

**INTERFACILITY
CRITICAL CARE TRANSPORT (CCT) PROTOCOLS
FOR
ADVANCED MEDICAL TRANSPORT OF CENTRAL ILLINOIS**

Amiodarone

For Interfacility Use Only

Usage:

Class III antiarrhythmic drug. Indicated for treatment and prophylaxis of frequently recurring ventricular fibrillation and hemodynamically unstable ventricular tachycardia. It prolongs the duration of action potential and effective refractory period. Noncompetitive alpha and Beta adrenergic inhibition. It increases PR and QT intervals and decreases sinus rate.

Adverse Reactions:

CV: Hypotension most common, torsades de pointes, sinus arrest, bradycardia, CHF
Pulmonary: Pulmonary toxicity, progressive dyspnea, fatigue, cough, pleuritic pain, fever.

Contraindications:

Known hypersensitivity. Cardiogenic shock, marked sinus bradycardia and 2nd or 3rd degree heart block, severe liver disease.

Equipment Use:

Amiodarone must be infused via MTP pump.

Standing Orders:

1. Amiodarone infusion must be initiated at the transferring hospital.
2. Verify concentration and infusion rate prior to leaving transferring hospital.
3. Assess K+, Mg, liver function, if available.
4. Review medication administration record. If taking a beta blocker or calcium channel blocker, notify Med Comm. (Amiodarone may be used with caution with these medications.)
5. Assess I&O
6. Monitor B/P, heart rate. Notify Med Comm if heart rate less than 60 or B/P less than 90.
7. Rate of infusion should not be changed unless ordered.
8. Amiodarone is incompatible with other drugs. Infuse through a central line if available.

Dosages:

1. Loading dose (to be given at the transferring hospital)
2. After loading dose 360 mg over the next 6 hours, 1 mg per minute.
3. Maintenance infusion: 540 mg over 18 hours (.05 mg/min.)

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EMT-P, who have successfully completed critical care training and critical time, will be monitoring the medication administration.

Ativan (Lorazepam)
For Interfacility Transfer Only

Usage:

Sedative, control of seizures, relief of anxiety

Complications/Adverse Reactions:

Irritation at injection site, hypersensitivity, CNS depression; drowsiness

Equipment:

May be given IV push at per protocol.

Standing Orders:

1. Routine medical/cardiac care
2. Verify orders from transferring hospital
3. Ativan 1-2mg IV push over 2 minutes or as prescribed
4. Watch for respiratory depression. If present, notify base station physician.

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EMT-P, who have successfully completed critical care training and critical time, will be monitoring the medication administration.

Blood Administration

For Interfacility Transfer Only

Usage:

To replace blood loss while maintaining adequate circulating volume and oxygen transport.

Complications:

Transfusion reactions. Severe reactions are usually manifested during the initial 50cc or less of infusion.

Adverse Reactions:

Too rapid an infusion producing a volume overloaded state.

Incompatible ABO blood administration.

Equipment Use:

Infusion pumps may be helpful but not required unless delivery is through a central venous catheter or pediatrics.

Standing Orders:

1. Initial blood administrations will be instituted at the transferring hospital.
2. Verify the physician order for blood product, blood type, rate of infusion and use of microaggregate or leukocyte removal filter.
3. Assess patient for religious or cultural objections to transfusion, history of previous reaction to a blood product and for pre-transfusion symptoms that could be mistaken for a transfusion reaction.
4. Assess baseline TPR and BP prior to starting transfusion and at least every 15 minutes x 2 after the transfusion is initiated; then hourly while blood is infusing and again when transfusion is completed (except albumin and plasma protein fraction). Vital signs must be documented.
5. Assess TPR and BP every 15 minutes x 4 during intravenous gamma globulin administration.
6. Replace blood tubing after every 2 units or after 4 hours of use. Discard tubings immediately following completion of transfusion.

