

ACETAMINOPHEN

PHARMACOLOGY & ACTIONS:

- Non-narcotic analgesic
- Antipyretic

INDICATIONS:

- Reduction of fever associated with febrile seizures in the pediatric patient.

CONTRAINDICATION:

- Hypersensitivity
- Do not use with any other products that contain acetaminophen.

ADMINISTRATION:

Weight	Age	Children's tablets 80 mg/tablet	Elixir 160 mg/tsp	Infant Drops 80 mg/ .8 ml	Dose milligrams
6 -11 lbs	0 - 3 months	-----	¼ teaspoon	.4 ml	40 mg
12 - 17 lbs	4 - 11 months	-----	½ teaspoon	.8 ml	80 mg
18 - 23 lbs	11 - 23 months	1½ tablet	¾ teaspoon	1.2 ml	120 mg
24 - 35 lbs	2 - 3 years	2 tablets	1 teaspoon	1.6 ml	160 mg
36 - 47 lbs	4 - 5 years	3 tablets	1½ teaspoon	2.4 ml	240 mg
48 - 59 lbs	6 - 8 years	4 tablets	2 teaspoon	3.2 ml	320 mg
60 - 71 lbs	9 - 10 years	5 tablets	2 ½ teaspoon	4.0 ml	400 mg
72 - 95 lbs	11 - 12 years	6 tablets	3 teaspoon	4.8 ml	480 mg

- To be given every four hours; Do not exceed five doses a day.

SIDE EFFECTS & SPECIAL NOTES:

- May be administered via rectal suppository (same dose) if patient is vomiting, the patient's gag reflex is absent or in question or the patient is not alert.

CLASS: A

PROTOCOL(S) USED IN: Seizure

ACTIVATED CHARCOAL

PHARMACOLOGY & ACTIONS:

- * Absorbs toxic substances from GI tract
- * Can absorb up to 99% of another substance to render it inert

INDICATIONS:

- * Oral poisonings & overdoses
- Used after evacuation of gastric contents

CONTRAINDICATIONS:

- Semiconscious or comatose patients
- Do not administer if specific oral antidote may be used (e.g. acetaminophen overdose)

ADMINISTRATION:

- * 1-2 grams/kg premixed
- * If needed to be mixed, ratio of 1:4 parts
- * Administer orally or via nasogastric tube

SIDE EFFECTS & SPECIAL NOTES:

- * Black stool
- * May inactivate other drugs administered orally
- * Do not give until ipecac-induced emesis has stopped
- * Should contact medical or poison control before administration for petroleum or caustic ingestion
- * Used often with magnesium citrate

CLASS: A

PROTOCOL(S) USED IN: Contact Poison Control

ADENOSINE (Adenocard®)

PHARMACOLOGY & ACTIONS:

- * Antiarrhythmic
- * Slows conduction time through the A-V node.
- * Can interrupt the re-entry pathways through the A-V node & restore NSR in patients with PSVT including WPW.
- * Half-life is less than 10 seconds.

INDICATIONS:

- * PSVT & WPW

CONTRAINDICATIONS:

- * 2nd or 3rd A-V block.
- * Sick sinus syndrome (except in patients with functioning pacemaker.)
- * Does not convert atrial flutter, atrial fibrillation, or ventricular tachycardia.

ADMINISTRATION:

- * 6 mg **RAPID** IV push given over 1-2 seconds followed by 20cc NS flush.
- * If initial dose fails to convert rhythm after 1-2 minutes, a 2nd dose of 12 mg should be given.
- * A 3rd dose of 12 mg may be given if required.
- * Pediatric dose: 0.1-0.2 mg/kg **RAPID** IV push. IO: 6mg, max dose 12 mg.

SIDE EFFECTS & SPECIAL NOTES:

- * Nausea, flushing of the face, and tingling.
- * Varying degrees of A-V blocks, PVCs, PACs, and asystole.
- * Due to the very short half-life (less than 10 seconds) these effects are generally self limiting.
- * Significant percentage of patients complain of chest pain following administration. This chest pain is usually self-limiting, lasting less than 1 minute and not angina related. Consider NTG only if pain persists longer than 1 minute.
- * Dose should be given at the closest port to the IV site & followed by rapid flush.
- * Documentation of the rhythm with ECG tracings prior to, during, and after administration should be obtained.

CLASS: A

PROTOCOL(S) USED IN: ACLS

ALBUTEROL & ATROVENT (Duomed®)

PHARMACOLOGY & ACTIONS:

- * A potent relatively selective beta 2 - adrenergic bronchodilator.
- * Has occasional beta 1 overlap with clinically significant cardiac effects.

INDICATIONS:

- * Bronchial asthma
- * Reversible bronchial spasm that occur with chronic pulmonary disease.

CONTRAINDICATIONS:

- * Stop treatment if pulse increases by 20 bpm, frequent PVCs develop, any tachyarrhythmias other than sinus tachycardia appear, chest pain, apnea, nausea or vomiting, or increased shortness of breath occur.

ADMINISTRATION:

- * Nebulizer dosage for adults & children over 1 year - 2.5 mg mixed in 3 ml of saline for a concentration of .83 mg/ml.
- * Infants under 1 year: Nebulizer dosage 0.03 ml/kg max dose 1ml.
- * Nebulization:
 - Oxygen flow should be set at 6 lpm.
 - Patients should inhale slowly & exhale passively through nose.
- * Metered Dose Inhalers (MDI) - delivers 90 mcg per puff
 - Assemble one BVM, one AeroChamber, oxygen tubing and Albuterol inhaler.
 - Begin with two Albuterol puffs into chamber & assist patient's ventilations using the BVM & high flow oxygen.
 - After one minute, repeat with two puffs.
 - Repeat two puffs every two minutes if improvement is not noted.
 - DO NOT EXCEED 20 PUFFS.

SIDE EFFECTS & SPECIAL NOTES:

- * Patients with COPD should be monitored carefully for CO₂ retention & decreased levels of consciousness.
- * Paradoxical bronchospasm may occur with excessive administration.
- * Skeletal muscle tremors
- * Albuterol should be used with caution in pregnancy.
- * Continually assess patient's respiratory rate, effort, and lung sounds.

