.1 William Obstetric 22nd 2005.
8.2 RCOG, Green Top Guideline, Management Of Severe Preeclampsia, Eclampsia, March 2006.
8.3 Oxford Handbook of Obs. & Gyn, 1st Edition, 2004.
8.4 Guidelines for Obstetrics and Gynecology/ Ministry of Health, General Directorate of Health Centers- Riyadh, 2013.

9. APPROVALS:

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