8. Assess for potential signs of transfusion reaction:

General

- Fever (rise > 1 F degree or 2 C degrees)
- Heat or pain at infusion site
- Chills, diaphoresis
- Muscle aches, pain
- Back pain, chest pain, headache
- Rashes, hives, itching
- Cool/clammy or hot/flushed skin

Neurologic

- Apprehension, sense of doom
- Tingling, numbness

Respiratory

- Cough, dyspnea
- Rales, wheezing
- Changes in respirations

Gastrointestinal

- Nausea, vomiting
- Cramping, diarrhea

Renal

- Decrease in urine output
- Changes in urine color

(brown or red)

Cardiovascular

- Changes in heart rate (bradycardia or tachycardia)
- Changes in blood pressure (hypotension or hypertension)
- Edema
- Onset of bleeding

Monitor peripheral site and infusion system at least every hour during blood product administration.

For any suspected reaction:

- Stop transfusion, do not clear tubing
- Recheck labels
- Notify base station physician
- Remove bag and tubings; start isotonic saline
- Monitor and treat symptoms
- Collect a urine specimen for receiving hospital
- Save blood bag - deliver to receiving hospital along with urine specimen for further testings

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Cardizem (diltiazem)

For Interfacility Use Only

Usage:

Atrial fibrillation with rapid ventricular response, atrial flutter, Paroxysmal Supraventricular Tachycardia (PSVT)

Complications\Adverse Reactions:

CNS dizziness, parasthesias, headache, weakness, visual disturbance.

CV: hypotension, facial flushing, junctional or AV dissociation, chest pain, congestive heart failure, ventricular or atrial arrhythmias, edema

Demertologic: injection site reaction (itching, burning), sweating

GI: constipation, nausea, vomiting, dry mouth

Equipment Maintenance:

All Cardizem drips must be administered via an infusion pump and will be initiated at transferring hospital.

Standing Orders for Administration by Transferring Facility:

Verify concentration, dosage and VS parameters on physician's order sheet from transferring hospital. (Usual dose is 125 mg/ 100 cc NS or D5W or D5.45 NS; this yields 1 mg/min delivered dose)

Monitor vital signs: B/P, heart rate every 15 minutes continuous EKG monitoring.

Notify Medical Control of the vital signs (heart rate < 110 / > 150, or Systolic BP <90) deviate from the predetermined parameters set forth by the transferring hospital.

Notify Medical Control of any AV block.

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Demerol

For Interfacility Transfer Only

Usage:

Analgesia and sedation may be given as a bolus or via PCA pump.

Complications/Adverse Reactions:

Respiratory depression, cardiac arrest, most frequently light headedness, dizziness, sedation, nausea, sweating, tachycardia, hypotension.

Equipment Use:

May be given IV push per protocol.

Standing Orders:

1. Verify drug, dose, route of administration.
2. Demerol PCA must be run through a PCA pump. Refer to compatibility chart before pushing Demerol through an infusing IV. If no IV infusing begin D5W or LR KVO.
3. Push IV dose over 1-2 minutes.
4. Monitor VS; if respiratory depression or hypotension occur contact base station physician to administer Narcan.
5. Monitor pain scale before and after treatment.

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Dobutamine

For Interfacility Transfer Only

Usage:

When parenteral therapy is necessary for inotropic support in the short-term treatment of adults with cardiac decompensation due to depressed contractility. In patients with atrial fib and rapid ventricular response, a digitalis preparation should be used prior to Dobutamine.

Complications:

Increase HR, BP, may develop rapid ventricular response in atrial fib.

Ectopics - may precipitate or exacerbate. Rarely causes VT.

Hypersensitivity - rash, fever, eosinophilia, bronchospasm.

Sodium bisulfite may cause allergic reaction, anaphylaxis, asthmatic.

Adverse Reactions:

In patients who have shown previous manifestations of hypersensitivity to Dobutamine. May be ineffective if received beta blockers; may have increased peripheral vascular resistance.

Equipment Use:

IV should be infused via infusion pump.

Standing Orders:

1. IV Dobutamine must be initiated at the transferring hospital.
2. Verify infusion rate, infusion dosage, patients weight prior to transfer.
3. Monitor BP and heart rate continuously. If heart rate increases more than 15% of baseline or hypotension occurs, notify base station physician.
4. Refer to compatibility chart before infusing any medication through the Dobutamine line. No IV push drugs can be given through a Dobutamine infusion.
5. If any redness, swelling, tenderness, warmth appears at IV site, discontinue IV after reestablishing a new IV site.

