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Eclampsia Policy, Acute Management of

Hutt Maternity Policies provide guidance for the midwives and medical staff working in Hutt Maternity Services. Please discuss policies relevant to your care with your Lead Maternity Carer.

Purpose

The purpose of this guideline is to

- establish a local approach to care, that is evidenced based and consistent
- inform good decision making
- provide safe and effective care for women and their babies experiencing this condition

Scope

- All obstetric staff employed by the Hutt Valley DHB
- All midwifery staff employed by the Hutt Valley DHB
- All Hutt Valley DHB maternity access agreement holders.
- Anaesthetic staff
- Neonatal staff

Abbreviations used in this document

CBC	Complete blood count
LMC	lead maternity carer
MgSO₄	Magnesium sulphate

Eclampsia

Background

Eclampsia is defined as ‘The onset of convulsions in association with pre eclampsia in pregnancy, intrapartum and postpartum’. (Dreycott, T., Winter, C., Crofts, J. & Barnfield, S., 2009, p.27). Eclampsia is a life threatening emergency.

Signs

The convulsion is the only sign

This is a tonic clonic seizure and cyanosis is present.

The seizure may last 1-1 ½ min with the woman not breathing. The woman will resume breathing after the seizure and a post ictal phase may follow.

Risks of Eclampsia

Maternal

- Death
- Hypoxia
- Injury
- Cerebral haemorrhage (especially if the woman is hypertensive)
- Asphyxia
- Pulmonary oedema
- Renal failure
- Neurological complications

Foetal

- Prematurity
- Hypoxia
- Demise

Management of the woman experiencing an eclamptic seizure

This requires initiation of a complex treatment plan

NB First stabilize the mother before assessing foetal condition

1. Call for help dial 777 and state **this is an CODE 1 EMERGENCY: delivery suite / postnatal and room number**
2. Maintain maternal safety while mother convulsing
 - Maintain airway
 - Position in left lateral
 - Administer oxygen at 6-8 litres per minute via facemask
3. IV Access
 - Take and send blood to lab - CBC, Liver function tests, Urea & electrolytes and Clotting Profile
 - Insert 2 large bore cannulae Size 16
 - Commence and maintain an accurate fluid balance record.
 - Normal Saline /Hartman's at 80 mls/hour (if taking oral fluids this 80 mls is total fluid intake)
 - Insert an indwelling catheter into the bladder, measure urine hourly which is maintained at 0.5 mls/kg/hour. If it is less than 0.25 mls/kg/hour for more than 2 hours notify the obs on call.
 - No fluid boluses unless decided by consultant following discussion with anaesthetist
4. Administer Magnesium Sulphate.
Systematic reviews have shown that this is the drug of choice for the prevention of eclamptic seizures in women (Duley & Henderson-Smart (2005a, 2005b). see Appendix I.

Magnesium sulphate slows down neuromuscular conduction and depresses the central nervous system irritability. It does not lower blood pressure. (AAFP, 2000, B6).

Contraindications

- Women with heart block
- Women with renal failure

Caution should be used in the following situations

- Women with impaired renal function
- Women with myasthenia gravis
- If administered in the two hours prior to birth there is a risk that the infant will be born with depressed breathing due to hypermagnesaemia.
- Communication about medication administration should occur between medical and midwifery staff.

5. Control hypertension if present by use of antihypertensive medication

The CEMACH Report (2007) suggests that based on evidence, a systolic pressure of 160mmHg requires urgent and effective treatment to prevent an intracranial haemorrhage.

Treatment aims to keep diastolic BP 90-100mmHg and systolic BP 140-150 mmHg. The present Cochrane review does not support the choice of any one antihypertensive agent over another. This is at the attending obstetrician's discretion. (Duley L., Henderson-Smart, DJ. & Meher, S., 2006)

Three drugs of choice Labetelol, Nifedipine or Hydralazine. (Refer to Severe Hypertension policy)

All of these drugs

- Peak at thirty mins
- Interact with Magnesium Sulphate especially Nifedipine

6. Ongoing plan and management of the woman and baby

The decision as to how and when to deliver the baby is at the discretion of the consultant.

- If an urgent operative delivery is required, then administer
 - i. Ranitidine 50 mg IV
 - ii. Metoclopramide 10 mg IV/IM
 - iii. Sodium citrate 30ml PO
- Epidural analgesia is preferable in these women providing clotting is normal. This is at the discretion of the anaesthetist
- Active management of the third stage is mandatory using **syntocinon** as the ecbolic of choice. The woman should **not** receive any ergot containing agents
- A paediatric RMO should be present for delivery. They must be aware of the eclampsia and also of drugs administered to the mother

- Arterial and venous cord blood taken and sent for PH and Lactate
- After birth it is advisable for the woman to remain in delivery suite or ICU for at least 24 hours observation.

7. Post-partum medical management is the responsibility of the consultant.

- On return to postnatal ward, observations will be at the discretion of obstetrician.
- Mother is to be reviewed four hourly by the obstetric team

Documentation

A full and accurate record of events must be documented in the body of the woman's notes.

All drugs prescribed and administered to the woman must be documented on the Hutt Valley District Health Board drug chart.

Use of a high dependency sheet for recording frequent observations is recommended.

References

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Witlin, A. & Sibai, B. (1998). Magnesium sulfate therapy in pre-eclampsia and eclampsia. *Obstetrics & Gynaecology*, 92, 883 – 889.

