Magnesium Sulfate

Classification

Antiarrhythmic

Smooth muscle relaxant

Indications

- ACP: Treatment of ventricular fibrillation and ventricular tachycardia refractory to first-line antiarrhythmics
- ACP: Recurrent, intermittent episodes of wide-complex tachycardia
- ACP: Treatment of Torsades de Pointes
- ACP: Bronchospasm refractory to bronchodilation in acute asthma
- ACP: Management of seizures in pregnancy associated with hypertension

Contraindications

- Hypersensitivity to magnesium sulfate
- Second or third-degree AV block

Adult dosages

- ACP: Control of ventricular arrhythmias (including Torsades de Pointes)
  - For perfusing rhythms: 2 g IV over 15 minutes
  - In cardiac arrest: 4 g IV push
- ACP: Bronchospasm refractory to bronchodilation
  - 2 g IV over 20 minutes
- ACP: Management of seizures in pregnancy associated with hypertension

Pediatric Considerations And Dosing

Follow weight-based dosing

- ACP: All indications
  - In cardiac arrest: 50 mg/kg IV/IO push to maximum of 2 g
  - All other causes: 50 mg/kg IV/IO infused over 15 minutes

Mechanism Of Action

The precise mechanism of action of magnesium sulfate is not entirely clear. It appears to alter membrane potential, slowing conduction and relaxing smooth muscle.

Pharmocokinetics

Following intravenous administration:

- Onset: 1-2 minutes
- Peak: < 5 minutes

- Duration: uncertain in most patients

Infusions may take up to 20-30 minutes to produce significant bronchodilation

Warning And Precautions

May prolong the effects of non-depolarizing neuromuscular blockers, and may potentiate the effects of calcium channel blockers