

Activated Charcoal

Class: Absorbent, Antidote

MOA: Binds to toxins in the stomach so that they can be eliminated through the GI tract

Indication: Toxic ingestions (Acetaminophen, TCAs, opioids, aspirin, calcium channel blockers, barbiturates)

Contraindications: Airway compromise, corrosive ingestion, caustic ingestion. (can cause vomiting and airway issues)

Routes of admin: Oral

Side effects: vomiting, constipation or diarrhea

Dose Adults: 30-100g/dose

Dose Peds: 1-2 g/kg

Special Consideration: If given, it must be given within the first hour of ingestion

Adenosine

Class: Antiarrhythmic

MOA: Acts on the AV node to slow conduction for a brief period of time

Indication: Supraventricular Tachycardia (SVT),

Contraindications: 2nd or 3rd degree heart block (doesn't work for atrial flutter, atrial fibrillation, ventricular tachycardia)

Routes of admin: IV push

Side effects: Chest pain, SOB, palpitations, feeling of doom, hypotension, light headedness

Dose Adults: 6mg first dose, 12mg second dose

Dose Peds: 0.1mg/kg first dose, 0.2 mg second dose

Special Consideration: Must be given as a fast push followed by 10cc saline. Ideally given in veins closer to the heart (not hand etc)

Albuterol

Class: Sympathomimetic , beta agonist

MOA: Acts on beta 2 receptors in the airways and lungs to cause bronchodilation

Indication: Anaphylaxis, COPD or Asthma exacerbation

Contraindications: Cardiac dysrhythmias (may worsen)

Routes of admin: Inhaler or aerosolized solution

Side effects: Tachycardia, dizziness, palpitations, tremors, hypertension, headache (all from beta 1 receptor activation)

Dose Adults: Inhaler – 4-8 puffs. Nebulized - 2.5-5mg every 20 minutes, max of 3 doses

Dose Peds: Inhaler – 1-2 puffs. Nebulized – 0.15mg/kg every 20 minutes, max of 3 doses

Special Consideration:

Amiodarone

Class: Antiarrhythmic

MOA: Prolongs duration of the action potential during heart repolarization

Indication: Recurrent v-fib or v-tach without a pulse in CPR. Recurrent unstable v-tach. Some stable atrial arrhythmias

Contraindications: Heart blocks, cardiogenic shock, bradycardia, pulmonary congestion

Routes of admin: IV push or IV drip

Side effects: Hypotension, bradycardia, pain at IV site, CHF, AV conduction abnormalities, dizziness, headache

Dose Adults: CPR – 300mg bolus followed by 150mg in 3-5min. Dysrhythmias – 150mg over 10 minutes IV drip

Dose Peds: CPR – 5mg/kg (max 300). Dysrhythmias – slow 5mg/kg over 20-60 minutes

Special Consideration: Continuous ECG monitoring during administration should be considered

Amyl Nitrate

Class: Antidote, Nitrate

MOA: Changes hemoglobin to methemoglobin which binds cyanide. Dilates coronary vessels to relieve angina

Indication: Cyanide poisoning. Angina

Contraindications: Carbon monoxide exposure

Routes of admin: Inhalation

Side effects: Hypotension, headache, dizziness, lightheadedness

Dose Adults: Inhale 0.3ml (1 ampule) crushed into cloth and inhaled. Repeat within 1-5 min. Max 2 doses

Dose Peds: Same as adults

Special Consideration: Can be used recreationally as “poppers”

Aspirin

Class: Antiplatelet, anti-inflammatory, anti-pyretic

MOA: Decreases platelet aggregation

Indication: Cardiac chest pain, fevers, aches and pains

Contraindications: Active bleeding, ulcers

Routes of admin: Oral

Side effects: Stomach irritation, nausea, vomiting, heartburn

Dose Adults: 160-325mg (4 chewable 81mg tabs or 1 adult tab)

Dose Peds: 3-10 mg/kg

Special Consideration: Should be given in all patients with ACS and chest pain even if bleeding (can fix bleeding, can't fix ischemia)

Atropine

Class: Anticholinergic

MOA: Inhibits acetylcholine at receptors

Indication: Unstable bradycardias. Organophosphate poisoning

Contraindications: Tachycardia, myocardial ischemia, GI obstruction

Routes of admin: IV, IM, IO

Side effects: Tachycardia, agitation, headache, dizziness, flushed and hot skin, dry mouth and eyes

Dose Adults: Bradycardia – 0.5mg IV/IO. Organophosphate poisoning – 2-6mg IV/IM

Dose Peds: Bradycardia – 0.02mg/kg IV/IO up to 1-2mg. Organophosphate poisoning – 0.05mg/kg IV/IM