Associated documents

Protocol: Administration of Magnesium sulphate for prevention and treatment of eclampsia

Protocol: Administration of medications for treatment of severe hypertension in pregnancy, labour and postpartum

Management of the woman with pre-eclampsia

Antenatal day case monitoring for women with pre-eclampsia

Antacid Regime

Informed Consent

The right of a consumer to make an informed choice and give informed consent, including the right to refuse medical treatment, is enshrined in law and in the Code of Health and Disability Consumers' Rights in New Zealand. This means that a woman can choose to decline treatment, referral to another practitioner, or transfer of clinical responsibility. If this occurs follow the process map on page 18 of the Referral Guidelines (Ministry of Health, 2012).

Appendix 1

Protocol for the administration of Magnesium Sulphate

The woman is assessed by the obstetric consultant/registrar. The registrar must consult with the Obstetric specialist prior to the prescription of magnesium sulphate therapy.

The obstetric specialist/registrar must be in delivery suite while the loading dose is being administered.

Equipment

- 12 ampoules of Magnesium sulphate (2.47g of Magnesium sulphate in each 5 ml, (contains 10mmol magnesium and 10mmol sulphate ions))
- 100 ml bag of 0.9% sodium chloride x2
- 1000 ml 0.9% sodium chloride
- 20 ml syringe x2
- 2 intravenous giving sets
- 1 'Y' extension set leur-lock with back check valves

Loading Dose

A loading dose of 4 grams is administered intravenously over 20 minutes

Prescription

- In a 20 cc syringe draw up 8 ml of Magnesium sulphate. Add to 100ml bag of 0.9% sodium chloride.
- Administer over 20 minutes via an electronic infusion device

Warn the woman of the burning/flushing effect she may feel. The midwife must stay with the woman while the loading dose is being administered.

Maternal Observations during loading dose

- Pulse (P), Blood pressure (BP), Respirations (R)
- Frequency every 5 minutes

Foetal Observations

Continuous EFM

Continuous Infusion

The loading dose is followed by a continuous infusion of 1gram of Magnesium Sulphate per hour.

Prescription

- **8 gm MgSO₄ in 16mls added to 100ml of 0.9% sodium chloride**
- **Total Volume = 116mls**
- **Administer over 8 hours via an electronic infusion device = 1gm MgSO₄ / hr**

Procedure

- In a 20cc syringe, draw up 16 mls MgSO₄. Add to a 100ml bag of 0.9% sodium chloride.
- Total volume = 116 mls.
- Commence a mainline infusion of 1000ml 0.9% sodium chloride at rate directed by obstetrician. Add the Y connector with back check valve to the tubing. Connect the MgSO₄ to the second arm of the Y connection.
- Administer MgSO₄ over **8** hours via an electronic infusion device.
- Rate of 14.5mls / hr
- Rate checked by 2 staff members prior to commencing infusion.
- The infusion is continued for minimum 24 hours after birth or the last seizure and then discontinued. Note: **This will require a minimum of 3 infusions of 8 gm MgSO₄ in 100ml of 0.9% sodium chloride.**

Maternal Observations

Clinical

Commence ¼ hourly observations of the following:

- Respirations, Pulse, Blood Pressure by a manual BP machine ,
- Patellar reflexes
- Level of consciousness,
- Oxygen saturations

Observations can change to hourly when the woman has stabilised.

Foetal Observations

Continuous electronic foetal monitoring until the baby is delivered.

Serum Magnesium levels

The above regime of Magnesium Sulphate does not require testing of blood concentration because clinical effect can be monitored by deep tendon reflex. (Steegers, E.a.P., von Dadelszen, P., et al, 2010) but if required by medical staff

- Take 1 hours after commencement of loading dose
- Repeat at regular intervals (4 hourly) while infusion is running
- Repeat urgently if the woman exhibits signs of toxicity

Magnesium levels and symptoms

	Range in (mmol /litre) ²
Normal range	0.5 – 1.1
Therapeutic range	2 – 4
Loss of patellar reflex	> 5
Somnolence	> 5
Respiratory depression	>6
Paralysis	>7
Cardiac arrest	> 12

(Reference Fontaine and Sabourin, 2005, B6)

Discontinuing the Infusion

The infusion should be maintained for at least 24 hours after the last seizure or after delivery.

The administration rate may need to be reduced under the advice of the obstetric Consultant if the following effects are noted

- Decreased O₂ saturations
- Depressed respiration rate <12/min/
- Hypotension diastolic <80 mmHg
- Tachycardia >120/min

Toxicity

Magnesium sulphate toxicity leads to

- Loss of deep tendon reflexes
- Muscle paralysis
- *Respiratory arrest*
- *Cardiac arrest*

Call 777 and state 'maternal arrest'

STOP Magnesium Sulphate

START Basic life support

*Give 1 gram calcium gluconate IV (10 mls of a 10% solution)
over 10 mins*

Intubate and ventilate until mother can breathe on her own

Signs of toxicity include:

- Loss of patella reflexes
- Weakness
- Nausea
- Flushing
- Sleepiness
- Double vision
- Blurred vision

An anti-convulsant may be used at the discretion of a consultant. Caution must be used when administering such medications as they may lead to respiratory depression, aspiration and cardiac arrest especially when used in conjunction with magnesium sulphate.

Appendix 2

Section 88, Levels of Referral

The following are taken from the Notice Pursuant to Section 88 of the New Zealand Public Health and Disability Act 2000. Practitioners are referred to the original document for the full text.

Risk	Referral Category
Current pregnancy	
▪ Eclampsia	Emergency

An emergency situation necessitates the immediate transfer of clinical responsibility to the most appropriate practitioner available. Responding to an emergency situation may include emergency transport by road or air to a facility able to provide the necessary level of care.

In such circumstances the clinical roles and responsibilities are dictated by the immediate needs of the mother and/or baby and the skills and capabilities of practitioners available including those involved in providing emergency transport if it is required. The LMC is likely to have an ongoing role through out the emergency depending on the circumstances.