

## Pilot Protocol – INTRAVENOUS NITROGLYCERIN FOR SEVERE CHF (Paramedic Only)

### 1. Indications

Severe acute pulmonary edema (CHF), with SBP of 150 mmHg or greater (or MAP greater than 90 mmHg), following the application of CPAP or BiPAP

### 2. Pharmacokinetics

- a) Antianginal and vasodilation effects within 1-2 minutes after administration. Half-life is 1-4 minutes.
- b) Duration of action is less than 5 minutes.

### 3. Contraindications

- a) Known hypersensitivity
- b) Patients under 18 years of age
- c) Patient with mild or moderate symptoms that are well-controlled with sublingual *nitroglycerin*
- d) Systolic blood pressure less than 150 mmHg (or MAP less than 90 mmHg)

### 4. Adverse effects:


Headache, hypotension, nausea, vomiting, dizziness, and decreased level of consciousness

### 5. Precautions:

- a) IV bolus *nitroglycerin* should be diluted to 100 mcg /1 mL with D5W or normal saline prior to administration
- b) IV bolus *nitroglycerin* may induce severe hypotension, particularly in preload-dependent conditions
- c) IV bolus *nitroglycerin* may induce rebound hypertension
- d) Obtain 12-lead ECG prior to administering IV NTG
- e) Withhold IV nitrates with inferior STEMI with known right-sided involvement, as patients may be preload-dependent

### 6. Dosage:

#### Adult:

- a)  While IV *nitroglycerin* may be started by paramedics without medical direction, online medical consultation must be obtained for any patient treated using this protocol at the earliest possible opportunity.
- b) IV Bolus
  - (1) Use a 25mg/250ml vial (100 mcg/mL), OR a high dose vial which has been diluted to 100 mcg/mL in D5W or normal saline
  - (2) Administer 400 mcg SLOW IV every 5 minutes, titrated to achieve a 20% reduction in SBP
  - (3) Medical consultation required for further administration beyond 2 separate dosages of IV bolus *nitroglycerin*

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- c) IV Infusion pump
  - (1) Only for use in EMSOPs approved for IV infusion pump OSP
  - (2) Start at 40 mcg/min, increase rate by 5 mcg/min every 5 minutes, to achieve a 20% reduction in SBP; maximum rate of 80 mcg/min.
  - (3) If SBP decreases by more than 20%, reduce infusion rate by 5 mcg/min every 5 minutes until goal SBP is attained.

### **Pediatric:**

Contraindicated for patients less than 18 years of age

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