Magnesium is an endogenous electrolyte essential to the sodium-potassium pump. It acts as a physiological calcium channel blocker, blocking neuromuscular transmission. When given parenterally, it acts as a CNS depressant and also a depressant of smooth, skeletal and cardiac muscle function.

Indications and Administration

1. Ventricular fibrillation and ventricular tachycardia refractory to lidocaine if the ventricular arrhythmia is thought to be magnesium deficiency. Treatment of choice for Torsades de Pointes.
    a. **Adult -** 1-2 gram diluted in 10 cc NS IV over 1 - 2 minutes for cardiac arrest and Torsades.
    b. **Pediatric -** not used.
2. Seizures or impending seizures due to eclampsia
    a. **Adult -** Mix 4 grams in 250 ml NS and give over 10 minutes (1500ml/hr).
    b. **Pediatric** - not used**.**
3. Severe asthma, refractory to initial treatments
    a. **Adult** – Mix 2 grams in 100 ml NS and give over 2 min.

Notes

1. In pregnant or postpartum patients who are actively seizing, benzodiazepines should be given prior to magnesium sulfate.
2. May cause drowsiness, depressed reflexes, flaccid paralysis, circulatory collapse, depressed cardiac function, depressed respiration.
3. Severe hypermagnesemia like severe hyperkalemia is treated with calcium.
4. Administer slowly to minimize side effects.
5. Magnesium sulfate has been used in severe asthma refractory to initial treatments. Call medical control for use of magnesium sulfate in severe asthma if initial treatments are ineffective.