



GUIDELINE

Magnesium Sulphate - Administration

Scope (Staff):	All Emergency Department Clinicians
Scope (Area):	Emergency Department

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<http://kidshealthwa.com/about/disclaimer/>

Magnesium Sulphate - Administration

Medication

Indications

- Used in treatment of severe asthma
- Used in the treatment of magnesium deficiency
- Can be used to treat arrhythmias, particularly Torsades de pointes resulting from magnesium deficiency
- Has anti-convulsant properties if the seizures are as a result of acute uraemia, hypothyroidism or eclampsia

Adverse

- Excessive administration may result in hypermagnesaemia which leads to flushing, thirst, hypotension due to vasodilatation, drowsiness, confusion, loss of tendon reflexes, muscle weakness, respiratory depression, cardiac arrhythmia, coma and cardiac arrest
- Treatment for hypermagnesaemia is ceasing the magnesium, administration of calcium gluconate, fluid resuscitation and in severe cases, dialysis

Administration

IV Administration:

- Use 49.3% Magnesium Sulphate (= 2mmol/ml)

Asthma: <ul style="list-style-type: none"> ◦ 0.2mmol/kg (0.1ml/kg), max 8 mmols (4 mls) ◦ Add to 50ml bag 0.9% saline ◦ Give over 20 minutes
In Emergency/ Polymorphic VT or VT caused by Hypomagnesaemia: <ul style="list-style-type: none"> ◦ 0.1-0.2mmol/kg IV (0.05-0.1ml/kg) ◦ Dilute with 2.5 times the volume of 0.9% saline eg. 2mls of MgSO ₄ added to 5ml of 0.9% saline <ul style="list-style-type: none"> ◦ Give as slow IV push over 3 - 5 minutes
For Mg deficiency: <ul style="list-style-type: none"> ◦ IV: 0.4mmol/kg/dose (0.2ml/kg/dose), max 20mmol (=10mls) 12 hourly ◦ Can give over 20 minutes but preferably over 1 - 4 hours
Digoxin tachycardia, Pulmonary hypertension: <ul style="list-style-type: none"> ◦ IV - 0.2mmol/kg (0.1ml/kg) ◦ Give over 20 - 30 minutes
If infusion required (after stat dose given): <ul style="list-style-type: none"> ◦ 0.12mmol/kg/hour (0.06ml/kg/hour) ◦ Volume of MgSO₄ = 0.06ml x pt wt kg x hrs infusion ◦ Usually 4 – 6hrs, may be 24 hrs for myocardial infarction ◦ Dilute with Normal Saline - 2.5mls to each 1ml MgSO₄ ◦ Keep serum Mg 1.5-2.5mmol/L for digoxin tachycardia ◦ Keep serum Mg 3-4mmol/L for pulmonary hypertension

Special

- **Must have cardiac monitoring**
- **Rapid administration may cause hypotension; if this occurs reduce rate**
- Administer with caution to patients with known renal impairment.; patients in severe renal failure should NOT be given magnesium
- Parental administration may enhance effects of neuromuscular blocking agents
- Careful monitoring of magnesium levels

Compatible with:

- 5% glucose, Hartmann's, normal saline, saline/glucose solutions
- Aciclovir, amikacin, ampicillin, caspofungin, cefotaxime, cefoxitin, cephalothin, cephazolin, chloramphenicol sodium succinate, dexmedetomidine, erythromycin lactobionate, esmolol, gentamicin, heparin sodium, hydrocortisone sodium succinate, isoprenaline, labetalol, lignocaine, linezolid, metaraminol, metoclopramide, metronidazole, milrinone, morphine sulfate, noradrenaline, ondansetron, piperacillin, piperacillin-tazobactam, potassium chloride, sodium nitroprusside, trimethoprim-sulfamethoxazole, vancomycin, verapamil

Incompatible with:

- Fat emulsion, soluble phosphates, alkali hydroxides and carbonates
- Amiodarone, **aminophylline**, amphotericin B, azathioprine, calcium chloride, calcium gluconate, cefepime, ceftriaxone, chlorpromazine, ciprofloxacin, clindamycin, cyclosporin, dicloxacillin, dexamethasone sodium phosphate, diazepam, **ketamine**, **methylprednisolone** sodium succinate, pantoprazole, phenytoin, phosphate salts, **salbutamol**, sodium bicarbonate

Tags

arrhythmia, asthma, electrolytes, magnesium, vt

References

PMH ED Guideline - Magnesium Sulphate: Last updated September 2014
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