

Pharmacologic properties:

Magnesium is a cation that acts as a cofactor of the cellular membrane sodium-potassium pump, and plays an integral role in maintaining intracellular potassium levels. Magnesium is essential for energy transfer and electrical stability, and acts as a powerful antiarrhythmic - particularly in the setting of torsades de pointes. It is also a CNS depressant effective in the management of seizures associated with toxemia of pregnancy (eclampsia), and a bronchodilator effective for asthma and COPD.

Indications:

- Torsades de Pointes
- Parenteral anticonvulsant for the prevention and control of seizures in severe toxemia of pregnancy
- Bronchospasm (wheezing) unresponsive to albuterol and ipratropium bromide

Contraindications:

- Renal Failure

Precautions:

- Avoid rapid IVP unless unstable
- **May induce respiratory depression or apnea - in this setting, treat with 10% calcium chloride, 5-10 mL IV bolus**
- Use with extreme caution in patients with myasthenia gravis, neuromuscular disease, or heart block

Adverse Reactions:

- Loss of deep tendon reflexes, Respiratory arrest, Hypotension, Drowsiness and Flushing

Dosage and administration:

Adult

Pre-Eclampsia / Eclampsia/ Bronchospasm

- 2 grams IV infusion over 10 minutes.
- **Draw 4ml of Magnesium Sulfate from the vial**
- **Add the Magnesium Sulfate to a 50ml NS IV Bag**
- Attach a 10gtt/ml Infusion set (Macro Drip)
- Connect to the main IV line Run at 60gtts/min (1 drop every second)

Cardiac arrest (in the setting of torsades de pointes):

- 2 grams, IV/IO bolus over 1-2 minutes