

Kittitas County Prehospital EMS Protocols

SUBJECT: MAGNESIUM SULFATE

ACTION:

An electrolyte necessary for normal function of the nervous and cardiovascular systems. 50% of the element is deposited in bone, 45% exists as an intracellular cation, and 5% is in the extracellular fluid.

INDICATIONS:

- Eclampsia (including eclamptic seizures).
- Cardiac dysrhythmias:
 - Torsades de Point (drug of choice).
 - Ventricular fibrillation.
 - Ventricular tachycardia.
- Digoxin toxicity (may help with second- and third-degree heart block).
- Tricyclic overdose with associated cardiac dysrhythmias. Mag should only be used after Sodium Bicarbonate and Lidocaine have been found ineffective.
- Known or suspected hypomagnesaemia.
- Refractory Asthma

CONTRAINDICATIONS:

- Second degree heart block Type II (**not in digoxin toxicity/poisoning**).
- Third degree heart block (**not in digoxin toxicity/poisoning**).

****EXCEPTION****: if the patient is taking digitalis and there is a high likelihood of digitalis toxicity, magnesium sulfate may be useful in treating Second- and Third-degree heart block.

PRECAUTIONS:

- Renal disease (magnesium is excreted solely by the kidneys).
- Give slowly in an awake patient to avoid hypermagnesemia.

SIDE EFFECTS:

- Large doses may lead to respiratory depression, cardiac arrest, and CNS depression.
- Hypermagnesemia (rare) resulting in muscle weakness, ECG changes, hypotension and confusion may occur with magnesium administration.
- Nausea and diarrhea

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DOSAGE:

- Cardiac dysrhythmias, digitalis toxicity, and hypomagnesaemia:
 - Adult: 2 - 4 g IV/IO
 - Pediatric: 25-50 mg/kg IV/IO, to a max dose of 2 g
- Eclampsia: 2 - 4 g IV/IO or IM; may repeat to 10 g total
- TCA overdose 1-2 g IV/IO
- Refractory Asthma
 - Adult: 2 g IV/IO
 - Pediatric 25-50 mg/kg, to a max dose of 2 g
- Reduce the dose in patients with known renal impairment.

ROUTE: IV, IM, or IO

Note: Optional to carry by agency.