Special Consideration: If given too slow can causes paradoxical bradycardia

Dextrose

Class: Carbohydrate

MOA: Increases glucose levels in the blood

Indication: Hypoglycemia

Contraindications: Brain bleed

Routes of admin: IV/IO

Side effects: Hyperglycemia, burning at IV site, necrosis of tissues if accidentally placed subcutaneously

Dose Adults: 25g in 50mL IV/IO

Dose Peds: 0.5-1.0g/kg IV/IO

Special Consideration:

Diazepam

Class: Benzodiazepine

MOA: Induces CNS depression, sedation and muscle relaxation

Indication: Anxiety, alcohol withdrawal, seizures

Contraindications: Head injury

Routes of admin: IV/IM/IO

Side effects: respiratory depression

Dose Adults: 5-10mg IV/IM/IO

Dose Peds: 0.2-0.5mg/kg rectally (for seizures)

Special Consideration: Can be given rectally in pediatric seizures

Diphenhydramine

Class: Antihistamine

MOA: Blocks action of histamine by binding histamine receptors

Indication: Allergic reaction, anaphylaxis

Contraindications: Newborns, nursing mothers

Routes of admin: Oral, IM, IV

Side effects: Drowsiness, hypotension, dizziness, palpitations

Dose Adults: 12.5-50mg PO/IV/IO/IM

Dose Peds: 1-1.25mg/kg PO/IV/IO/IM

Special Consideration:

Dopamine

Class: Sympathomimetic

MOA: Acts on alpha and beta receptors (mainly alpha 1 and beta 1) to increase cardiac contractility, cardiac output and BP

Indication: Hypotension, bradycardia (if atropine doesn't work)

Contraindications: Tachyarrhythmias, V-fib

Routes of admin: IV/IO

Side effects: Hypertension, tachycardia, arrhythmias, chest pain, SOB

Dose Adults: 2-20mcg/kg/min IV/IO

Dose Peds: 2-20mcg/kg/min IV/IO

Special Consideration:

Epinephrine

Class: Sympathomimetic

MOA: Acts on alpha and beta receptors to increase cardiac contractility, cardiac output and BP and to dilate the bronchioles

Indication: Anaphylaxis, Asthma, Cardiac Arrest, Hypotension

Contraindications: None

Routes of admin: Sub Q/IM/IV/IO

Side effects: Hypertension, tachycardia, arrhythmias, chest pain, SOB

Dose Adults: Cardiac arrest – 1mg of 1:10,000 IV/IO every 3-5 minutes. Bradycardia - 2-10mcg/min 1:10,000 IV. Anaphylaxis – 0.3-0.5mg 1:1,000 IM or Sub-Q

Dose Peds: Cardiac arrest and Bradycardia - 0.01mg/kg of 1:10,000 IV/IO. Anaphylaxis – 0.01mg 1:1,000 IM or Sub-Q

Special Consideration:

Fentanyl

Class: Opiate analgesic

MOA: Binds to opioid receptors

Indication: Pain control

Contraindications: Respiratory depression, hypotension

Routes of admin: IV/IO/IM

Side effects: Respiratory depression, bradycardia, hypotension

Dose Adults: 1-2mcg/kg IM/IV/IO

Dose Peds: 1-2mcg/kg IM/IV/IO

Special Consideration:

Glucagon

Class: Pancreatic hormone, antihypoglycemic agent

MOA: Converts glycogen to glucose and promotes glucose creation

Indication: Hypoglycemia. Beta blocker overdose

Contraindications: Hyperglycemia

Routes of admin: IM/IV/IO

Side effects: Tachycardia, hypotension, nausea and vomiting

Dose Adults: 1mg IV/IM/IO

Dose Peds: 0.5mg IV/IO/IM

Special Consideration: Don't forget that glucagon is considered an antidote for beta blocker overdose!

Ipratropium Bromide

Class: Anticholinergic

MOA: Inhibits acetylcholine at receptors on bronchiole smooth muscles, leading to bronchodilation

Indication: Asthma, COPD

Contraindications: Peanut allergy

Routes of admin: Inhaler, Nebulizer

Side effects: Tachycardia, agitation, headache, dizziness, flushed and hot skin, dry mouth and eyes

Dose Adults: 0.5mg/mL nebulized

Dose Peds: 0.25-0.5mg nebulized

Special Consideration: Many times given along with albuterol in COPD and Asthma

Lidocaine

Class: Antiarrhythmic

MOA: Blocks sodium channels and shortens the action potential moving through the heart (phase 4 of depolarization)