CLASS: A

PROTOCOL(S) USED IN: Respiratory Distress, Asthma

AMIODARONE (Cordarone®)

PHARMACOLOGY & ACTIONS:

- * Antiarrhythmic
- * Prolongation of the myocardial cell-action potential duration & refractory period..
- * Noncompetitive alpha- and beta-adrenergic inhibition.
- * Blocks sodium channels and, to some extent, the calcium channels

INDICATIONS:

- * Refractory sustained ventricular fibrillation/pulseless ventricular tachycardia

CONTRAINDICATIONS:

- * None when given in the cardiac arrest setting.

ADMINISTRATION:

- * Dose: 300 mg/6 cc rapid IV push followed by a 10 cc flush of NS
- * Draw up two 150 mg/3cc vials of Cordarone into one syringe for a one time dose of 300mg/6 cc

SIDE EFFECTS & SPECIAL NOTES:

- * Hypotension
- * Bradycardia
- * Congestive heart failure
- * AV block
- * Do not shake vials; will cause foaming of medication

CLASS: A

PROTOCOL(S) USED IN: ACLS

ASPIRIN

PHARMACOLOGY & ACTIONS:

- * Blocks formation of thromboxane A₂ which causes platelets to aggregate & arteries to constrict.

INDICATIONS:

- * Chest pain suspected of being cardiac in origin.

CONTRAINDICATIONS:

- * Known hypersensitivity.
- * Relatively contraindicated in patients with history of active ulcer disease or asthma.

ADMINISTRATION:

- * Dose: 2- 4 chewable baby aspirin 160-325 mg PO

SIDE EFFECTS & SPECIAL NOTES:

- * Higher doses can interfere with prostacyclin production & interfere with positive benefits.
- * Aspirin alone, started within 24 hours of the onset of an acute MI, reduced overall mortality to almost the same degree as thrombolytic agents.

CLASS: A

PROTOCOL(S) USED IN: **ACLS, Chest Pain**

ATROPINE SULFATE

PHARMACOLOGY & ACTIONS:

- * Muscarine-cholinergic blocking agent
- * Increases heart rate by blocking vagal response
- * Increases conduction through A-V node & increases ventricular sensitivity to atrial impulses.
- * Reduces motility & tone of GI tract.
- * Reduces action & tone of bladder which may cause urinary retention.
- * Dilates pupils.

INDICATIONS:

- * Symptomatic bradycardias, 2nd & 3rd degree heart blocks and pacemaker failure.
- * Organophosphate and nerve gas poisoning
- * Bradysystolic and asystolic arrests including PEA

CONTRAINDICATIONS:

- * Atrial fibrillation and flutter
- * Glaucoma

ADMINISTRATION:

- * Symptomatic bradycardia :
 - Adult dose: 0.5-1.0 mg IV push, repeat if needed in 3-5 minute intervals to a maximum dose of .03-.04 mg/kg
 - Pediatric dose: 0.01-0.02 mg/kg
- * Asystole & PEA:
 - Adult dose: 1.0 mg IV push, repeated if needed in 3-5 minute intervals to a maximum dose of 0.03-0.04 mg/kg.
 - Pediatric dose: 0.01-0.02 mg/kg

SIDE EFFECTS & SPECIAL NOTES:

- * Do not treat bradycardia unless there are signs of poor perfusion (chest pain, low blood pressure, altered mental status.)
- * In organophosphate poisoning, massive doses of 10-20 mg or more may be needed.
- * Titrate dose by watching patient response.

CLASS: **A**

PROTOCOL(S) USED IN: **ACLS, Poisoning; Organophosphates**

CALCIUM CHLORIDE 10%

PHARMACOLOGY & ACTIONS:

- * Increases the force of myocardial contraction by initiation of myofibril shortening.
- * The positive inotropic effects and vasoconstricting effects produce a rise in systemic arterial pressure.

INDICATIONS:

- * In cardiac arrest setting:
 - Hyperkalemia secondary to renal failure.
 - Hypocalcemia due to multiple blood transfusions.
 - Known or suspected calcium channel blocker overdoses.

CONTRAINDICATIONS:

- * CANNOT BE ADMINISTERED WITH SODIUM BICARBONATE
- * In presence of sodium bicarbonate, calcium salts will precipitate as carbonates.

ADMINISTRATION:

- * Dose is 2- 4 mg/kg of 10% (100mg/cc) solution IV push.
- * May be repeated if necessary

SIDE EFFECTS & ACTIONS:

- * Extremely important to flush the IV line between administration of sodium bicarbonate and calcium chloride to avoid precipitation.
- * May produce coronary and cerebral artery spasms.
- * Should be used with caution in patients receiving digitalis; may precipitate toxicity

CLASS: A

PROTOCOL(S) USED IN: ACLS

DEXTROSE 50% & 25%

PHARMACOLOGY & ACTIONS:

- * Glucose is used by the body as quick energy
- * Its use is regulated by insulin, which stimulates storage of glucose from the bloodstream lowering blood glucose levels.
- * Glucagon, which mobilizes stored glucose into the bloodstream, raises glucose levels.

INDICATIONS:

- * Hypoglycemic states usually associated with insulin shock in diabetes.
- * The unconscious patient, when history is unobtainable but after a blood glucose test.
- * CPR patients when the cause of arrest is not known
- * In patients with any focal or partial neurologic deficit or altered mental status.
- * Hypothermia, generalized.

CONTRAINDICATIONS:

- * None noted

ADMINISTRATION:

- * Perform a blood glucose test to determine level. Normal range 80-120 mg/dl.
- * If glucose monitor is unavailable, draw blood for a red top tube (5 ml).
- * Adult dose: 25 gm of Dextrose 50% IV into a large secure vein, if patient is not able to tolerate oral glucose.
- * Pediatric dose: .5 gm/kg of Dextrose **50%** IV or IO for 3 years and older
.5 gm/kg of Dextrose **25%** IV or IO for 3 years and under
- * Recheck blood glucose 5 minutes after administration

SIDE EFFECTS & SPECIAL NOTES:

- * Extravasation of dextrose will cause necrosis of tissue.
- * IV should be secured in a large vein and free return of blood into the syringe or tubing should be checked 2-3 times prior to and during administration.

