Post-Cardiac Arrest Care - Adults

PRESENTATION AND ASSESSMENT

Patient post cardiac arrest
and ROSC

- Ongoing evaluation for cause of cardiac arrest
- Vital signs
- Glasgow Coma Scale
- STAT CBC with differential, comprehensive metabolic panel, PTT/PT/INR, ABG
- STAT portable chest x-ray
- STAT EKG
- Further labs and imaging as clinically indicated

TREATMENT

- Consult Cardiology, as indicated, to evaluate need for immediate angiography or need for mechanical circulatory support[1,2]
- Maintain SBP ≥ 90 mmHg and MAP ≥ 65 mmHg[3]
- Maintain normocarbia (end-tidal carbon dioxide of 30-40 mHg or $PaCO_2$ of 35-45 mmHg)
- Oxygenate at 100% FiO_2 until able to measure arterial oxygen saturation; then titrate FiO_2 to maintain oxygen saturation ≥ 94%
- For glucose management, see Inpatient Hyperglycemia – Adult algorithm and/or Hypoglycemia Management algorithm
- Discuss goals of care in collaboration with Primary Team

End of life measures to be initiated?

Yes
- Initiate end of life measures
- Medical management as indicated
- Consider Supportive Care consult

No
See Page 2

FiO_2 = fraction of inspired oxygen
MAP = mean arterial pressure
$PaCO_2$ = partial pressure of carbon dioxide
ROSC = return of spontaneous circulation
SBP = systolic blood pressure

[1] Evaluation and recommendations to be documented in progress notes
[2] Neurological status should not be used to determine need for immediate angiography
[3] Optimal blood pressure should be determined based on optimal organ and brain perfusion for the individual patient

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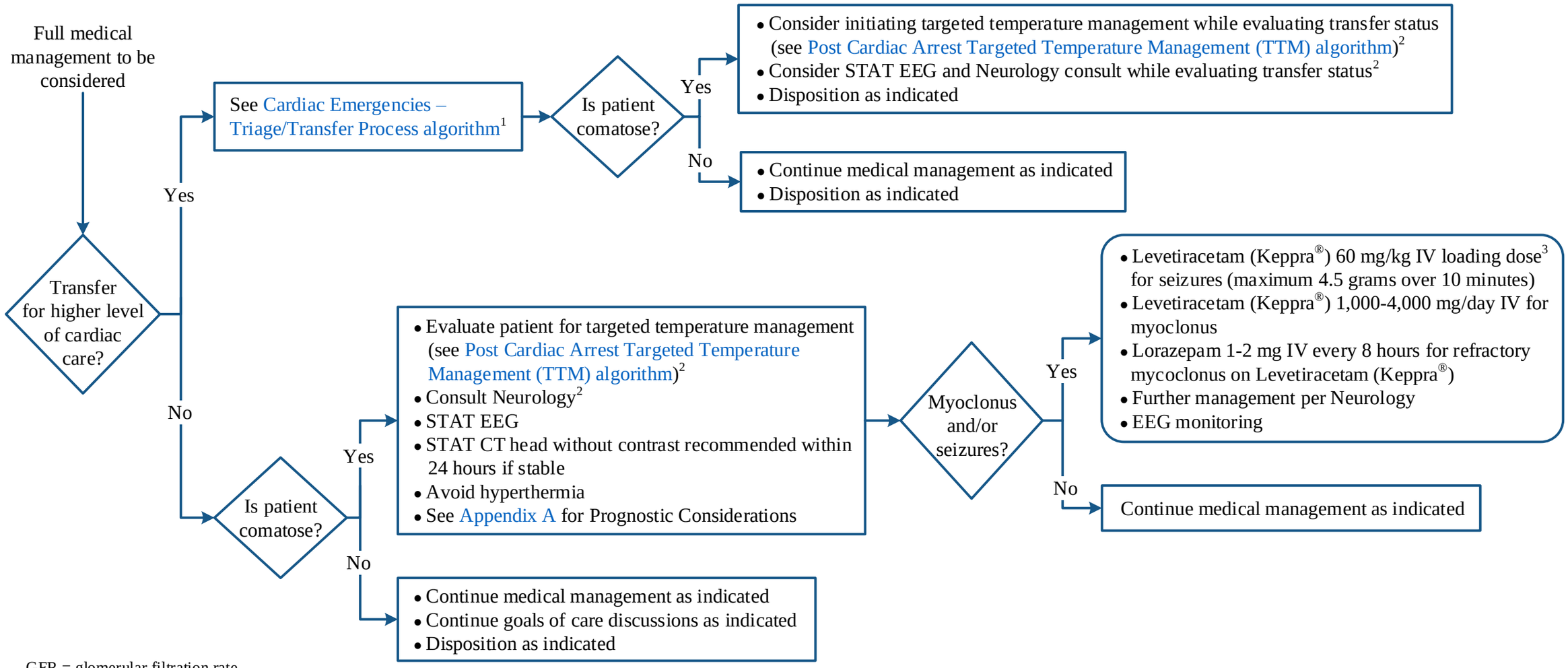
FURTHER ASSESSMENT AND TREATMENT

DISPOSITION



GFR = glomerular filtration rate

[1] Neurological status should not be used to determine need for immediate angiography

[2] Evaluation and recommendations to be documented in progress notes

[3] Reduce loading dose to 20 mg/kg IV if patient is already on levetiracetam (Keppra®) or GFR < 50 mL/minute/1.73 m^2

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APPENDIX A: Prognostic Considerations

Note: Not every patient with return of spontaneous circulation (ROSC) will require every test

- Patients who remain comatose in the absence of confounders after ROSC should be evaluated for neurological prognosis, at the earliest, 72 hours after ROSC
- Patients with underlying terminal disease, brain herniation, or other non-survivable situations may be considered for withdrawal of care within 72 hours of ROSC
- Determining neurologic prognosis should be based on a multi-modal approach with a primary focus on clinical assessment. Diagnostic testing which may aid in neurological prognosis include but are not limited to those listed below.
  - Clinical assessment
    - Bilaterally absent pupillary light reflex at 72 hours or more after ROSC
    - Absence of corneal and occulocephalic reflexes at 72 hours or more after ROSC
  - Neurophysiology testing
    - Somatosensory evoked potentials (SSEP) waves in combination with other indices[1]
    - Malignant EEG patterns[2] in combination with other indices
    - Persistent and refractory electrographic seizures
  - Imaging
    - Repeat CT head without contrast for gray white matter distinction[3]
    - MRI brain without contrast to include diffusion-weighted (DWI), apparent diffusion coefficient (ADC), and fluid-attenuated inversion recovery (FLAIR) sequences
    - Imaging for brain death diagnosis as indicated (see Determination of Death by Neurological Criteria algorithm)
      - Nuclear medicine brain scan with vascular flow
      - Transcranial doppler ultrasonography (TCD)
  - Biomarkers
    - Neuron-specific enolase (NSE) at 24 and 72 hours of ROSC[4,5]

[1] A significant peripheral neuropathy, spinal cord metastasis, and/or brain metastasis may preclude accurate recordings
[2] Examples of malignant EEG patterns include non reactive EEG in the presence of very low voltage recording, significant burst suppression, generalized periodic discharges, alpha theta coma and stimulus triggered discharges
[3] Gray matter to white matter ratio may be considered when possible
[4] A NSE value of 40-60 micrograms/L or an upward trend has higher specificity for outcome prediction
[5] NSE could be elevated in certain cancers such as small cell lung cancer and other carcinoid tumors, hemodialysis, brain conditions (limbic encephalitis)

SUGGESTED READINGS

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