

Toxicology

Anti-Depressants: SSRI's and SNRI's	
Toxicity	SSRI's: less toxic than MAOI's or TCA's; most fatalities due to co-ingestion SNRI's: greater toxicity vs. SSRI's (but less than MAOI's or TCA's)
Pathophysiology	Inhibit serotonin +/- norepinephrine reuptake (primarily in CNS)
Symptoms	<ul style="list-style-type: none"> • Vomiting, CNS depression, tachycardia • Serotonin syndrome: altered mental status, neuromuscular hyperexcitability (clonus, rigidity, hyperreflexia), autonomic instability (hyperthermia, tachy, HTN) → can lead to rhabdo, seizures, renal failure, DIC
Evaluation	Electrolytes, serum/tox screen, EKG (↑QTc, rare ↑ QRS w/ some SNRI's); levels not helpful
Management	<ul style="list-style-type: none"> • Decontamination and supportive care • Benzos and/or serotonin antagonists (cyproheptadine) for serotonin syndrome, consider cooling and paralysis for severe serotonin syndrome

Anti-Depressants: TCAs	
Toxic Dose	"One pill can kill" in toddlers
Pathophysiology	Peripheral and central anti-cholinergic, peripheral alpha-1 adrenergic blockade, inhibits CNS NE and serotonin reuptake, blocks cardiac fast Na channels, blocks GABA receptors
Symptoms	<ul style="list-style-type: none"> • Anticholinergic toxidrome (see toxidrome chart) • Neurotoxicity (seizures, coma) • Cardiovascular toxicity (arrhythmias, refractory hypotension, widened QRS)
Evaluation	Electrolytes, CK, D-stick, urinalysis, tox screens, TCA level not useful (other than to confirm ingestion), EKG (prolonged QRS (>100ms a/w seizure, dysrhythmias), sinus tach, vent arrhythmias, lead aVR prominent R waves)
Management	<ul style="list-style-type: none"> • Gastric decontamination, close monitoring, EKGs • NaHCO₃ titrated to serum pH 7.45-7.55 (indicated for QRS > 100ms w/ other signs of TCA toxicity, vent. arrhythmias, CV collapse, seizures). Mechanism: increase pH → increase non-ionized TCA = cannot bind sodium channels. Also increases gradient across cardiac cell membranes → attenuates TCA-induced blockade of rapid sodium channels. • Supportive care (treat refractory hypotension w/alpha-agonist pressors)

Anti-Depressants: Bupropion	
Toxic Dose	"One pill can kill" in toddlers
Pathophysiology	Dopamine and NE reuptake inhibitor w/ some serotonin reuptake blockade; contraindicated in eating disorder patients given ↑ seizures
Symptoms	Seizures, agitation, HTN, tachycardia, arrhythmias
Evaluation	Levels not helpful, electrolytes, EKG (QRS and QTc prolongation)
Management	Supportive care, benzos for seizures, admit for >24 hours to monitor for late onset seizures if ingested Wellbutrin SR, ↑ QRS treated w/ IV sodium bicarb (though may not be as effective)

Iron	
Toxic Dose	<ul style="list-style-type: none"> • < 20mg/kg elemental iron usually asymptomatic • 20-60 mg/kg: variable response • > 60 mg/kg: greatest risk of serious toxicity (death reported at 60-300+ mg/kg)