

**MAGNESIUM SULFATE**

**Drug Classification: Antiarrhythmic, Muscle Relaxant**

**BACKGROUND**

**Pharmacodynamics**

This medication acts as a physiologic calcium channel and neuromuscular transmission blocker. When given parenterally, it acts as a CNS depressant. It also depresses smooth, skeletal, and cardiac muscle function. It has anticonvulsant properties thought to be produced by CNS depression, principally by decreasing the amount of acetylcholine liberated from motor nerve terminals, thus producing peripheral neuromuscular blockade.

**Indications**

- Torsades de Pointes
- Respiratory failure after placement of an advanced airway
- Eclamptic seizure

**Contraindications**

- Allergy or known hypersensitivity to the medication
- Patients with myocardial damage, heart block, shock, persistent hypertension, hypocalcemia

**Cautions**

- Watch closely for symptoms of toxicity such as CNS depression, respiratory depression, and/or seizure.

**DOSAGE and ADMINISTRATION**

ADULT	PEDIATRICS (less than 60 kg)
<p><b><u>For Torsades de Pointes</u></b></p> <p>1. Administer 2 grams IV/IO over 2 minutes.<sup>1</sup></p> <p><b><u>For respiratory failure</u></b><sup>2</sup></p> <p>1. Administer 2 grams IV/IO over 10 minutes.</p> <p><b><u>For eclamptic seizure</u></b><sup>2</sup></p> <p>1. For active seizing that does not respond to benzodiazepines, administer 2 grams IV over 10 minutes.</p> <p>2. If seizures continue, administer a second 2 gram dose IV over 5 minutes.</p>	<p><b><u>For Torsades de Pointes</u></b></p> <p>1. Administer 50 mg/kg IV/IO over 2 minutes.<sup>1</sup></p> <p><b><u>For respiratory failure</u></b><sup>2</sup></p> <p>1. Administer 50 mg/kg IV/IO over 10 minutes.</p>

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MEDICAL OPERATIONS MANUAL

**ADVERSE REACTIONS/SIDE EFFECTS**

- Flushing, sweating, hypotension, hypothermia, cardiac depression, respiratory depression, CNS depression

**NOTES**

<sup>1</sup> If rhythm is unresponsive to magnesium, consider other causes such as hypoxia or hypothermia.

<sup>2</sup> In cases of respiratory failure and eclamptic seizure this medication must be diluted prior to administration. To do this, expel 4 mL from a saline flush. Then, draw 2 grams (4 ml) of the medication into the flush. This makes a 20% solution (200 mg/1 ml).

**REFERENCE GUIDELINE:**

**2C Ventricular Fibrillation/Pulseless V-Tach**

**3B Asthma, COPD, and Bronchospasm**

**6D Complications of Pregnancy**