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**drug references**

**Bonner County EMS System APPROVED MEDICATIONS**

**ACETAMINOPHEN (tylenol)**

Dose: 325-1000 mg every 4-6 hours. Maximum 4 gms/day.

Peds: 15 mg/kg PO/PR every 4-6 hours for age >3 months. Maximum dose 1,000 mg/dose, 2000 mg/day.

Indications: Acetaminophen is used to treat many conditions such as headache, muscle aches, arthritis, backache, toothaches, colds, and fevers.

Notes: Avoid if there is a history of alcoholism or hepatic cirrhosis, or age < 3 months. Acetaminophen overdose may lead to liver injury and death.

**acetylsalicylic acid /Aspirin**

Dose: 324 mg/dose therapeutic, 81 mg/day prophylactic. Max dose 1000 mg/day.

Peds: **No not administer Aspirin to children or teenagers.**

Indications: Acute MI, Suspected Acute Coronary Syndrome. It is also beneficial for pain, fever and inflammation.

Notes: Ask if the patient is taking Coumadin/Warfarin.

Aspirin should not be given to a child or teenager with fever, especially if the child has flu symptoms or chicken pox, as it can cause a sometimes fatal condition called Reye's Syndrome. Do not administer Aspirin if there is a history of allergy to Aspirin or NASIDS, if the patient is on Warfarin, or if there is a history of GI bleeding, ulcers, bleeding disorders, asthma, nasal polyps, liver or kidney disease.

**Activated Charcoal**

Dose: 50 gm (2 tablespoons) mixed with 8 Oz. of water, then given orally or through a nasal gastric tube.

Peds: 1.0 gm/kg mixed with a 6 Oz. of water, then given orally or through a nasal gastric tube.

Indications: In poisoning or when emesis is contraindicated.

Notes: Do not give if airway not controlled. Administer only after emesis or in those cases where emesis is contraindicated..

**ADENOSINE**

Dose: 6 mg IVP followed by a rapid Saline flush. May repeat at 12 mg IVP x 2 doses.

Peds: 0.1 mg/kg rapid IVP/IO (max 1st dose 6mg), if no

response in 2 minutes administer 0.2 mg/kg rapid IVP/IO,

Max repeat dose 12mg IV x 2 doses.

Indications: Supraventricular Tachycardia, in Peds also use

for ventricular tachycardia with a pulse.

Notes: Xanthines, Tegretol, Persantine may alter effectiveness of Adenosine. Side effects may include: transient flushing,

dyspnea, chest pain, and transient asystole.

**ALBUTEROL (Ventolin)**

Dose: 2.5 mg (3 ml) in nebulizer @ 6 1/m flow

Peds: 1.25-2.5 mg (3 ml) in nebulizer @ 6 l/m flow

Indications: Bronchospasm, respiratory distress, critical hyperkalemia

Notes: Use with caution in hypertension, tachycardia.

**AMIODARONE (Cordarone, Pacerone)**

Dose: VF Pulseless/Unstable VT: 300mg IV/IO (max 450mg)

Hemodynamically Stable VT: 150mg IV/IO over 10 minutes

Follow-up Infusion: 1 mg/min IV x 6 hours.

Peds: SVT/VT with pulse: 5mg/kg IVP/IO over 20-60 min.

V-Fib/Pulseless V-Tach: 5mg/kg IV/IO (Max dose 300mg)

Follow-up infusion: 5-15 mcg/kg/min IV

Indications: V-Fib/Pulseless V-Tach refractory to Lidocaine.

Notes: Avoid with sinus bradycardia, second and third-degree AV block in the absence of a functioning pacemaker, severe heart failure and cardiogenic shock, and long QT syndromes.

**ATROPINE SULFATE**

Dose: Bradycardia: 0.5mg IVP/IO (Max 3.0 mg)

Asystole: 1.0mg IVP/IO or 2mg ETT q 3-5 min. (Max 3 mg)

Cholinesterase inhibiting toxins: 1.0-2.0 mg IVP/IO challenge then 1.0 mg IVP/IO q 5-10 min, titrate to drying of secretions.

Peds: Bradycardia/Asystole; 0.02 mg/kg (min dose: 0.1 mg;

maximum single dose 0.5mg child/1.0mg adolescent)

Adjunct with intubation: (<10 y/o) 0.02 mg/kg IVP/IO

Cholinesterase inhibiting toxins; 0.05 mg/kg q 5-10 minutes

titrated to drying of secretions (minimum dose: 0.2 mg).

