

**Ohio Poison Control System**  
**1-800-222-1222**  
Poisoning Fact Sheet for Health Care Professionals  
**Azithromycin**

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Azithromycin (Zithromax®) is an antibiotic of the macrolide class that is FDA approved for treatment of various upper respiratory tract, skin, soft tissue, and genitourinary infections. It is used off label in combination with hydroxychloroquine (Plaquenil®) in selected cases of respiratory-illness caused by coronavirus disease 2019 (COVID-19). Randomized control trials and systemic reviews are in process. Due to various factors related to its increased use during this time, the Ohio Poison Control Centers are concerned for an increase incidence of drug toxicity and overdose.

**Mechanism of Action for COVID-19:** Unknown. Azithromycin has shown activity in vitro against other viruses (Zika and Ebola). Azithromycin may prevent severe respiratory tract superinfections when administered to patients suffering viral infection.

**Mechanism of Toxicity:** Blockade of delayed rectifier potassium currents  $I_{Kr}$  and interference with normal gut flora. Macrolides interact with absorption and renal excretion of drugs that are substrates for P-glycoprotein. Intravenous overdoses carry a greater risk of serious effects.

### **Symptoms of Toxicity**

#### Mild

- Nausea, vomiting, abdominal pain
- Diarrhea
- Prolongation of the QT interval

#### Severe

- Torsades de pointes. The risk of dysrhythmias increases when administered in combination with other drugs that prolong the QT interval, such as hydroxychloroquine.
- Seizures
- Chronic use is associated with hepatitis
- Reversible high frequency sensorineural hearing loss in patients taking large doses (>4g/day)
- Pancreatitis
- *Clostridium difficile* (*C. diff*) associated diarrhea

## Treatment:

- Discontinue offending medication and **call poison control center at 1-800-222-1222**
- Antiemetics as needed for GI symptoms. Avoid agents that can prolong QTc, if possible. Consider using isopropyl alcohol wipes as a non-pharmacologic treatment option.
- Consider activated charcoal in patients with no contraindications (protected airway, absence of severe nausea and vomiting)
- Benzodiazepines are recommended first line treatment for seizures.
- Correct electrolytes that, if abnormal, can contribute to prolonged QT (K, Ca, Mg)
- Treat torsades de pointes according to current AHA and ACLS guidelines.  
Administer magnesium. Do not administer amiodarone or procainamide.  
Adults: 2 grams slow IVP followed by an infusion of 1-4 grams/hr IV if stable.  
Peds: 25 to 50 mg/kg/dose (maximum 2,000 mg/dose) slow IVP. If pulseless, may be administered as bolus.
- 20% lipid emulsion (for refractory CV disturbances) 1.5 mL/kg bolus over 2-3 min, then 0.25 mL/kg/min infusion, evaluate after 3 min then decrease rate to 0.025 mL/kg/min in patients with significant response

## References:

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3. Azithromycin. Micromedex. Poisindex. IBM Corporation 2020
4. Stork CM. Antibacterials, Antifungals, and Antivirals. Goldfrank's Toxicologic Emergencies, Eleventh Edition. 2019 by McGraw-Hill Education. p826-827