- * If extravasation does occur, immediately dilute with up to 10 ml Lidocaine 1% or normal saline injected SQ into extravasated area.
- * Dextrose may precipitate Wernicke's encephalopathy in alcoholics. If suspected, give Thiamine 50-100 mg IV prior to administration of dextrose.
- * Do not draw blood for glucose determination from site proximal to an IV containing glucose or dextrose.
- * Effect is delayed in elderly patients with poor circulation

CLASS: A

PROTOCOL(S) USED IN: Altered Mental Status/Coma, Hypoglycemia

DILTIAZEM (Cardizem)

PHARMACOLOGY & ACTIONS:

A calcium channel blocker that inhibits calcium ion influx across cardiac and smooth-muscle cells, decreasing myocardium contractility and oxygen demand.

INDICATIONS:

- Rapid atrial fibrillation or atrial flutter.

CONTRAINDICATIONS:

- Sick sinus syndrome or second or third degree AV block in the absence of an artificial pacemaker
- Systolic BP below 90.
- Wolff-Parkinson-White Syndrome or patients with ventricular tachycardia.

ADMINISTRATION:

- 0.25 mg/kg slow I.V. If no response 0.35mg/kg I.V. after 15 minutes.

SIDE EFFECTS & SPECIAL NOTES:

- Headache, dizziness
- Arrhythmias, bradycardia, heart failure, AV block abnormal ECG.
- Hypotension, flushing
- Nausea, constipation, abdominal discomfort

CLASS: A

PROTOCOL USED IN: ACLS Tachycardia

DIPHENHYDRAMINE (Benadryl®)

PHARMACOLOGY & ACTIONS:

- * Antihistamine which blocks action of histamines released from cells during an allergic reaction.
- * Direct CNS effects, which include stimulant or, more commonly, depressant depending on individual variation.
- * Anticholinergic

INDICATIONS:

- * Allergic reaction
- * Acute dystonic reactions to antipsychotic drugs
- * Adjunctive therapy for anaphylaxis

CONTRAINDICATIONS:

- * Pregnant or lactating females - relative contraindication

ADMINISTRATION:

- * Adult dose: 25-50 mg slow IV push
- * Pediatric dose: 1-2 mg/kg slow IV or IO push

SIDE EFFECTS & SPECIAL NOTES:

- * Sedation, blurred vision, anticholinergic effects
- * May have enhance effects of alcohol or other depressants
- * Is NOT the first line drug for allergic reactions

CLASS: A

PROTOCOL(S) USED IN: Anaphylaxis

DOPAMINE (Intropin®)

PHARMACOLOGY & ACTIONS:

- * Chemical precursor of epinephrine which occurs naturally in man.
- * Has both alpha- and beta- receptor stimulating actions depending upon the dose.
- * 1-2 mcg/kg: dilates renal & mesenteric vessels.
- * 2-10 mcg/kg: beta effects on heart which usually increase cardiac output without increasing heart rate or blood pressure.
- * 10-20 mcg/kg: alpha peripheral effects cause peripheral vasoconstriction & increase blood pressure.
- * 20-40 mcg/kg: alpha effects reverse dilation of renal & mesenteric vessels resulting in decreased flow.

INDICATIONS:

- * Primary indication is cardiogenic shock
- * May be useful in other forms of shock except hypovolemic

CONTRAINDICATIONS:

- * Infusion should be decreased or stopped if tachyarrhythmias or HTN occur.
- * Hypovolemic shock

ADMINISTRATION:

- * Adult infusion dose: premix IV bag of 400 mg dopamine in 250 ml NS.
- * Infusion rate should start between 2-5 mcg/kg/min, gradually increasing to 10-20 mcg/kg/min until desired effect is achieved. **Microdrip chamber only.**

SIDE EFFECTS & SPECIAL NOTES:

- * Ectopic beats, N/V, angina, VT, VF, HTN, headache, ischemia, AMI
- * Can precipitate hypertensive crisis in susceptible individuals especially those on MAO inhibitors.
- * Best administered by an infusion pump to accurately regulate rate.
- * Rule out hypovolemic shock and treat with appropriate fluids before administration of dopamine.
- * Should not be added to sodium bicarbonate or other alkaline solutions since dopamine will be deactivated in alkaline solutions.

CLASS: C

PROTOCOL(S) USED IN: ACLS

DROPERIDOL (Inapsine®)

Chemical Restraint & Antiemetic

PHARMACOLOGY & ACTIONS:

- Tranquilizer, sedation, and antiemetic
- Produces mild alpha-adrenergic blockade, peripheral vascular dilatation and reduction of the pressor effect of epinephrine, resulting in hypotension and decreased peripheral vascular resistance.

INDICATIONS:

- Chemical restraint in combative patients
- Control of nausea and vomiting

CONTRAINDICATIONS:

- Should not be used in the presence of narcotics or barbiturates which may result in respiratory depression or apnea.
- Renal failure or hepatic disease
- Should not be administered to children under 2 years of age.
- Should not be administered to trauma patients.
- Known hypersensitivity to droperidol.
- Pregnancy

ADMINISTRATION:

- Adult dose: >80 kg (176 lbs) - 2.5 mg IV or IM
45-80 kg (99-176 lbs) - 1.25-2.5 mg IV or IM
- Contact medical control for orders & dosage in patients less than 45 kg (99 lbs) or under 18 years of age.

SIDE EFFECTS & SPECIAL NOTES:

- Hypotension, tachycardia, respiratory depression, apnea or extrapyramidal syndrome.
- Dosage should be reduced in elderly or debilitated patients.
- If hypotension occurs, it may be treated with fluid challenge.