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H2 Blockers
Zantac, (ranitidine), Pepcid, (famotidine), Tagamet (cimetidine)
For Interfacility Use Only

Usage:

Intractable duodenal ulcers, GI bleeding, prevention of ulcers in patients in a high stress state such as a critical illness, gastric ulcers, Zollinger-Ellison.

Complications:

Bradycardia with rapid administration.

Adverse Reactions:

Malaise, vertigo, reversible confusion, tachycardia, bradycardia, constipation, nausea, vomiting, rash, muscle cramping.

Equipment Maintenance:

H2 Blockers need to be run through an infusion pump.

Standing Orders for Administration by Transferring Facility:

1. Bolus infusions: initial dose must have been administered at transferring hospital.
2. Continuous infusions will be started at the transferring hospital.
3. Verify dosage, concentration prior to leaving transferring hospital.
4. Usual dosages:

Zantac bolus: 50 mg to be run over 30 minutes every 6-8 hours.

Zantac Continual Infusion: 150 mg Zantac in 250 cc NS usual rate, 10 cc/hr.

Pepcid bolus: 20 mg every 12 hours

Tagamet: 300 mg bolus every 6 - 8 hours.

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Heparin Sodium

For Interfacility Transfer Only

Action:

Inhibit reaction that lead to the clotting of blood and the formation of fibrin clots. It acts at multiple sites in the normal coagulation system.

Usage:

Concurrent usage with administration of TPA in the acute MI patient.
Treatment of pulmonary embolism, atrial fibrillation with embolization.
Treatment of peripheral arterial embolism.
Treatment of venous thrombi and its extension.

Contraindications:

Severe thrombocytopenia. Uncontrolled active bleeding (except when known to be from disseminated intravascular coagulation).

Complications/Adverse Reactions:

Hemorrhage, local site irritation, hypersensitivity, anaphylactic like reaction, adrenal hemorrhage

Equipment:

IV solution must be infused via an infusion pump.

Standing Orders:

1. Routine cardiac care.
2. Verify initial dose concentration, and infusing rate as well as total time at transferring facility prior to departure.
3. Assess labs prior to transfer if available: H&H, platelets, PTT.
4. Heparin infusion must be initiated at the transferring hospital.
5. Rates of infusion should not be changed unless ordered.
6. Usual concentrations of heparin:
25,000 units/500cc yields 50 units/cc
25,000 units/250cc yields 100 units/cc

Note: Any change in rate or dosage of anticoagulant during interfacility transfer can be done only with direct base station physician orders.

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Hyperalimentation (TPN, PPN)

For Interfacility Transfer Only

Usage:

Hyperalimentation provides nutrition for patients unable to inject or tolerate oral or enteral feedings.

Complications:

Infection

Adverse Reactions:

Hyperglycemia, hyperosmolar syndrome, electrolyte disturbance and post infusion syndrome.

Equipment Maintenance and Use:

Hyperalimentation must be administered via an infusion pump.

Standing Orders:

1. Verify solution formula and rate with physician's orders prior to transport.
2. Hyperalimentation is to be considered incompatible with all other medications and IV solutions. Nothing is to be added to the hyperalimentation bag or IV tubing.
3. Monitor for signs and symptoms of hyper/hypoglycemia. Obtain Accucheck as needed.
4. **Assess for signs and symptoms of hyper/hypoglycemia.** Radio to base station physician if symptoms appear.
5. If a port of a central line is leaking or cracked, clamped off portstart peripheral IV and contact base command for IV fluid orders.

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Integrilin

For Interfacility Use Only

Usage:

Antiplatelet Agent. Used with acute coronary syndrome including percutaneous coronary intervention. Prevents fibrinogen, von Willebrand's factor from binding to the glycoprotein Iib/IIIa receptor, inhibiting platelet aggregation.

Adverse Reactions:

CV stroke, hypotension, systemic bleeding.

Equipment Maintenance:

Integrilin must be infused via MTP pump.