Indications: Bradycardia, Asystole/PEA, cholinesterase inhibiting toxins.

Notes: Use with caution in Tricyclic overdose.

**CALCIUM CHLORIDE 10%**

Dose: 500-1000mg slow (5-10ml) IVP/IO may repeat q10 min

Peds: 20 mg/kg slow IVP/IO

Indications: acute hyperkalemia, hypocalcemia, calcium

channel blocker toxicity

Notes: Flush IV line well between administration of Sodium

Bicarbonate to avoid precipitation. May cause bradycardia,

arrhythmias, syncope, and cardiac arrest, tissue necrosis to veins.

**Dexamethasone**

Dose: 4-10 mg IM/IV

Peds: 0.6 mg/kg up to 10 mg IM/IV or PO

Indications: respiratory distress, asthma and anaphylaxis

**DEXTROSE 50% (D50)**

Dose: 12.5 grams – 50 grams IVP/IO

Peds: 2.0 - 4.0 ml/kg of D25W (diluted D50W 1:1 with NS)

Neonates: 5-10 ml/kg D10W (mix 12 ml D50 with 50 cc NS)

Indications: Hypoglycemia

Notes: Necrotizing if IV infiltrated use D10W for neonates

**DILTIAZEM (Cardizem)**

Dose: 0.1-0.25 mg/kg IV/IO bolus, titrate in 5mg increments. Maximum initial bolus is 20 mg.

Infusion post bolus: 5-10 mg/hour IV

Indications: Atrial Fibrillation, Flutter, PSVT, hypertension

Notes: Avoid in second or third degree AV block, hypotension, wide-complex tachycardia or cardiogenic shock.

**DIPHENHYDRAMINE (Benadryl)**

Dose: 0.5-1.0 mg/kg IV/IM/IO or PO (25-50 mg)

Peds: 1-2 mg/kg IVP/IO/PO (50 mg maximum dose).

Indications: Anaphylaxis, allergic reaction, nausea control,

dystonia (an impairment of muscle tone often effecting the

head, neck and tongue) secondary to extrapyramidal reactions

(uncontrolled movement, changes in muscle tone, and abnormal posturing).

Notes: Observe for hyperthermia, tachycardia. Relative

contraindication with asthma.

**DOPAMINE (Premix)**

Dose: 2-20 mcg/kg/min titrated to blood pressure.

Indications: Hypotension, bradycardia and AV block.

Notes: Observe carefully for ectopy and tachycardia.

Contraindicated in hypovolemia, pheochromocytoma (an adrenaline secreting tumor), and MAO inhibitors.

**EPINEPHRINE 1:1000**

Dose: 0.3–0.5 ml SQ or IM every 10 minutes as needed.

Peds: 0.01 ml/kg SQ not to exceed 0.5 mg; 5.0 ml SVN

Indications: Bronchospasm, anaphylaxis, allergic reaction.

Notes: Avoid using in patients with hypertension, tachycardia, and in persons >50 years old or with known heart disease.

**EPINEPHRINE 1:10,000**

Dose: 1.0 mg IVP/IO or ETT q 3-5 min; 0.3-0.5 mg IVP/IO

for anaphylaxis or extreme asthmatics.

Peds: 0.01-0.03 mg/kg IVP/IO (0.1mg/kg ETT) q3-5

minutes. (Maximum dose 1 mg)

Indications: V-fib, asystole, EMD, bronchospasm,

anaphylaxis, allergic reaction, pediatric bradycardia.

Notes: Use with caution in patients with hypertension, tachycardia. Consider using 1:1,000 Epi if ETT dose needed.

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**EPINEPHRINE INFUSION**

Dose: 2 – 10 mcg/min; mix 1mg in 250cc NS, (4.0 mcg/ml)

Indications: For severe asthma or anaphylaxis refractory to

SQ or IM Epinephrine.

Notes: Titrate drip for effect. All patients must be on a Cardiac Monitor. **Must clear with Medical Control.**

**EPIPEN**

Dose: Epinephrine autoinjector, 0.3 mg SQ

See procedure 9021 EpiPen Administration

Peds: Epinephrine autoinjector, 0.15 mg SQ (EpiPen Jr.

Notes: EpiPen Jr. is for children between 15 and 30 kg.