CLASS: **Chemical Restraint - A** **Antiemetic - A**

PROTOCOL(S) USED IN: **Chemical Restraint - Psychiatric Disorders**

EPINEPHRINE

PHARMACOLOGY & ACTIONS:

- * Catecholamine with alpha & beta effects
- * Increased heart rate, arterial blood pressure, systemic vascular resistance, automaticity, myocardial O₂ consumption, and myocardial contractile force.
- * Potent bronchodilator

INDICATIONS:

- * Ventricular fibrillation
- * Asystole
- * Pulseless Electrical Activity
- * Systemic allergic reactions
- * Asthma in patients under 50

CONTRAINDICATIONS:

- * Use caution in patients with peripheral vascular insufficiency.

ADMINISTRATION:

- * Adult dose: Cardiac arrest dosing options:
 - a. 1.0 mg (1:10,000) IV every 3-5 minutes during arrest
 - b. 2-5 mg (1:1,000 diluted in 10 ml NS) every 3-5 minutes
 - c. .01 mg/kg (1:1,000 diluted in 10 ml NS) every 3-5 minutes
 - d. May be given via ET at 2-2.5 times IV dose
- * Allergic reaction, anaphylaxis shock, laryngeal edema, severe asthma:
 - a. .3-.5 mg (1:1,000) SQ, IM or injected SL
 - b. 2-3 ml 1:10,000 IV over 30-60 seconds

- * Pediatric dose: Cardiac arrest:
 - a. .01 mg/kg (1:10,000) IV or IO every 5 minutes
- * Allergic reaction, anaphylaxis shock, laryngeal edema, severe asthma:
 - a. .01 mg/kg (1:1,000) SQ, IM, IO or injected SL
 - b. 1-2 ml (1:10,000) IV over 30-60 seconds

SIDE EFFECTS & SPECIAL NOTES:

- * Anxiety, tremor, headache, tachycardia, palpitations, PVCs, angina, and HTN
- * Should not be added directly to bicarbonate infusion; catecholamine may be partially deactivated by alkaline solution.
- * When used for allergic reactions, increased cardiac work may precipitate angina and/or MI in susceptible individuals.
- * Wheezing in an elderly patient is considered pulmonary edema or pulmonary embolus until proven otherwise.

CLASS: A

PROTOCOL(S) USED IN: Anaphylaxis, ACLS, Asthma, Respiratory Distress

Etomidate (Amidate)

CLASSIFICATION:

- Sedative/Hypnotic

PHARMACOLOGY AND ACTIONS:

- Exact mechanism of action unknown; may have GABA-like effects, depresses brain stem reticular formation activity and produces hypnosis

INDICATIONS:

- RSI in the hypotensive patient

CONTRAINDICATIONS:

- Hypersensitivity to drug/class/components

PRECAUTIONS:

- Caution in elderly patients

ADMINISTRATION:

- .3mg/kg IVP of 30-60 seconds.

ACCEPTED ROUTES:

- IV

CLASS: A

PROTOCOL(S) USED IN:

- RSI

Fentanyl (Sublimaze)

PHARMACOLOGY & ACTIONS:

- Fentanyl is a pure opioid analgesic used to manage pain.

INDICATIONS:

- Pain Management
- Extremity fractures
- Back and neck injuries when sedation/pain relief is necessary to prevent a patient from moving around and potentially injuring themselves.
- Burns
- Trauma without suspicion of head or abdominal trauma.

CONTRAINDICATIONS:

- Patients with known intolerance to Fentanyl
- Use caution if patient is pregnant, pregnancy risk category C

ADMINISTRATION:

- Adult dose: 50 mcg given slowly IV/ IM titrated to patient's condition and response
- Pediatric dose: 2-5 mcg/kg IV, IO

SIDE EFFECTS & SPECIAL NOTES:

- Respiratory depression
- Decreased BP monitor BP before and after administration. BP must be over 110 mm
- Decreased level of consciousness, watch for respiratory depression.
- Decreased heart rate
- Have naloxone available to reverse over administration
- May follow administration with Zofran for nausea
- A dose of 100 mcg is approximately equivalent to 10 mg of MS.

CLASS: A

PROTOCOL(S) USED IN: Trauma, RSI, Amputation, Burns, Chest Pain, Abd Pain

FUROSEMIDE (Lasix®)

PHARMACOLOGY & ACTIONS:

- Potent diuretic with rapid onset and short duration of effect.
- Inhibits sodium reabsorption throughout the kidneys.
- Increase in potassium excretion occurs along with sodium excretion.
- As an IV bolus, causes immediate increase in venous capacitance & decreases venous back-up.

INDICATIONS:

- CHF with acute pulmonary edema

CONTRAINDICATIONS:

- Dehydration, hypokalemia, hepatic coma
- Hypovolemic states
- Pregnancy

ADMINISTRATION:

- Adult dose: Patients not taking furosemide or dose unknown - 20-80 mg IV push
Patients taking furosemide - administer patient's usual dose IV push
- Pediatric dose: 1 mg/kg IV or IO slowly

SIDE EFFECTS & SPECIAL NOTES:

- Hypothermia, hypokalemia, and hypovolemia are main side effects.
- Can lead to profound diuresis with resultant shock & electrolyte depletion
- May cause acute & profound diarrhea
- Have urinal available. Effects may be seen within 10-15 minutes

CLASS: A

PROTOCOL(S) USED IN: ACLS, Congestive Heart Failure

GLUCAGON

PHARMACOLOGY & ACTIONS:

- * Increases blood glucose concentration by converting liver glycogen to glucose.
- * Parenteral administration of glucagon produces relaxation of the smooth muscle of the stomach, duodenum, small bowel and colon.

INDICATIONS:

- * Hypoglycemia when IV access is unavailable or delayed

CONTRAINDICATIONS:

- * None noted

ADMINISTRATION:

- * Dissolve the lyophilized glucagon in accompanying solvent
- * Give 1 unit (1 mg) of glucagon by IM
- * If no effect in 8-10 minutes, repeat 1 unit (1 mg) .
- * IV glucose must be given if patient fails to respond to glucagon.