Standing Orders for Administration by Transferring Facility:

1. Integrilin Infusion must be initiated at the transferring hospital.
2. Verify concentration and infusion rate prior to leaving transferring hospital.
3. Assess Hb, HCT, Platelets, PTT, serum creatinine, if available.
4. Monitor for signs and symptoms of bleeding.
5. Rates of infusion should not be changed unless ordered.
6. Usual dosages:

Usual Dosage for Serum Creatinine <2		Renal Impairment Dosage Serum Creatinine 2 – 4	
<i>Patient kg</i>	<i>Infusion ml/hr</i>	<i>Patient kg</i>	<i>Infusion ml/hr</i>
37-41	6	40-55	2
42-46	7	56-68	2.5
47-53	8	59-80	3
54-59	9	81-93	3.5
60-65	10	94-105	4
66-71	11	106-118	4.5
72-78	12	119-131	5
79-84	13	132-143	5.5
85-90	14		
91-96	15		
97-103	16		
104-109	17		
110-115	18		
116-121	19		
> 121	20		

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IV Antibiotics

For Interfacility Use Only

Usage:

To treat pre-existing infections or as a prophylactic measure in patients that are at high risk of developing an infection.

Complications:

Allergic reactions: rash, swelling, nausea, vomiting, diarrhea, chills, fever, laryngeal edema, anaphylaxis. Leukopenia. Ototoxicity, nephrotoxicity (aminoglycosides).

Adverse Reactions:

Too rapid administration?

Equipment Maintenance:

IV antibiotics should be run through an infusion pump whenever possible. Antibiotics must be infused through a pump if run through a central venous catheter.

Standing Orders:

1. Initial doses of the IV antibiotics must be administered at the transferring hospital prior to transfer.
2. Known allergies must be assessed prior to administering the antibiotics.
3. Verify drug, dose, route and time of the administration from the transfer order sheet.
4. Infuse IV antibiotics over 30-60 minutes. Aminoglycosides over 60 minutes unless otherwise specified on the physician's order or hospital pharmacy directions.
5. Monitor for signs and symptoms of an allergic response. If any symptoms are noted, stop infusion and contact base station physician.
6. If IV antibiotics have finished infusing enroute, keep line open with NS KVO or LR KVO.
7. Review drug compatibility chart.

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IV KCL

For Interfacility Transfer Only

Usage:

To replace serum potassium that may be depleted from a disease state or from fluid resuscitation. Maintains neuromuscular excitability of cardiac, smooth and skeletal muscles.

Complications:

Local irritation, burning along the vein of infusion. Nausea, vomiting, abdominal pain. Weakness in legs.

In high concentrations: flushing, agitation, hypotension and diaphoresis. Peripheral vascular collapse. EKG changes associated with potassium intoxication:

1. Tall tented T waves
2. Depressed S-T segments
3. Prolonged P-R interval, loss of P-wave
4. Heart block, v-fib, cardiac arrest

Adverse Reactions:

Too rapid of IV infusion of an IV solution containing potassium.

Equipment Use:

IV solutions should be infused via an MTP infusion pump.

Standing Orders:

1. IV potassium infusion must be initiated at the transferring hospital and may be run through either central or peripheral line.
2. KCL concentrations may not exceed 40meq KCL in 1 liter of IV solution. No KCL will be initiated in the field.
3. Refer to compatibility chart before administering any IV medications through an IV containing potassium.
4. Monitor for any signs and symptoms of potassium intoxication. Stop infusion and notify base station physician of symptoms.
5. Monitor urinary output. Notify base station physician if urinary output is less than 30cc/hour for 2 consecutive hours.

6. Assess IV insertion site for any redness swelling or tenderness. If above occurs; stop infusion, dc IV. Restart infusion after a new IV site has been established. Notify receiving hospital of the area of the previous IV site.

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Lasix (Furosemide) Infusions

For Interfacility Transfer Only

Usage:

Congestive heart failure and Acute renal failure that is unresponsive to bolus treatments.

Complications:

Digitalis toxicity, hypokalemia, ventricular ectopy, ototoxicity, electrolyte imbalance, esp potassium and magnesium.

Adverse Reactions:

Hypotension, vertigo, tinnitus, hearing loss, rash, weakness, muscle spasm, photosensitivity, ventricular ectopy.

