Virginia Beach Department of Emergency Medical Services

Supplementary Protocol

SMOKE INHALATION - Cyanokits

Protocol Statement

This protocol serves as a supplement to any applicable Tidewater EMS Council regional protocols and is designed to aid in the assessment and treatment of patients suffering from smoke inhalation emergencies.

Smoke inhalation injury is the result of various inhaled components of combustion and direct thermal injury to the airway. Signs and symptoms include evidence of exposure to fire, stridor, wheezing, acute upper airway obstruction, chemical pneumonia and non-cardiac pulmonary edema. Effects of the exposure may be immediate or delayed for several hours. Signs and Symptoms of exposure to Carbon monoxide and Cyanide can be confusion, dyspnea, chest tightness, nausea, vomiting, altered mental status, hypertension (early sign), Hypotension (late sign), bradycardia (late), mydriasis, seizures, and coma.

Applicability

All Virginia Beach Department of EMS affiliated personnel at the level of paramedic or higher, who have been trained and authorized to administer Hydroxocobalamin (Cyanokit) by the Department of EMS.

The only personnel that will be trained and authorized to administer the Cyanokit will be:

1. Dept. of EMS affiliated/released paramedics who have successfully completed Cyanokit training with the Dept. of EMS.

The Cyanokits are only authorized to be assigned to, and carried on Dept. of EMS supervisor vehicles (EMS-5, EMS-6, EMS-7) and Va. Beach Fire Department heavy rescue squads.

Indications

Hydroxocobalamin is indicated for use in the treatment for cyanide toxicity. Because serum cyanide levels cannot be tested in the field, treatment for cyanide shall be initiated based on clinical suspicion, suspected exposure, **and** any of the following:

- Hypotension not attributed to other obvious causes
- Altered mental status
- Coma
- Seizures
- Respiratory/Cardiac Arrest

Contraindications

No known absolute contraindications although pregnancy can be a relative contraindication. Providers should advise Medical Control of a smoke inhalation patient's pregnancy status and follow orders accordingly.

Procedure

Patient Treatment should be focused on assessing the situation and initiating care to assure the patient is maintaining an airway, is breathing, and has a perfusing pulse and initializing treatment for shock.

1. Render initial care in accordance with the Routine Patient Care Protocol
2. Assure scene safety and remove victim from hazardous area
3. Follow Airway/Oxygenation/Ventilation Protocol
    - Preferably 15 L/min Oxygen via Non-rebreather mask.
4. Treat respiratory and/or cardiac symptoms per appropriate protocol.
5. Proceed to Trauma Protocol and use spinal immobilization as indicated
6. Monitor ECG, Pulse-Oximetry, and End tidal CO2
    Note: Pulse-oximetry monitors may give false readings in patients exposed to CN/ methemoglobin or CO
7. Establish 2 IV lines (preferably large bore)
8. Cyanokit Administration**:**

    - Mild Exposure *(Patients with suspected prolong exposure to cyanide and present with soot around mouth, nose, or oropharynx, otherwise alert and stable)*:
        i. **Contact Medical Control** and transport to appropriate facility

    - Moderate Exposure *(Patients with suspected exposure to cyanide and present with Confusion / disorientation / altered LOC)*- **Standing Orders**
        i. Administer hydroxycobalamin (Cyanokit®) 5g IVpgb over 15 minutes.

    - Severe Exposure *(Patients with suspected exposure to cyanide and present with coma / respiratory or cardiac arrest, hypotension)*- **Standing Orders**
        i. Administer hydroxycobalamin (Cyanokit®) 5g IVpgb over 15 minutes.
        ii. If hypotensive, consider NS 1000 ml bolus

Treat other presenting symptoms as per protocol; be sure to give the receiving facility as much notice as possible that the Cyanokit has been started and is being administered.

Notes

1. Pediatric dosage for hydroxycobalamin (Cyanokit®) is 70 mg/kg up to 5 g, IVPB over 15 minutes
2. Contact medical control if use of Hydroxocobalamin (Cyanokit®) is questionable.
3. Pts showing signs and symptoms of upper airway difficulty from an inhalation (Burn) should be intubated as soon as possible.
4. Transportation: Follow the Trauma Triage Protocol and consideration should be given (**in consultation with Medical Control**) to transport suspected CO poisoning patients to a local facility with a hyperbaric chamber.
5. The trained and authorized paramedic must transport with the patient and maintain primary control of the Cyanokit administration.
6. Pharmacy exchange procedures will be provided to personnel during training.

Warnings/Complications

1. Adverse effects are uncommon. Red discoloration of the skin, mucous membranes, and urine occur in most patients.
2. Transient Hypertension may appear at the end of infusion, however no intervention required.
3. Infusion Site reaction – redness or swelling. Requires confirmation of IV placement and patency.
4. Due to possible complications and non-compatible medications, Hydroxocobalamin should be given through a dedicated IV line.

Approved by Dr. Stewart Martin (on file) on October 1, 2013