SIDE EFFECTS &SPECIAL NOTES:

- * N/V and generalized allergic reactions have been reported.
- * Glucagon should not be used at concentrations greater than 1 unit (1 mg).
- * Should not be used unless solution is clear and of water-like consistency.

CLASS: A

PROTOCOL(S) USED IN: Altered Mental Status, Hypoglycemia

GLUCOSE (Oral)

PHARMACOLOGY & ACTIONS:

- Provides a quickly absorbed form of glucose to increase blood glucose levels

INDICATIONS:

- Conscious patient with suspected hypoglycemia

CONTRAINDICATION:

- Decreased level of consciousness
- Active vomiting

ADMINISTRATION:

- Adult & pediatric dose: 15-30 gm orally, may be repeated until desired effects have achieved.

SIDE EFFECTS & SPECIAL NOTES:

- Duration of effect is limited; patient should consume foods high in carbohydrates as soon as possible.

CLASS: A

PROTOCOL(S) USED IN: Hypoglycemia

HALOPERIDOL (HALDOL®)

CLASSIFICATION:

- Antipsychotic

PHARMACOLOGY AND ACTIONS:

- Haloperidol has pharmacologic properties similar to those of the phenothiazines
- The drug is thought to block dopamine (type 2) receptors in the brain, altering mood and behavior.

INDICATIONS:

- Acute psychotic episodes
- Emergency sedation of severely agitated or delirious patients

CONTRAINDICATIONS:

- CNS Depression
- Coma
- Hypersensitivity to drug
- Pregnancy
- Severe liver or cardiac disease

ADMINISTRATION:

- Adult dose: 2-5 mg IM or 1-5mg IV every 4-8 hrs as needed.
- Pediatric dose: 0.5mg IM

SIDE EFFECTS AND SPECIAL NOTES:

- Dose-related extrapyramidal reactions:
- Hypotension
- Orthostatic hypotension
- Nausea, vomiting
- Allergic reactions
- Blurred vision

CLASS: A

PROTOCOL(S) USED IN:

- Psychiatric Emergencies

IPECAC

PHARMACOLOGY & ACTIONS:

- Ipecac alkaloids act locally on the gastric mucosa and centrally on the chemoreceptor trigger zone to induce vomiting.
- Effective in approximately 20-30 minutes.

INDICATIONS:

- Ingested poisons or drugs

CONTRAINDICATIONS:

- Unconscious patients or rapidly diminishing level of consciousness
- Patients who are seizing
- Ingestion of strong acids, alkalis, silver nitrate, hydrocarbons, iodides, phenothiazine, or strychnine.

ADMINISTRATION:

- Adult dose: 30 ml PO
- Pediatric dose: 15 ml PO

SIDE EFFECTS & SPECIAL NOTES:

- Emetic action is improved if 2-3 glasses of water are given just before or just after ipecac is administered.
- Emetic action may be enhanced by ambulation.
- Have suction ready.
- Patient should be in the lateral recovery position or sitting.
- May not be successful in phenothiazine overdoses due to strong antiemetic action
- Gag reflex may be unreliable indicator of patient's ability to protect their airway. Testing for gag reflex in a patient with depressed level of consciousness may cause aspiration.

CLASS: C

PROTOCOL(S) USED IN: Overdose

KETOROLAC (Toradol®)

PHARMACOLOGY & ACTIONS:

- * Exhibits analgesic, anti-inflammatory, and antipyretic activity.
- * NSAID

INDICATIONS:

- * Management of pain

CONTRAINDICATIONS:

- * Hypersensitivity
- * Nasal polyps
- * Angioedema
- * Asthma
- * Allergy to ASA or other NSAIDs

ADMINISTRATION:

- * Adult dose - 15-30 mg IV or 30-60 mg IM
- * Patients <50 kgs or 65+ years old, use the lower end range of dose

SIDE EFFECTS & SPECIAL NOTES:

- * Edema, HTN, N/V, HA, GI bleeding
- * Use caution in patients with impaired renal or hepatic function, cardiac decompensation, HTN, COPD, & elderly.
- * Not recommended for obstetric analgesia - **Class C Pregnancy category**
- * Not recommended for use in children
- * May prolong bleeding time, use caution in patients with coagulation disorders.
- * Use caution in orthopedic injuries due to risk of bleeding.

CLASS: A

PROTOCOL(S) USED IN: Trauma

LIDOCAINE 2 % (Xylocaine®)

PHARMACOLOGY & ACTIONS:

- Depresses automaticity of Purkinje fibers thus increasing ventricular fibrillation threshold.
- Decreases conduction rate and force of contraction mainly at toxic levels.
- Single bolus effect disappears in 10-20 minutes due to redistribution in the body.
- Metabolic half-life is about 2 hours; toxicity develops with repeated doses.

INDICATIONS:

- Possible treatment of warning PVCs in suspected AMI with doctor's orders only.
- Ventricular tachycardia or suspected ventricular tachycardia if clinical condition is not rapidly deteriorating.
- Recurrent ventricular fibrillation.
- Following successful defibrillation
- Preparalytic - RSI

CONTRAINDICATIONS:

- Supra ventricular dysrhythmias
- Atrial fibrillation or flutter
- 2° and 3° block, hypotension

ADMINISTRATION:

- Adult dose - Cardiac arrest VT/VF, VT with pulse:
 - 1-1.5 mg/kg IVP
 - may repeat with .5-.75 mg/kg every 5-10 minutes up to 3 mg/kg
 - start drip ASAP

- Drip: 1- 4 mg/min. Mix 1 gm in 250 ml of D5W & run at:

1 mg/min	2 mg/min	3 mg/min	4 mg/min
15 µdrops/min	30 µdrops/min	45 µdrops/min	60 µdrops/min

- Adult dose - PVCs
 - .5 - 1.5 mg/kg IVP
 - may repeat with .5-1.5 mg/kg every 5-10 minutes up to 3 mg/kg
 - start drip ASAP
- Adult dose - Preparalytic (RSI)
 - 1-1.5 mg/kg IV
- Pediatric dose - Preparalytic (RSI)
 - 1.5 - 2 mg/kg up to 6 years old