**ETOMIDATE**

Dose: 0.3-0.6 mg/kg IVP/IO

Peds: Dose same as adults

Indications: RSI adjunct.

Notes: Causes hypnotic effect within one minute, duration 4-

10 minutes. Use cautiously with geriatric patients; may cause

cardiac depression. Repeat administration for continued

sedation is not endorsed.

**FENTANYL (Duragesic)**

Dose: 1-2 mcg/kg/dose slow IM/IV/IO (25-100 mcg).

Repeat initial dose at 5-10 minute intervals cautiously.

RSI pretreatment: 2-3 mcg/kg IV/IM/IO

Peds: 1-3 mcg/kg slow IM, IVP/IO; titrate to effect at 5-10 minute intervals. Max dosage 25 mcg/dose in children.

Neonates: 1mcg/kg. Max 25 mcg/dose in children.

Indications: Pain relief and RSI pretreatment.

Notes: Contraindications: Avoid using in patients with increased intracranial pressure, severe respiratory depression, or severe renal or hepatic insufficiency.

**FUROSEMIDE (Lasix)**

Dose: 20-80 mg slow IVP/IO

Peds: 1 mg/kg slow IVP/IO (maximum dose 20mg)

Indications: Heart Failure, and Pulmonary Edema when rapid diuresis is required. It is also beneficial for hypercalcemia.

Notes: Furosemide generally causes potassium depletion in the absence of renal insufficiency.

**GLUCAGON**

Preparation: Mix solution and powder to yield 1 mg.

Dose: - Hypoglycemia: 1 mg IM or SQ;

Beta Blocker OD: 2 mg IVP/IO

Peds: 0.025 mg/kg IM or IV

Indications: Hypoglycemia when IV access is unobtainable.

Consider initiation of treatment in symptomatic beta blocker

overdose refractory to Atropine

Notes: Not compatible with NS.

**GLUCOSE (Oral Glucose Gel)**

Dose: 15 gms Oral Glucose gel PO/SL

Peds: same

Indications: Hypoglycemia, Insulin Reactions

Notes: Avoid if patient is unconscious and not able to protect airway. Be prepared to use suction.

**HEPARIN**

Dose: Loading dose of 35-50 units/kg bolus (2-5,000 units) followed by a drip of 10-15 units/kg/hr.

Indications: Acute coronary syndromes including STEMI, Pulmonary embolism, Deep Vein Thrombosis and other thrombotic disease states.

Notes: Heparin should be used with extreme caution whenever there is an increased risk of hemorrhage, such as GI lesions, recent surgery, blood dyscrasias, menstruation, uncontrolled hypertension, and indwelling catheters.

**IBUPROPHEN (Advil, Motrin)**

Dose: 200-800 mg PO

Peds (age >6 months): 10 mg/kg PO (max 800 mg)

Indications: Pediatric high fever, anti inflammatory, Pain relief

Notes: NSAIDs cause an increased risk of serious GI adverse events including bleeding, ulceration, and perforation of the stomach or intestines. Avoid in perioperative CABG patients.

**IPRATROPIUM (Atrovent)**

Dose: 0.5 mg (2.5ml) SVN (in Nebulizer) at 6 LPM flow

Peds: 0.25-0.5 mg SVN at 6 LPM flow

Indications: used as an adjunct with Albuterol for

Bronchospasms, COPD, Asthma

Notes: May cause cough, nervousness and dry mouth. Contraindicated if peanut or soy allergies are known.

**KETAMINE**

Dose: 0.1-0.3 mg/kg IV/IM/IO for analgesia, 1-2 mg/kg IV/IM/IO for RSI Induction, 0.5-4 mg/kg/hr infusion

Indications: Non-opiate analgesia, RSI Induction

Notes: Preferred over opiates in the settings of shock, hypotension and chronic pain syndromes.

**LIDOCAINE**

Dose: V-Fib/Pulseless V.T.: 1.5 mg/kg slow IV/IO. May repeat twice at 0.75 mg/kg IV (max total 3 mg/kg).

If no IV/IO access: 2.0- 2.5 mg/kg down ETT.

For Hemodynamically Unstable VT: 1 mg/kg,

may repeat at 0.5 mg/kg q 10 min, up to 3 mg/kg.

Head injury/RSI with reactive airway disease: consider 1.5

mg/kg IVP/IO; 20-100mg for IO insertion.

