

ROYAL HOSPITAL FOR WOMEN

LOCAL OPERATING PROCEDURE

CLINICAL POLICIES, PROCEDURES & GUIDELINES

Approved by Quality & Patient Safety Committee

15/12/11

MAGNESIUM SULPHATE PRIOR TO PRETERM BIRTH FOR FETAL NEUROPROTECTION

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP. The use of this LOP is optional according to physician preference as the evidence of neonatal benefit is under debate.

1. AIM

- To reduce the risk of cerebral palsy to an infant born at less than 30 weeks gestation

2. PATIENT

- Mother \geq 24 and $<$ 30 weeks gestation where birth is expected within 24 hours
- Mother is planning active resuscitation of newborn baby

3. STAFF

- Registered Midwives
- Student Midwives
- Medical staff
- Registered Nurses in Acute Care

4. EQUIPMENT

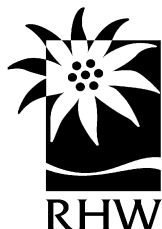
- IV Pump
- Mercury Sphygmomanometer

5. CLINICAL PRACTICE

- Counsel the woman and obtain verbal consent for administration of Magnesium Sulphate
- Administer premixed 4gm dose of Magnesium Sulphate via infusion pump over 20 to 30 minutes. Aim to have infusion completed at least 4 hours prior to the birth.
- Measure blood pressure and pulse five minutely for four readings whilst administering dose
- Check Respiratory rate and patella tendon reflexes before starting infusion, after 10 minutes and at end of infusion. Stop infusion if respiratory rate less than 12 breaths per minute
- Observe for the development of side effects
- Maternal adverse effects and side effects
 - Magnesium Sulphate produces flushing, sweating and a sensation of warmth by its peripheral vasodilator effects when infused intravenously. Other reported maternal side effects, related to dosage and speed of infusion, include nausea, vomiting, headache, palpitations and rarely, pulmonary oedema. Administration of Magnesium Sulphate to concentrations above the recommended therapeutic range can lead to respiratory depression, respiratory arrest, cardiac arrest and death. These risks are minimised by using a slow bolus and no ongoing infusion
 - Magnesium Sulphate is contraindicated in Myasthenia Gravis
- Do not delay delivery to administer Magnesium Sulphate if the indication is not urgent
- Consider repeat 4gm Magnesium Sulphate dose if woman is still at risk of imminent delivery 24 hours after the first dose
- Obtain cord blood for Magnesium levels

6. DOCUMENTATION

- Integrated Clinical Notes
- Fluid Balance Chart
- Maternity Observation Chart
- ObstetriX Database



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7. EDUCATIONAL NOTES

- Cerebral palsy and cognitive dysfunction are the most frequent occurring neurologic impairments associated with preterm birth (before 37 weeks gestation)
- Approximately 42% of all cases of cerebral palsy are associated with preterm birth (Australian Cerebral Palsy Register Group 2009)¹ with the rate of cerebral palsy amongst neonatal survivors born at less than 28 weeks gestation up to 30 times higher compared with infants born at term²
- Antenatal Magnesium Sulphate therapy given to women at risk of preterm birth substantially reduced the risk of cerebral palsy in their child relative risk (RR) 0.68
- No statistically significant effect of antenatal Magnesium Sulphate therapy was detected on paediatric mortality or on other neurological impairments or disabilities in the first few years of life
- The number needed to treat to benefit (NNTB) for combined death or cerebral palsy was 43 babies 95%³
- Ideally Magnesium Sulphate 4gm dose should be given four (4) hours prior to birth, however, it is likely there is still some benefit at lesser interval
- Insufficient evidence in the Cochrane Meta-analysis by Doyle et al in 2010 to recommend any regime. Further studies comparing the dose, timing of administration and whether maintenance magnesium therapy is required are needed and whether the Magnesium Sulphate treatment should be repeated^{3,4}
- Significant toxicity can be treated with 1 g Calcium Chloride or Calcium Gluconate (10 mls in 10% w/v solution) by slow intravenous injection over three minutes. Calcium chloride vials are available in the cardiac arrest trolleys.

8. RELATED POLICIES / PROCEDURES / CLINICAL PRACTICE LOP

- Management of Eclampsia
- Eclampsia Prophylaxis with Magnesium Sulphate
- Hypertension – Management in Pregnancy
- Severe and/or Urgent Hypertension in Pregnancy

9. REFERENCES

- Antenatal Magnesium Sulphate For Neuroprotection National Clinical Practice Guidelines. The Australian Research Centre for Health of Women and Babies (ARCH)
- Stanley F. Survival and cerebral palsy in low birthweight infants: implications for perinatal care. Paediatric and Perinatal Epidemiology 1992;6(2):298-310
- Doyle LW, Crowther CA, Middleton P, Marret S, Rouse D. Magnesium Sulphate for women at risk of preterm birth for Neuroprotection of the fetus. Cochrane Database of Systematic Reviews 2009, Issue 1. Art. No.: CD004661. DOI: 10.1002/14651858.CD004661
- Magnesium Sulphate before anticipated preterm birth for Neuroprotection. Committee Opinion No. 455. American College of Obstetricians and Gynecologists. Obstet Gynecol 2010;115:669-71
- SOGC Clinical Practice Guideline. Magnesium Sulphate for fetal Neuroprotection. JOGC May 2011
- RCOG Scientific Advisory Committee Opinion Paper 29. Magnesium Sulphate to prevent cerebral palsy following preterm birth August 2011

REVISION & APPROVAL HISTORY

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