Equipment Maintenance:

Lasix infusions must be run through an infusion pump.

Standing orders:

1. Infusion must be started at the transferring hospital.
2. Verify concentration, infusion rate and VS parameters prior to leaving transferring hospital.
3. Assess serum potassium levels prior to transfer if available. *
4. Monitor and document VS at least every 15 minutes while in transit.
5. Notify Base Command if B/P drops below 15% of initial baseline.
6. Monitor EKG. Notify Base Station of any new onset or increase of ventricular ectopy or tachycardia or signs and symptoms of adverse reaction (see above).
7. Common dosage: 250 mg of Lasix in 250 cc of NS yielding 1 mg/cc.
Maintenance dose: .1-.4 mg/kg/hr not to exceed 4 mg/min.
8. Do not give IV bolus medications through the Lasix infusion.

* **Normal values are: If serum K + \leq 3.5-5.0**

Lidocaine

For Interfacility Transfer Only

Usage:

Possible MI with ventricular ectopy

Complications/Adverse Reactions:

Confusion or agitation, tinnitus, dizziness, tremors, or seizures.

Equipment Use:

IV infusion should be infused via an infusion pump.

Standing Orders:

1. Routine cardiac care
2. Suppress ectopy if: 1) frequent multifocal PVC's, 2) PVC's > 6/minute, 3) PVC's near T-wave. Lidocaine 1 mg/kg. IV push over 2 minutes. Repeat 0.5 mg/kg dose in 8 minutes (if successful).
3. If successful with 1 mg/kg bolus, initiate Lidocaine drip at 2 mg/min. If successful with 2 mg/kg bolus, Lidocaine drip at 3 mg/min. If successful with 3 mg/kg bolus, Lidocaine drip at 4 mg/min. Follow all IV bolus medication with 20-30 cc NS flush.
4. If poor response in 2-5 minutes:
 - a. Lidocaine 0.5 mg/kg until suppressed.
 - b. Total Lidocaine dose not to exceed 225 mg (3 mg/kg).

NOTE: Discontinue Lidocaine if,

1. Confusion or agitation
 2. Tinnitus
 3. Dizziness
 4. Tremors
 5. Seizures
5. If unsuccessful with Lidocaine, initiate Procainamide 100 mg IV push over 5 minutes.

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EMT-P, who have successfully completed critical care training and critical time, will be monitoring the medication administration.

All interfacility patient transfer charts will be automatically and individually reviewed within 48 hours by Medical Director for complications. Reports will be submitted every other month.

Magnesium Sulfate

For Interfacility Transfer Only

Usage:

Control seizures in toxemia of pregnancy, epilepsy, acute nephritis, hypomagnesemia and hypothyroidism.

Acute magnesium deficiency

Cardiac dysrhythmias

Complications/Adverse Reactions:

CNS: Sweating, weak or absent reflexes, drowsiness muscle weakness

CV: Hypotension, flushing, circulatory collapse, heart block, depressed cardiac function

Other: Respiratory paralysis, hypocalcemia

Equipment:

Magnesium Sulfate must be infused via an infusion pump.

Standing Orders:

1. For monitoring of second and third degree heart block patients receiving MgSO₄ during interfacility transfer. Not to be initiated in the field.
2. Monitor vital signs every 15 minutes while drug is infusing. Monitor for weakness in extremities (by movement). Watch for signs of respiratory depression and second and third degree heart block. Monitor I & O. Urinary output should be 100ml or more in 4 hour period before each dose given or during IV infusion. This will be measured every 4 hours and documented on flow sheet. Report any changes to base station physician and document. Paramedics will monitor urinary output during interfacility transfer.
3. Early indicators of toxicity include: profound thirst, feeling of warmth, sedation, confusion, muscle weakness.
4. Maximum infusion rate is 150mg/minute. Dose/concentration will be determined by transferring hospital. Recommended 2 grams in 100 cc on MTP pump. The drip will infuse over at least 90 minutes. Rapid drip will induce uncomfortable feeling of heat. Constant infusion (MTP) pump. Note: Hypomagnesemia is usually accompanied by other electrolyte deficiencies, especially calcium and potassium.
5. IV Bolus cannot be given in field unless direct order given by base station physician in life threatening situation. IV bolus in seizing pregnant patient, 1 - 2 grams over 2 minutes may be given on direct order from base station physician. Action is immediate following injection; duration approximately 30 minutes.