Pain Relief for conscious patient during IO Infusion: 20-40

mg into EZ-IO port prior to initial bolus or fluid

Peds: V-Fib/Pulseless V-Tach: 1.0mg/kg IVP/IO.

****If no IV/IO access, 2.0-2.5 mg/kg down ETT.

Head injury/RSI: 1.0 mg/kg IVP/IO.

Pain Relief for conscious patient during IO Infusion: 0.5

mg/kg into EZ-IO port prior to initial bolus or fluid

Indications: V-Fib/Pulseless V-Tach, pathologic ventricular

ectopy; anesthetic adjunct for IO infusion; adjunct for

intubation with associated head trauma.

Notes: For successful resuscitation, consider infusion of 2-4 mg/min titrated to control of ventricular ectopy.

Peds infusion is: 20-50 mcg/kg/min IV.

**MAGNESIUM SULFATE**

Dose: 4 grams of 50% solution in with 20 cc NS given IV, or

4grams of 50% solution IM for ecclamptic seizure, and

1-2 grams of 50% solution in 20 cc NS IV for Torsades.

Peds: 20-40 mg/kg of 50% solution in 10 cc NS IV

Indications: Control of seizures in severe toxemia/ preeclampsia/ecclampsia of pregnancy. Also may be effective for Torsades de Pointes, polymorphic VT.

Notes: Avoid use for 2 hours preceding delivery. This drug should be used with caution in patients with renal impairment. Clinical indications of a safe dosage regimen include the presence of the patellar reflex and absence of respiratory depression.

**METHYLPREDNISOLONE (Solumedrol)**

Dose: Asthma and Anaphylaxis: 125 – 250 mg IV.

Spinal cord injury: 30 mg/kg IV over 15 min, then 5.4 mg/kg/hr infusion

Peds: 2 mg/kg IV

Indications: Severe asthma, allergy, anaphylaxis, and spinal cord injury.

Notes: Use with caution in patients with history of GI bleeding, diabetes mellitus, CHF, hypertension, seizures.

**METOPROLOL TARTRATE**

Dose: 5 mg IV Q 5 minutes x 3 doses

Indications: Acute MI or suspected MI with tachycardia.

Notes: Hold for heart rate <70, BP < 110 mmHg. Avoid in presence of bronchospasm/ wheezing, heart block, bradycardia and hypotension.

**MIDAZOLAM Hcl (Versed)**

Dose: .05-0.1 mg/kg (1-10 mg) slow IV/IO, IM or Nasal Atomizer, titrated to effect. (max dose 2.5 mg unless intubated)

Peds: 0.05-0.30 mg/kg IVP/IO or IM or nasally titrate to

effect or 2 mg IM (contact medical control if more than 2 mg

IM is required).

Indications: Seizures, sedation, facilitation of advanced

airway management (i.e. endotracheal intubation,

cricothyrotomy, post-intubation sedation), alcohol

withdrawl & excited delerium.

Notes: Monitor BP and respirations closely.

**MORPHINE SULFATE**

Dose: 2-20 mgs slow IVP/IO or IM titrated to pain or effect.

Peds: 0.1 mg/kg slow IVP/IO or IM; titrate to effect (2 mg max/dose, may repeat in 10-15 minutes).

Indications: Analgesia

Notes: Monitor respirations and BP closely. Observe for

bronchospasm secondary to histamine release.

Contraindicated in hypotension or CNS injury.

**NALOXONE (Narcan)**

Dose: 0.4-2.0 mg IVP/IO, SQ, IM, Nasal Atomizer or ETT

Peds: 0.1 mg/kg IVP/IO, SQ, IM or Nasal Atomizer

maximum of 2mg.

Indications: Partial/complete withdrawal of narcotic opiates,

ALOC with unknown etiology.

Notes: Follow up dosage of Naloxone may be needed since

narcotic may exceed Naloxone effects.

**NITROGLYCERIN (Sublingual)**

Dose: 0.4 mg, 1 tab/spray Q5 minutes

Indications: Angina pectoris, pulmonary edema, hypertension

Notes: Potentiates orthostatic hypotension. Observe for headache, syncope, and have patient sit or lie down.

**NITROGLYCERIN PASTE**

Dose: ½” to 2” transdermal (on skin under applicator)

Indications: Angina, pulmonary edema, hypertension.

Notes: Potentiates orthostatic hypotension

**NITROGLYCERIN INFUSION (Nitro drip)**

Dose: 5-10 mcg/min, titrate up as needed to 40 mcg/min max, for pain and to keep BP >110, <140 mmHg.

Indications: Acute coronary syndromes or MI

Notes: Avoid hypotension, and beware of nausea, vomiting and headache which may require a reduction in dose.

**NITROUS OXIDE**

Dose: 50:50 mix of nitrous and Oxygen inhaled.

Indications: Prehospital analgesia for chest pain, myocardial infarction, kidney stones, urinary retention, burns, fractures, dislocations and labor pain.

Notes: Contraindicated in the presence of altered metal status, intoxication, facial burns, facial trauma, chest trauma including pneumothorax, undiagnosed abdominal pain, respiratory distress, congestive heart failure, pulmonary hypertension, eye surgery, decompressionsickness, B12 deficiency, head trauma and early pregnancy.



**ONDANSETRON (Zofran)**

Dose: 4 mg IV push/IM, IO, Buccal over at least 30 seconds. It may also be given orally 4-8 mg PO q 8 hrs.

Peds: < 12 months (40 kg): 0.1 mg/kg IVP/IM/IO (Max 4 mg).

> 40kg: 4mg IVP/IM/IO

Indications: Nausea and Vomiting

Notes: Appears safe to administer to pregnant patients.

**OXYGEN**

See Oxygen Delivery (A11) and Oxygen Administration-9000

**POTASSIUM CHLORIDE (KCL)**

Dose: 10-40 meq orally or 10 meq/hr IV

Indication: Replacement for known Hypokalemia.

Notes: Administration will primarily be during Critical Care Transports in patients with known Hypokalemia.

**PRALIDOXIME AUTOINJECTOR (Duodote)**

Dose: 600 mg/2 ml IV

Indication: Used in Duodote Organophosporous Nerve Agent antidote kits to restore impaired cholinergic neural function.

Notes: Kit also contains 2 mg Atropine.

**PROMETHAZINE (Phenergan)**

Dose: 6.25 – 25.0 mg IM/IV (use lower dose range for initial treatment in patients > 75 years old)

Indications: To provide relief from nausea and vomiting.

Notes: Avoid in comatose patients or patients who have received a large amount of depressants or with a history of hypersensitivity to the drug. Care must be taken to avoid accidental intra-arterial or subcutaneous injection, or administration in patients suffering from nerve agent or organophosphorus pesticide exposure.

**ROCURONIUM (ZEMURON)**

Dose: Titrate 0.2 - 1.0 mg/kg IVP/IO to facilitate or for maintenance of paralysis for RSI.

Indications: To facilitate longer neuromuscular block lasting

30-60 minutes ONLY AFTER adequate sedation has been

provided.

Notes: Contraindicated for anticipated short pre-hospital time.

**SODIUM BICARBONATE**

Dose: 1 mEq/kg IVP/IO (usually 50 meq dose)

Peds: 1 mEq/kg IVP/IO

Indications: Tricyclic overdose, Hyperkalemia, and consider in cardiac arrest with suspected metabolic acidosis.

Note: Precipitates calcium, so do not infuse with Calcium Chloride.



**SUCCINYLCHOLINE CHLORIDE**

**(ANECTINE)**

Dose: 1.5 mg/kg IVP/IO; 2-4 mg/kg IM (as last resort) in

large muscle mass.

Peds: 2.0 mg/kg IV/IO.

Indications: To facilitate rapid sequence intubation.

Notes: Monitor EKG, provide airway support as needed.

May cause histamine release, some patients may experience

prolonged paralysis. Contraindications include MS, 24 hr post

extensive burns, rhabdomyolysis, spinal cord injury, or history

of malignant hyperthermia. In patients under 10 years old

consider pre-medicating with Atropine 0.02 mg/kg IVP.

**TICAGRELOR (BRILINTA)**

Dose: 180 mg oral load, 90 mg BID daily dose

Indication: Used for loading antiplatelet medication for STEMI.

Contraindications: Bleeding diathesis, recent TIA, stroke, severe hypertension, current anticoagulant therapy and known sensitivity to Ticagrelor.

Notes: No change in loading dose by age criteria

**VASOPRESSIN**

Dose: 40 Units IV/IO to replace first or second dose of Epinephrine for Cardiac Arrest Resuscitation.

Indications: Adjunct to Epinephrine for Resuscitation

Notes: Vasopressin may be used to replace either the first or second dose of Epinephrine, but not both.