MAGNESIUM

<table>
<tr><td>Trade Name</td><td>IV: Magnesium Sulphate Heptahydrate Injection (Martindale)</td></tr>
<tr><td>Class</td><td>Electrolyte supplement</td></tr>
<tr><td>Mechanism of Action</td><td>Magnesium is an essential cation.</td></tr>
<tr><td>Indications</td><td>Indication 1: Hypomagnesaemia
< 0.7 mmol/L, or
< 1.0 mmol/L if at risk of arrhythmia
Indication 2: Arrhythmia - Torsades de Pointe</td></tr>
<tr><td>Contraindications/ Cautions</td><td>Use with caution in patients with cardiac conduction disorders
Avoid in patients with severe renal impairment due to risk of magnesium accumulation
Magnesium is a vasodilator; if the patient is shocked/ hypotensive or on vasopressor check with the consultant before administering magnesium</td></tr>
<tr><td>Supplied As</td><td>IV: Each 5 mL vial contains
2.5g / 5mL (= 500mg /mL) of magnesium sulphate, equivalent to
10 mmol / 5mL of elemental magnesium</td></tr>
<tr><td>Dilution</td><td>IV: Take 5mL of magnesium sulphate 2.5g /5mL = 10mmol / 5mL elemental magnesium and add 7.5mL of sodium chloride 0.9% to make a final concentration of 0.8mmol/mL
<table>
<tr><th>Magnesium Sulphate 2.5g/5mL</th><th>Sodium Chloride 0.9%</th><th>Final Volume</th><th>Concentration</th></tr>
<tr><td>5mL = 10mmol elemental magnesium</td><td>7.5 mL</td><td>12.5 mL</td><td>0.8 mmol /mL elemental magnesium</td></tr>
</table></td></tr>
<tr><td>Dosage</td><td>Indication 1: 0.2 - 0.4 mmol/kg/dose
Indication 2: 0.1 - 0.2 mmol/kg/dose</td></tr>
<tr><td>Interval</td><td>12 hourly</td></tr>
<tr><td>Administration</td><td>IV: Infusion over 30 minutes
Can be given faster over 5 minutes in pulseless torsades</td></tr>
<tr><td>Compatible With …</td><td>Solution: dextrose 5%, sodium chloride 0.9% lactated ringers

Terminal Y-site:
Aciclovir, amikacin, ampicillin, aztreonam, benzyl penicillin, calcium gluconate, cefazolin, cefotaxime, cefoxitin, chloramphenicol, clindamycin, dexmedetomidine, dobutamine, erythromycin</td></tr>
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	lactobionate, epoeitin alpha, famotidine, gentamicin, heparin sodium, insulin, linezolid, meropenem, metoclopramide, metronidazole, milrinone, morphine, nicardipine, ondansetron, pancuronium, piperacillin, piperacillin/tazobactam, potassium chloride, propofol, sodium nitroprusside, tobramycin, TPN (aminoacid dextrose solution but not lipid) trimethoprim/sulfamethoxazole, and vancomycin
Incompatible With	Lipid, Amiodarone, amphotericin B, calcium chloride, cefepime, cefuroxime ciprofloxacin, dexamethasone, diazepam, diazoxide, ganciclovir, hydrocortisone sodium succinate, indomethacin, methylprednisolone, pantoprazole, phenytoin, and sodium bicarbonate
Monitoring	BP, heart rate, tendon reflexes, calcium, potassium, renal function
Stability	**IV:** discard any remaining solution immediately after use
Storage	**IV:** Store at room temperature
Adverse Reactions	Cardiac arrhythmia, colic, confusion, diarrhoea, drowsiness, flushing of skin, phlebitis and/or pain at injection site. Signs of excess magnesium supplementation include hypotension, loss of tendon reflexes, muscle weakness, nausea, vomiting, respiratory depression and thirst
Metabolism	Magnesium is excreted by the kidney and in faeces
Comments	Emergency management of tetany, convulsions or hypocalcaemia when there is no IV access – IM injection: 100mg/kg, may be repeated 12 hourly
References	1. www.amnfonline.org 2. www.nzf.org.nz 3. www.medsafe.govt.nz 4. www.noids.nz 5. Neofax in www.micromedexsolutions.com 6. Trissells IV Drug Compatibilities in www.micromedexsolutions.com 7. https://starship.org.nz/guidelines/iv-fluids-in-picu/
Updated By	A Lynn, B Robertshawe, N Austin June 2022