Magnesium Sulfate

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EMT-P, who have successfully completed critical care training and critical time, will be monitoring the medication administration.

Mannitol
For Interfacility Use Only

Usage:

Treatment of oliguria, edema, increased intracranial pressure and intraocular pressure.

Complications\Adverse Reactions:

Tachycardia, blurred vision, fluid and electrolyte imbalance hypotension.

Equipment Maintenance:

IV push per protocol, not IV drip.

Standing Orders for Administration by Transferring Facility:

1. Routine medical care.
2. Verify orders for administration of Mannitol. It will be administered on a scheduled dose time as begun at referring hospital.
3. Push 50ml 25% Mannitol slow over 5 minutes.
4. Document vitals every 5 minutes.
5. Flush with sterile water before and after administration.

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EMT-P, who have successfully completed critical care training and critical time, will be monitoring the medication administration.

Morphine Sulfate

For Interfacility Use Only

Usage:

Relief of severe pain.

Complications\Adverse Reactions:

Sedation, somnolence, euphoria, hypotension, brady cardia, respiratory depression

Equipment Maintenance:

May be given IV push per protocol. Morphine Sulfate drips must be administered through an infusion pump. MS PCA through a PCA pump.

Standing Orders:

1. Morphine Sulfate drip will be initiated at transferring hospital.
2. Monitor vital signs every 5 minutes: if respiratory depression, somnolence or hypotension occur, contact base station physician.
3. Refer to compatibility chart before infusing any drug through the morphine drip.
4. Consult with base station physician for dose adjustment if morphine drip is not effective in managing pain.
5. Monitor pain scale before and after treatment.

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Multi-Vitamin IV Additive (MVI)

For Interfacility Transfer Only

Usage:

To replace vitamin deficiency in those patients suffering from a chronic disease state. This route is utilized when oral administration is not possible.

Complications:

Allergic Reactions: (thiamine and folic acid) irritation at IV site.

Adverse Reactions: Fainting and dizziness with undiluted drug administration. Hepatotoxicity (Vit A toxicity). Tissue calcification (Vit D toxicity).

Standing Orders:

1. Infusion containing multi-vitamin is to be initiated at the transferring hospital. Rate of infusion will be documented before transfer.
2. Refer to compatibility chart before administering any IV medication through the IV infusion containing the multi-vitamin additive.
3. The multi-vitamin dose must be diluted in a solution of 500-1000cc of either LR, NS or D5½.
4. May be administered in same IV as KCL.
5. Assess IV insertion site for any redness, swelling or tenderness.

If above occurs; STOP infusion and discontinue IV. Restart infusion a new IV site has been established. Notify receiving hospital of the area of the previous IV site.

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Nitroglycerin Infusion

For Interfacility Transfer Only

Usage:

1. The principal pharmacological action of nitroglycerin is relaxation of vascular smooth muscle and consequent dilatation of peripheral arteries and veins, (especially the latter). Dilation of the veins promotes peripheral pooling of blood and increases venous return to the heart, thereby reducing left ventricular end-diastolic pressure and pulmonary capillary wedge pressure (preload). Arteriolar relaxation reduces systemic vascular resistance, systolic arterial pressure, and mean arterial pressure (afterload). Dilatation of the coronary arteries also occurs.
2. Unstable angina, hemodynamically stable
3. Congested heart failure in settings of acute myocardial infarction that are hemodynamically stable
4. Systemic hypertension

Adverse Reactions:

Headaches, dizziness, weakness, nausea, vomiting, hypotension, tachycardia and palpitations.

Equipment Use:

All nitroglycerin infusion must be administered via an MTP infusion pump.

Standing Orders:

1. Verify concentration and dosage and VS parameters on physicians order sheet from the transferring hospital.
2. Nitroglycerin infusions must be in a glass bottle and polyethylene tubing.
3. Monitor vital signs: B/P, heart rate at least every 15 minutes when transporting a patient with a nitro drip.
4. Notify medical control if the vital signs deviate from the predetermined parameters set forth by transferring MD.
5. Notify medical control if chest pain reoccurs while transporting to facility (usually if systolic <90).
6. Titrate Nitro drip by 10mcg (3cc) if concentration is 50mg/250cc every 3-5 minutes to achieve relief of chest discomfort or until blood pressure systolic \geq 90.
7. Monitor B/P, heart rate pain control 3-5 minutes after an increase in dose.
8. Infusion rates should not be greater than 100mcgs/minute unless ordered by base station physician.

9. Nitroglycerin infusion must have its separate IV site. No IV push drugs can be administered through this line.

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Patient Controlled Analgesia (PCA) Pumps

For Interfacility Transfer Only

Usage:

Patient Control Analgesia (PCA) has been shown to provide highly effective pain management by allowing patients to titrate analgesia within pre-established parameters.

Complications:

Sedation, somnolence, clouded sensorium, euphoria convulsions with large doses, hypotension, bradycardia, respiratory depression, nausea, vomiting, diarrhea, constipation, urinary retention.

Adverse Reactions:

Drugs may interfere with the evaluation of CNS by masking symptoms. May decrease the effects of diuretics in CHF. MS may worsen gallbladder pain. Physical and psychological dependence. Respiratory depression.

Equipment Maintenance and Use:

PCA pumps must be kept plugged in at all times during transport.

Standing Orders:

1. PCA pump will be initiated at transporting hospital.
2. Verify medication and PCA pump settings prior to transporting and initiation should the pump become unplugged.
 - Medication
 - Lockout period
 - Interval dose
 - Maximum dose
 - Infusion rate (continuous)
 - Loading dose
 - Dose booster
3. There will be no purging of system during interfacility transport.
4. Monitor BP, HR and respiratory rate continuously. Notify base station physician of hypotension, respiratory rate <10 for Narcan order.
5. Assess total amount of PCA medication administered; doses may be changed (decreased/increased) according to PCA standings order sheet.
6. Discontinue orders for all other narcotics unless approved for use with PCA and documented by transferring institution.
7. Lock pump security door with key after cartridge insertion or following changes in pump settings.
8. Close slide clamp on tubing prior to opening door or changing cartridge to prevent accidental bolus.

PCA Pumps

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8. Maintain PCA tubing as the primary line, connecting fluid or medication infusion into PCA tubing.
9. Validate compatibility of medications additives with PCA narcotic prior to connecting into PCA tubing.
10. Flush the PCA narcotic line with normal saline before and after administration of known incompatible or questionable medications.
11. Consult with base station physician for dose adjustment if PCA is not effective in managing pain.

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EMT-P, who have successfully completed critical care training and critical time, will be monitoring the medication administration.

* Refer to attachment

Primacor (milrinone)

For Interfacility Use Only

Usage:

Short-term management of congestive heart failure in patients who have not responded adequately to digitalis, diuretics or vasodilators.

Positive inotropic action with vasodilator activity. Reduces afterload and preload by direct relaxant effect on vascular smooth muscle. Produces slight enhancement of AV conduction.

Increases myocardial contractility, improves diastolic function.

Effects are dose-related and plasma drug concentration related.

In presence of depressed myocardial function, produces increase CO, decrease PCWP, and decrease vascular resistance without significant increase in heart rate and myocardial oxygen demand.

Complications\Adverse Reactions:

Headache, tremor, hypokalemia, increased ectopic activity, PVC;s Supraventricular arrhythmias, ventricular tachycardia, ventricular fibrillation. Hypotension: possible increase in angina symptoms.

Equipment Maintenance:

All Primacor drips must be administered via an infusion pump.

Standing Orders for Administration by Transferring Facility:

Primacor drips will be initiated at the transferring hospital.

Verify concentration, dosage rate and VS parameter on physician's order sheet prior to transfer (usual maintenance dose is .375 to .75 mcg/kg/min).

Monitor vital signs : B/P, heart rate at least every 15 minutes.

Notify medical control if the vital signs deviate from the predetermined parameters set forth by the transferring hospital.

Measure PR every 30 minutes. Notify medical control if PR begins to shorten.