Indication: V-tach and V-fib

Contraindications: AV block

Routes of admin: IV/IO

Side effects: Hypotension, bradycardia, seizures, confusion, lightheadedness

Dose Adults: 1-1.5mg/kg IV/IO

Dose Peds: 1mg/kg IV/IO

Special Consideration: Lidocaine raises the ventricular fibrillation threshold

Lorazepam

Class: Benzodiazepine

MOA: Induces CNS depression, sedation and muscle relaxation

Indication: Anxiety, seizures

Contraindications: Hypotension, CNS depression

Routes of admin: IV/IO

Side effects: respiratory depression

Dose Adults: 2-4 mg IV/IO

Dose Peds: 0.05 – 0.1 mg/kg IV/IO

Special Consideration:

Midazolam

Class: Benzodiazepine

MOA: Induces CNS depression, sedation and muscle relaxation

Indication: Anxiety, seizures, sedation

Contraindications: Hypotension, CNS depression

Routes of admin: IV/IO

Side effects: respiratory depression

Dose Adults: 1-2.5mg IV/IM/IO

Dose Peds: 0.1-0.15mg/kg IV/IM/IO

Special Consideration:

Morphine

Class: Opiate analgesic

MOA: Binds to opioid receptors

Indication: Pain control

Contraindications: Respiratory depression, hypotension

Routes of admin: IV/IM/IO

Side effects: Respiratory depression, bradycardia, hypotension

Dose Adults: 2.5-15mg IV/IO/IM

Dose Peds: 0.03 – 0.2 mg/kg IV/IO/IM

Special Consideration:

Naloxone

Class: Opioid antagonist

MOA: Competes with opioids on the opioid receptors

Indication: Opioid overdose

Contraindications: None

Routes of admin: intranasal, sub-Q, IV/IO/IM

Side effects: nausea/vomiting, tachycardia, hypertension, seizures

Dose Adults: 0.4-2mg

Dose Peds: 0.1mg/kg – 2mg

Special Consideration: Will have no effect on non-opioid overdoses

Nitroglycerin

Class: Antianginal, nitrate

MOA: Dilates coronary vessels to relieve angina

Indication: Angina chest pain

Contraindications: Right sided heart attack, use of ED drugs, hypotension

Routes of admin: sublingual spray or tablet, dermal paste, IV

Side effects: headache, tachycardia, hypotension, nausea/vomiting, flushing

Dose Adults: tablet or spray – 0.3-0.4mg, 5min intervals up to 3 doses. IV – 10-200mcg/min

Dose Peds: 0.25-5mcg/kg/min

Special Consideration:

Nitrous Oxide

Class: Gaseous analgesic/anesthetic (laughing gas)

MOA: CNS depression when inhaled

Indication: Anxiety, pain

Contraindications: Decreased LOC, head injury, pneumothorax, hypotension, COPD

Routes of admin: inhaled

Side effects: dizziness, apnea, cyanosis, nausea/vomiting

Dose Adults: 50%O₂/50%NO, inhaled

Dose Peds: Same as adults

Special Consideration:

Oxytocin

Class: Pituitary hormone

MOA: Stimulates uterine smooth muscle to contract and stimulates lactation

Indication: Postpartum hemorrhage from uterine atony

Contraindications: Presence of second fetus, fetal distress

Routes of admin: IV/IM

Side effects: hypotension or hypertension, tachycardia, anxiety, seizures, nausea/vomiting

Dose Adults: 3-10 units IM or 10-40 milliunits/min IV

Dose Peds: N/A

Special Consideration: If too much is given can cause uterine rupture

Promethazine

Class: Antihistamine, antiemetic

MOA: Blocks action of histamine by binding histamine receptors

Indication: Nausea/Vomiting, Allergic reactions

Contraindications: CNS depression

Routes of admin: IV

Side effects: sedation, dizziness

Dose Adults: 12.5 – 25mg IV/IM

Dose Peds: N/A

Special Consideration:

Thiamine

Class: Vitamin (vitamin B1)

MOA: Combines with ATP to produce thiamine pyrophosphate, a coenzyme used in metabolism of carbohydrates

Indication: Coma of unknown origin, delirium tremens, Wernicke's encephalopathy

Contraindications: None

Routes of admin: IV/IO

Side effects: hypotension, nausea/vomiting, anxiety

Dose Adults: 100mg IV/IO

Dose Peds: N/A

Special Consideration:

Magnesium Sulfate

Class: Electrolyte

MOA: Reduces striated muscle contractions. Bronchodilates.

Indication: Severe asthma, torsades de pointes, eclamptic seizures

Contraindications: AV block, heart damage, GI obstruction

Routes of admin: IV/IO

Side effects: facial flushing, hypotension, depressed reflexes, bradycardia

Dose Adults: 1-6g IV/IO

Dose Peds: 25-50 mg/kg IV/IO

Special Consideration: