



CARDIAC ARREST with LEFT VENTRICULAR ASSIST DEVICE

**\*\*\* BASE HOSPITAL CONTACT REQUIRED \*\*\***

**ALS STANDING ORDERS:**

1. Assess patient and establish telephone contact with the patient's Left Ventricular Assist Device (LVAD) coordinator to plan management. However, all patient care is directed by the Base Hospital.
2. If patient is apneic and unresponsive or unconscious:
  - ▶ initiate CPR (including chest compressions)
3. Vital sign measurements may be misleading or not possible to measure; indications of hypotension or reduced circulatory (cardiac) function include:
  - Altered level of consciousness
  - Syncope, near-syncope, dizziness
  - Dyspnea
  - Nausea, vomiting
  - Poor skin perfusion signs, diaphoresis
4. Contact Base Hospital for further orders and CVRC destination.
5. For hypotension with lungs clear and no signs of CHF/pulmonary edema:
  - ▶ *Normal Saline, infuse 250 mL, may repeat 3 times (total 1 liter) to maintain perfusion.*
6. For altered level of consciousness or unresponsiveness, consider obtaining blood glucose:

Adult/Adolescent: treat a blood glucose of 60 or less using an option listed below. If hypoglycemia is suspected and blood glucose is in the range of 60 to 80, treatment based on field impression is appropriate.

  - ▶ *Oral glucose preparation, if airway reflexes are intact.*
  - ▶ *10% Dextrose 250 mL IV/IO (titrated for effect to improve consciousness).*
  - ▶ *Glucagon 1 mg IM if unable to establish IV.*
7. Routine resuscitation measures apply including medications and defibrillation. The Base Hospital will assist in guiding the resuscitation.
8. Transport LVAD supporting equipment and caregiver trained in LVAD operation to the CVRC with the patient.

Approved:

*Carl Schultz, MD*

Review Dates: 06/17  
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**TREATMENT GUIDELINES:**

1. Upon arrival, the patient or caregiver will likely be in telephone contact with the LVAD program coordinator. LVAD Automatic Paramedic Alarms may be set up to alert both 911 and the patient's LVAD coordinators.
2. Upon arrival of a two paramedic team, have one member of the team assess the patient and the other member initiate or continue telephone contact with the patient LVAD coordinator to plan management. Providers may only take orders from the Base Hospital, not the LVAD Coordinator
3. During initial patient assessment, the LVAD coordinator may assist in determining the cardiac output and the function of the LVAD.
4. Depending on the remaining function of the native heart, several vital sign measurements will be misleading or not possible to measure:
  - Peripheral and central pulses may be weak or absent.
  - Auscultated and palpated BP may not be possible.
  - Pulse oximetry may not record a pulse wave and may underestimate SpO<sub>2</sub>.
  - ECG may show the rate & rhythm of the native heart.
5. Some LVAD devices are equipped with an alarm and red heart shaped LED indicator that will flash or become visible with an audible alarm when CPR is indicated (pump failure).
6. Common emergencies in LVAD patients include:
  - GI bleed & epistaxis (from anticoagulation)
  - Stroke; ischemic & hemorrhagic
  - LVAD hardware & systemic infection
  - Equipment malfunction (the patient, caregiver or LVAD coordinator can help assess the equipment and any alarms)

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