SIDE EFFECTS & SPECIAL NOTES:

- Seizures, slurred speech, AMS
- Reduce maintenance infusion should be reduced by 50% in patients over 70 years old, hepatic failure, CHF, or shock.
- Routine use of Lidocaine for prophylaxis & prevention of ventricular dysrhythmias in patients suspected of having an AMI **is not recommended.**

CLASS: A

PROTOCOL(S) USED IN: ACLS, RSI

LORAZEPAM (Ativan®)

PHARMACOLOGY & ACTIONS:

- Benzodiazepine with antianxiety & sedative effects.
- Anticonvulsant

INDICATIONS:

- Preanesthetic medication
- Sedation
- Relief of anxiety

CONTRAINDICATIONS:

- Hypersensitivity
- Acute narrow-angle glaucoma

ADMINISTRATION:

- Adult dose - Status epilepticus
2-4 mg slow IV/IM over 2-5 minutes; may repeat in 10-15 minutes. Max dose is 8mg.
- Adolescents- Status epilepticus
0.07 mg/kg slow IV/IM over 2-5 minutes; max dose 4mg. May repeat in 10-15 minutes.
- Pediatric- Status epilepticus
0.1 mg/kg slow IV/IM over 2-5 minutes. Do not exceed 4mg single dose. May repeat second dose of 0.05 mg/ kg in 10-15 min if needed.
- Adult dose – Pacing
1-2 mg IV

SIDE EFFECTS & SPECIAL NOTES:

- Apnea, N/V, drowsiness, restlessness, confusion, delirium, HTN, hypotension
- Class D pregnancy category; may cause fetal damage

CLASS: **A**

PROTOCOL(S) USED IN: **Seizure, Cardiac Pacing**

MAGNESIUM SULFATE 10%

PHARMACOLOGY & ACTIONS:

- CNS depressant
- Stabilizes muscle cell membranes by interacting with the sodium/potassium exchange system.
- Smooth muscle relaxant
- Vasodilator
- Bronchodilator

INDICATIONS:

- Severe refractory VF
- Torsades
- Eclampsia

CONTRAINDICATIONS:

- Renal disease
- Heart block

ADMINISTRATION:

- Adult dose - Refractory VF, Torsades
 - 1.0 - 2.0 gm IVP given over 1-2 minutes diluted in 10 ml of NS
- Adult dose - Eclampsia
 - 4-6 gm IVP given over 1-2 minutes diluted in 10 ml of NS

SIDE EFFECTS & SPECIAL NOTES:

- Hypotension, asystole, respiratory & CNS depressant

CLASS: A - ACLS B - Seizure

PROTOCOL(S) USED IN: ACLS, Seizure

MIDAZOLAM (Versed®)

PHARMACOLOGY & ACTIONS:

- * Sedative/hypnotic benzodiazepine
- * Generalized CNS depression
- * Therapeutic effects include short term sedation and postoperative amnesia

INDICATIONS:

- * Sedation & amnesia during RSI
- * Sedation for cardioversion or cardiac pacing

CONTRAINDICATIONS:

- * Hypersensitivity or cross sensitivity with other benzodiazepines may exist
- * Acute narrow angle glaucoma
- * Shock
- * Comatose patients or those with pre-existing CNS depression
- * Severe uncontrolled pain
- * Pregnancy or lactation

ADMINISTRATION:

- * Adult dose: Sedation & amnesia in RSI
- .1 mg/kg IVP

SIDE EFFECTS & SPECIAL NOTES:

- * Respiratory depression
- * HA, excess sedation, drowsiness, agitation
- * Blurred vision
- * Cardiac arrhythmias
- * N/V, rashes
- * Increased risk of hypotension with antihypertensives, acute ingestion of alcohol or nitrates.

CLASS: A

PROTOCOL(S) USED IN: RSI, Cardioversion, Pacing

MORPHINE SULFATE

PHARMACOLOGY & ACTIONS:

- * Analgesic
- * Peripheral vasodilator
- * Pupil constriction
- * Respiratory depressant
- * Cardiac effect of vasodilation:
 - decreases myocardial oxygen consumption
 - decreases left ventricular end - diastolic pressure
 - decreases cardiac work load
 - may decrease incidence of dysrhythmias

INDICATIONS:

- * Chest pain not relieved by NTG
- * Pulmonary edema
- * Extremity fractures in absence of any head, chest, or abdominal injuries.
- * Back and neck injuries when sedation/pain relief are necessary to prevent a patient from moving around and potentially injuring themselves.

CONTRAINDICATIONS:

- * Hypotension
- * Head injuries or abdominal injuries
- * Patients with respiratory difficulties except for pulmonary edema.
- * Major blood loss
- * Decreased level of consciousness

ADMINISTRATION:

- * Adult dose: 2-20 mg given slowly IV/ IM titrated to patient's condition and response
- * Pediatric dose: .1-.2 mg/kg IV, IO

SIDE EFFECTS & SPECIAL NOTES:

- * Respiratory depression
- * Decreased BP
- * Decreased level of consciousness
- * Decreased heart rate
- * N/V
- * Have naloxone available to reverse over administration
- * Allergic reactions
- * May follow administration with Phenergan for nausea

CLASS: A

PROTOCOL(S) USED IN: ACLS, Trauma, RSI, Amputation, Burns, Chest Pain,
CHF

NALOXONE (Narcan®)

PHARMACOLOGY & ACTIONS:

- * Narcotic antagonist
- * Competitively binds to narcotic sites but exhibits almost no pharmacologic activity of its own.
- * Duration of action is 30-80 minutes.

INDICATIONS:

- * Reversal of narcotic overdose
- * Coma of unknown etiology

CONTRAINDICATIONS:

- * None noted

ADMINISTRATION:

- * Adult dose: 2 mg IV, IM, SQ. IO ET initial dose titrated to patient's respirations
 - If no response, repeat 2 mg dose up to 4 mg
 - larger and repeated doses may be required to reverse Darvon overdose

SIDE EFFECTS & SPECIAL NOTES:

- * Acute withdrawal symptoms in addicted patients.
- * Be prepared to restrain patient.
- * Titrate dosing to keep patient awake, responsive and free from respiratory depression but somewhat groggy.
- * Patients who have received Narcan must be transported to the hospital because coma may reoccur when Narcan wears off.

CLASS: A

PROTOCOL(S) USED IN: Altered Mental Status

NITROGLYCERIN

PHARMACOLOGY & ACTIONS:

- Vasodilator
- Decreases peripheral resistance
- Generalized smooth muscle relaxation
- Reduces venous tone

INDICATIONS:

- Chest, arm, neck pain thought to be related to coronary ischemia
- Angina
- Control of hypertension in angina or acute MI
- Pulmonary edema

CONTRAINDICATIONS:

- Hypotension
- Hypovolemia
- ICP
- Aortic stenosis
- Severe bradycardia or tachycardia
- Use of any phosphodiesterase inhibitors for erectile dysfunction or pulmonary HTN within 24 hours (See Chest Pain/ Acute Coronary Syndrome and/or CHF Protocol)

ADMINISTRATION:

- Adult dose: .4 mg SL in spray or tablet form
 - dose may be doubled if patient uses NTG chronically
 - may be repeated every 3-5 minutes up to three doses
- NTG IV 5 mcg/min: Titrate to effect

SIDE EFFECTS & SPECIAL NOTES:

- Headache, flushing, dizziness, and burning under the tongue
- Hypotension; IV line should be established prior to administration

- Reflex tachycardia
- Syncope
- May be effective in relieving chest pain due to esophageal spasm
- Therapeutic effect is enhanced but adverse effects are increased when patient is upright.
- NTG loses potency easily; should be stored in dark glass container with tight lid and not exposed to heat.

CLASS: A

PROTOCOL(S) USED IN: ACLS, Chest Pain

OXYGEN

PHARMACOLOGY & ACTIONS:

- * Raises the amount of oxygen in the blood and the amount delivered to the tissues.

INDICATIONS:

- * Suspected hypoxia or respiratory distress from any cause.
- * Acute chest pain where MI is suspected
- * Shock (decreased oxygenation of tissues) from any cause.
- * Major trauma
- * Carbon monoxide poisoning

CONTRAINDICATIONS:

- * None noted

ADMINISTRATION:

DOSAGE	INDICATIONS
Low flow (1-2 lpm)	Patients with chronic lung disease
Moderate flow (4-6 lpm)	Precautionary use for trauma, chest pain
High flow (10-15 lpm)	Severe respiratory distress

OXYGEN THERAPY			
METHOD	DEVICE	FLOW RATE	O2 % INSPIRED AIR
LOW FLOW	Nasal cannula	1-2 lpm	24%-28%

OXYGEN THERAPY			
MODERATE FLOW	Nasal cannula	6 lpm	50-60%
HIGH FLOW	Non-rebreather mask	10-25 lpm	90%+

SIDE EFFECTS & SPECIAL NOTES:

- * DO NOT WITHHOLD OXYGEN from patients with COPD. Be prepared to assist ventilations if needed. Initial O2 flow should be no greater than 2 lpm to start.
- * Patient should be breathing adequately on their own, if not, assist with BVM.
- * Oxygen supports combustion, use caution.
- * Oxygen toxicity is not a hazard from acute administration.
- * Non-humidified O2 is drying & irritating to mucous membranes.

CLASS: A

PROTOCOL(S) USED IN: All protocols when indicated

OXYTOCIN (Pitocin®)

PHARMACOLOGY & ACTIONS:

- * Hormone which increases electrical and contractile activity in uterine smooth muscle.
- * Can initiate or enhance rhythmic contractions of the uterus.
- * Exhibits rapid onset with a very short half-life, rapid inactivation and excretion.

INDICATIONS:

- * Control of post-partum hemorrhage

CONTRAINDICATIONS:

- * Rule out multiple fetuses before administration

ADMINISTRATION:

- * 10 USP units (20 mg) per ml
Dose: 10 USP units in 1000 ml NS IV at a flow rate of 10-15 drops/min titrated to severity of hemorrhage & uterine response. A rapid infusion may be appropriate.

SIDE EFFECTS & SPECIAL NOTES:

- * Administration should follow delivery of placenta
- * In large doses, oxytocin exhibits a transient but marked vasodilating effect & reflex tachycardia.
- * Cardiac dysrhythmias may be precipitated or aggravated by oxytocin.

CLASS: C

PROTOCOL(S) USED IN: Childbirth

PROMETHAZINE (Phenergan)

PHARMACOLOGY & ACTIONS:

- Antagonizes central and peripheral H1 receptors (non-selective antihistamine).

INDICATIONS:

- Nausea and Vomiting

CONTRAINDICATIONS:

- Hypersensitive to drug
- Intestinal or bladder obstruction
- Seizure disorder
- Coma
- CNS depression
- Newborns, premature neonates, breast-feeding women
- Acutely ill or dehydrated children
- Stenosing or peptic ulcerations

ADMINISTRATION:

- 12.5 to 25 mg IV, IM, or PO
- 6.25 mg in elderly

SIDE EFFECTS & SPECIAL NOTES:

- Sedation, confusion, sleepiness, dizziness, disorientation
- Extrapyramidal symptoms – have Benadryl available
- Hypotension, k hypertension
- Blurred vision

CLASS: A

PROTOCOL USED IN: Nausea & Vomiting

ROCURONIUM (Zemuron®)

PHARMACOLOGY & ACTIONS:

- * Non-depolarizing neuromuscular blocking agent

INDICATIONS:

- * Paralysis to facilitate rapid sequence intubation

CONTRAINDICATIONS:

- * Hypersensitivity

ADMINISTRATION:

- * Adult & pediatric dose: Initial defasciculating dose - .1 mg/kg IV
-Maintenance – 1 mg/kg IV every 12 minutes

SIDE EFFECTS & SPECIAL NOTES:

- * Use caution in patients with impaired hepatic or respiratory function or severe obesity
- * Arrhythmia, tachycardia, N/V, bronchospasm, hypotension, HTN, rash, or edema.
- * Must be able to ventilate patient
- * Must be accompanied by sedation.
- * Pregnancy Category B; only use if potential benefits justifies the potential risk to the fetus.