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EMT-P, who have successfully completed critical care training and critical time, will be monitoring the medication administration.

Reopro

For Interfacility Use Only

Usage:

Adjunct therapy to PTCA for significantly decrease ischemic complications for patients at high-risk for closure of treated coronary vessel; used in conjunction with ASA and heparin. Inhibits platelet aggregation and platelet mediated thrombus by preventing the binding of fibrinogen to the glycoprotein II/IIIa receptor, the final common pathway for platelet aggregation.

Adverse Reactions:

CV: hemorrhagic stroke
Systematic bleeding

Equipment Use:

Reopro must be infused via MTP pump.

Standing Orders:

1. Reopro Infusion must be started at the transferring hospital.
2. Assess H&H, HCB, platelet count, PTT, APTT and ACT if available.
3. Monitor for bleeding.
4. Administer other medication through a separate line.
5. Notify Med Comm if blood pressure is below 90.
6. Dosage should not be changed unless ordered.
7. Monitor B/P, EKG every 15 minutes.

Dosages:

Post PTCA: A 12-hour infusion of 10 mcg/min post initial bolus.

Personnel Administering Drug - Advanced Medical Transport of Central Illinois

EMT-P, who have successfully completed critical care training and critical time, will be monitoring the medication administration.

Thrombolytics

For Interfacility Transfer Only

Type Utilized:

TPA
TNK
Retavase

Usage:

Acute myocardial infarction. To dissolve the clot to reduce infarct size thus reducing myocardial muscle damage.

Complications:

Bleeding. Reperfusion arrhythmias. Hypotension. Elevated temperature.

Adverse Reactions:

Anaphylactive reaction to hypotension.

Equipment Use:

Thrombolytics must be administered via MTP infusion pump.

Standing Orders:

1. Apply EKG monitor
2. Administer oxygen
 - a. 4L/min by cannula or
 - b. 10-12L/min by mask for marked dyspnea if patient tolerates mask
3. Thrombolytics must be initiated at the transferring hospital. Dosage regimen and times shall be clearly documented on all patients. (See below)

TPA

4. Protocol for infusion (front loaded dosing/mix TPA according to recommendations (100 mg in 100 cc D5W or NS yields 1 mg/cc).
 - a. Weight > 65 kg
 1. Infuse 15 mg over 1-2 minutes
 2. Then 50 mg over 30 minutes
 3. Then 35 mg over 60 minutes
 - b. Weight < 65 kg
 1. Infuse 15 mg over 1-2 minutes

Thrombolytics
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2. Then .75 mg/kg over 30 minutes
 3. Then .50 mg/kg over 60 minutes
- c. At the end of the infusion, add 20cc saline chaser to the bag to flush tubing of TPA.

TNK

TNK is administered as a single dose at the transferring hospital but its terminal half-life is 41-132 minutes after the initial infusion.

Retavase

Retavase is administered by two intravenous injections 30-minutes apart. Each of the injections should be administered by the transferring hospital. The half life of this medication is 13 – 16 minutes with normal hepatic and renal clearance.

5. Monitor for any signs/symptoms of bleeding internally or externally. Notify base station physician of any signs of bleeding. Note: A nasogastric tube is contraindicated in patients receiving TPA.
6. Monitor VS including B/P, heart rate, respiratory and neuro status, and document every 15 minutes.
7. Treat reperfusion arrhythmias per protocols and notify base station physician.
8. Notify medical command of any reoccurrence of chest pain.

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Valium (Diazepam)
For Interfacility Transfer Only

Usage:

Control of seizures, status epilepticus

Complications/Adverse Reaction:

Drowsiness, confusion, respiratory depression, brady cardia, hypotension, skin irritation

Equipment:

Can be given IV push per protocol.

Note: Refer to compatibility chart before adding Valium to any solution.

Standing Orders:

1. Routine medical/cardiac care
2. Secure and maintain airway: assist ventilation as necessary
3. Administer Valium 2 - 4mg IV push if witnessed seizure activity lasting longer than 5 minutes. Notify base station physician of action and for any additional orders.
4. Closely observe for respiratory depression.
5. Monitor vital signs and neuro status continually.

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