NEONATAL Medication Monograph

MAGNESIUM

This document should be read in conjunction with this **DISCLAIMER**

IV - Restricted: Requires Neonatologist review within 24 hours of initiation

Oral - Unrestricted: Any prescriber may initiate treatment as per guideline

⚠ **HIGH RISK Medication**

Presentation	**Ampoule:** Magnesium Sulfate 2.47g (49.3% w/v) in 5mL contains 10mmol magnesium in 5mL = 2mmol/mL **Oral solution** : Magnesium Chloride 1mmol/mL (Auspman)
Classification	Electrolyte supplement Pulmonary vasodilator
Indication	Magnesium deficiency Persistent pulmonary hypertension of the newborn (PPHN)
Contraindications	Hypermagnesaemia Contraindicated in patients with heart block
Precautions	Patients with colostomy/ileostomy, intestinal obstruction, impaction, perforation, appendicitis and abdominal pain
Dose	**Doses expressed as 'mmol'/kg** **Magnesium deficiency** **IV:** 0.1 to 0.2mmol/ kg/ dose every 12 hours **Oral:** 0.2mmol to 0.6mmol every 12 hours Start with lower dose and then titrate based on serum magnesium level. **Persistent pulmonary hypertension of the newborn** **IV:** **Loading dose:** 0.8 mmol / kg over 60 minutes **Maintenance dose:** 0.08 - 0.3 mmol / kg / hour to maintain plasma magnesium concentration between 3.5 – 5.5mmol/L. May be used for up to 5 days.

Monitoring	ECG and continuous or frequent blood pressure. Serum magnesium levels **Monitor magnesium concentrations**: Magnesium Range = 0.75-1.2 mmol/L PPHN Magnesium Range : 3.5 – 5.5 mmol/L
Dose Adjustment	Adjust Dose according to serum magnesium levels Caution in Patients with Renal Impairement
Guidelines & Resources	High Risk Medicines List Arrhythmias
Compatible Fluids	Sodium chloride 0.9%, Glucose 5%
Preparation	**IV Infusion:** **0.1mmol/mL concentration** Take 2.5 mL (5 mmol) and dilute to 50mL with compatible fluid Concentration is 5mmol/50mL Final concentration is 0.1mmol/mL **0.4mmol/mL Concentration** Take 5mL (10mmol) and dilute to a final volume of 25mL with a compatible fluid Concentration is 10mmol in 25mL Final concentration is 0.4 mmol/mL
Administration	**IV Infusion:** Administer via Infusion pump over a minimum of 1 hour
Adverse Reactions	Hypotension, bradycardia and circulatory collapse with rapid infusion. ECG changes (prolonged AV conduction time, sino-atrial block, AV block). ***Calcium chloride/calcium gluconate should be available to reverse adverse effects.*** Flushing, sweating, respiratory depression (particularly with higher plasma concentrations), abdominal distension, diarrhoea, urinary retention, CNS depression, muscle relaxation, hyporeflexia.
Storage	Store at room temperature - below 25°C

Interactions	Concurrent use with paralysing agents may enhance neuromuscular blockade (e.g. vecuronium, etc). Concomitant use with aminoglycosides may cause neuromuscular weakness (respiratory arrest).
References	Truven Health Analytics. Magnesium sulfate. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2020 [cited 2020Feb 24]. Available from: https://neofax.micromedexsolutions.com/ Society of Hospital Pharmacists of Australia. Magnesium Sulfate. In: Australian Injectable Drugs Handbook [Internet]. [St Leonards, New South Wales]: Health Communication Network; 2020 [cited 2020 Feb 24]. Available from: http://aidh.hcn.com.au Takemoto CK, Hodding JH, Kraus DM. Pediatric & neonatal dosage handbook with international trade names index : a universal resource for clinicians treating pediatric and neonatal patients. 24th ed. Hudson (Ohio): Lexicomp; 2019. British National Formulary. BNF for Children. 2018-19 ed. London, UK: BMJ Group and Pharmaceutical Press; 2018. Clinical Pharmacology [Online database]. Elsevier. Cited 21 July 2020. Available from www-clinicalkey-com.pklibresources.health.wa.gov.au/pharmacology/

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