CLASS: A

PROTOCOL(S) USED IN: RSI

SODIUM BICARBONATE

PHARMACOLOGY & ACTIONS:

- * An alkalotic solution which neutralizes acids found in the blood
- * Acidosis depresses cardiac contractility, and the cardiac response to catecholamine and makes the heart more likely to fibrillate.

INDICATIONS:

- * To reverse acidosis found during cardiac arrest or near-drowning victims.
- * Make the heart more receptive to conversion from VF, asystole, or PEA by normalizing the pH.
- * For alkalization of urine in certain poisoning & overdoses.

CONTRAINDICATIONS:

- * None noted

ADMINISTRATION:

- * Adult & pediatric dose: Cardiac arrest - 1 mEq/kg initially followed by .5 mEq/kg every 10 minutes.

SIDE EFFECTS & SPECIAL NOTES:

- * Should not be given in with catecholamine or calcium.
- * May increase cerebral acidosis, especially in diabetics who are ketotic.
- * Metabolic alkalosis which is impossible to reverse
- * In respiratory arrest without cardiac arrest, the treatment of choice is ventilation, no sodium bicarbonate unless cardiac arrest has occurred & the patient does not respond to adequate ventilation or other standard ACLS treatment modalities.

CLASS: A

PROTOCOL(S) USED IN: ACLS, Overdose

SUCCINYLCHOLINE (Anectine®)

PHARMACOLOGY & ACTIONS:

- Short acting depolarizing skeletal muscle relaxant.
- Binds to cholinergic receptors in the motor neuron endplate to cause muscle depolarization (fasciculations) followed by paralysis.
- Complete paralysis occurs within 1 minute; recovery usually seen within 4-6 minutes.
- Has no effect of consciousness or pain threshold.

INDICATIONS:

- Paralysis to facilitate rapid sequence intubation.

CONTRAINDICATIONS:

- Acute narrow angle glaucoma
- Penetrating eye injuries
- Burns or crush injuries > 12-24 hours
- Use caution in patients with kidney failure or undiagnosed neuromuscular disease or skeletal muscle myopathy such as Duchenne's Muscular Dystrophy.

ADMINISTRATION:

- Adult dose: Initial dose - 1.5 mg/kg IV; a second dose may be given if paralysis is not achieved within 60-120 seconds of initial administration.

Can be given IM at 2-4 mg/kg not to exceed 150 mg. IV route is preferred, only use IM if absolutely necessary.

- Pediatric: Initial dose - 2 mg/kg IVP
Can be given IM at 2-4 mg/kg if absolutely necessary

SIDE EFFECTS & SPECIAL NOTES:

- May cause malignant hyperthermia, ventricular dysrhythmias, bradycardia in pediatrics, hyperkalemia, hypotension, hypertension, increased intraocular pressure and ICP.
- Histamine release may occur..
- Bradycardia is usually seen in patients under 5 years old & will generally respond to oxygenation & atropine.
- Ventricular dysrhythmias may be treated with oxygenation & lidocaine.

CLASS: A

PROTOCOL(S) USED IN: RSI

THIAMINE

PHARMACOLOGY & ACTIONS:

- * Vitamin commonly referred to vitamin B1
- * B1 is required for the conversion of pyruvic acid to acetyl-coenzyme-A.
- * If thiamine deficiency occurs, the brain cannot obtain glucose to use as energy.
- * Chronic alcoholism or starvation interferes with the absorption, intake, and utilization of thiamine.

INDICATIONS:

- * Co-administration with D50% in patients suspected of malnutrition or chronic alcoholism.
- * Coma of unknown origin, especially if alcohol may be involved.
- * Delirium tremens

CONTRAINDICATIONS:

- * Hypersensitivity

ADMINISTRATION

- * Adult dose: 100 mg IV or IM if IV access cannot be obtained

SIDE EFFECTS & SPECIAL NOTES:

- * There may be a few cases of hypersensitivity to thiamine.

CLASS: A

PROTOCOL(S) USED IN: Altered Mental Status, Seizure

VASOPRESSIN

PHARMACOLOGY & ACTIONS:

- Vasopressor that stimulates smooth muscle V1 receptors.
- Peripheral vasoconstrictor but provides some cerebral and cardiac dilation.
- Naturally occurring antidiuretic hormone
- Half-life is 10-20 minutes

INDICATIONS:

- VF/Pulseless VT

CONTRAINDICATIONS:

- None in cardiac arrest
- Not recommended for pediatric use

ADMINISTRATION:

- Adult dose: 40 units IVP one time, may be given via ET at same dose
If no response in 10-20 minutes, it is acceptable to return to epinephrine
1 mg every 3-5 minutes.

SIDE EFFECTS & SPECIAL NOTES:

- May increase peripheral vascular resistance and provoke cardiac ischemia and angina

CLASS: A

PROTOCOL(S) USED IN: ACLS

Zofran

PHARMACOLOGY & ACTIONS:

- Selective antagonist of a specific type of serotonin receptor located in the CNS at the chemoreceptor trigger zone and in the peripheral nervous system on nerve terminals of the vagus nerve. Drugs blocking action may occur at both sides.

INDICATIONS:

- Nausea and Vomiting

CONTRAINDICATIONS:

- Hypersensitive to drug
- Caution in patients with hepatic impairment

ADMINISTRATION:

- Adults: 4 mg IV over 2-5 minutes
- Child: > 40 kg 4 mg IV single dose Child: < 40 kg 0.1 mg/kg IV single dose

SIDE EFFECTS & SPECIAL NOTES:

- Headache, malaise, fatigue, dizziness, fever, sedation
- Extrapyrimal symptoms – have Benadryl available
- Pregnancy risk category B

CLASS: A

PROTOCOL USED IN: Nausea & Vomiting