Adult Cardiac Protocol Section



Total Artificial Heart

History

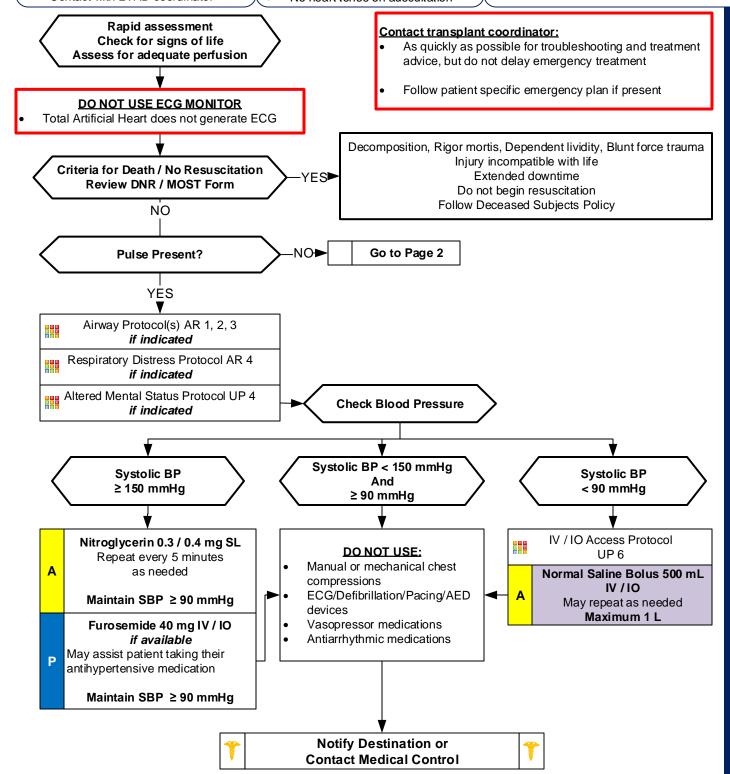
- SAMPLE
- Bridge to transplant
- Destination therapy
- Estimated downtime
- LVAD, RVAD, Bi-Vad, TAH
- DNR, MOST, or Living Will
- Contact with LVAD coordinator

Signs and Symptoms

- Unconsciousness
- Pulseless
- Apneic
- Poor capillary refill / skin color
- AMS or decreased mental status
- No electrical activity on ECG
- No heart tones on auscultation

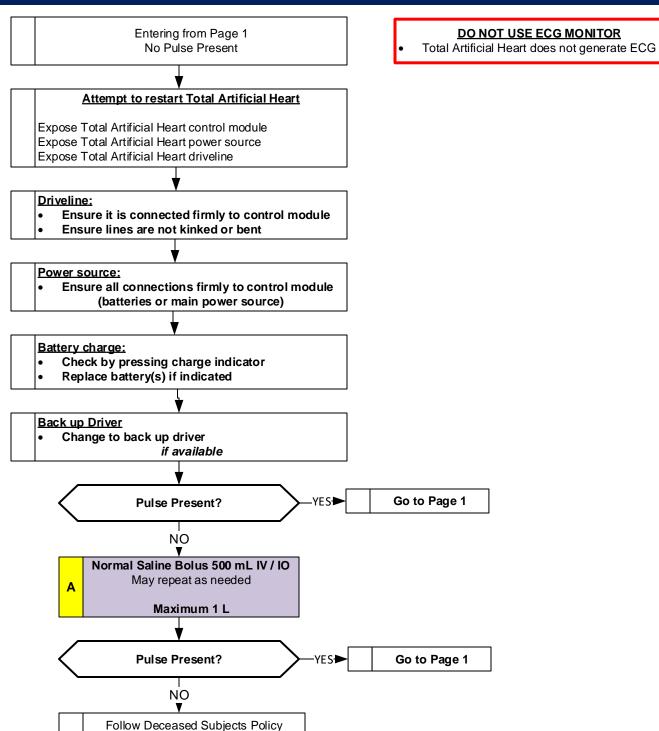
Differential

- See Reversible Causes below
- Infection/Sepsis
- Hypovolemia
- Cardiac arrest
- Hemorrhage





Total Artificial Heart





Total Artificial Heart

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- Recommended exam: Mental status, skin color, capillary refill, peripheral pulses, blood pressure.
- Assessment of blood flow and perfusion status:

Manual and automated BP devices can measure a BP.

Skin color, skin temperature, capillary refill

• ECG and telemetry monitoring:

The artificial heart does not produre an ECG wave form or tracing.

Do not use the 12-Lead ECG or ECG monitoring as it will only show asystole.

• Total Artificial Heart:

Different than Ventricular Assist Device (LVAD, RVAD, or Bi-VAD)

The patient's left and right ventricles are removed and the artificial heart is connected to the right and left atria.

The patient is totally dependent on the artificial heart for circulatory support – the native heart is removed.

There are both a right and left side pump, driven by air, and each side driven by a separate driveline.

The drivelines are not electric, they are driven by air, so kinking can disrupt the pumping action.

Artificial heart produces a pulsatile wave form so the patient will have a palpable pulse when operational.

Reasons for use

Bridge therapy – patients awaiting transplant or anticipated recovery.

Destination therapy - advanced heart failure, not candidate for transplant, and will live rest of life with device.

• Common complications:

Most common is kinking or bending of the driveline(s) which stops air from moving and stops pumping action.

Disconnection of power supply, either battery disconnect, or electrical cord to receptacle disconnection.

Driveline failure or disconnection from controller unit.

Controller failure

Blood clot formation, acute stroke, and bleeding (mucosal and gastrointestinal most common sites) Infection

Blood pressure:

Optimal SBP is < 130 mmHg and > 90 mmHg.

Hypertension puts great strain on the pump and can cause blood to back up into the lungs and cause pulmonary edema and respiratory failure.

Epinephrine and vasopressors are ineffective, can cause hypertension, and may worsen the patient's condition.

• Manual or mechanical chest compressions:

Do not use

End Tidal CO2 (EtCO2)

Helpful in monitoring adequate perfusion status.

• Defibrillation/Cardioversion:

Do not use.

Transcutaneous Pacing:

Do not use.