

## HEART FAILURE OBSERVATION PROTOCOL

### MCEP Observation Committee

In continuing our goal of establishing evidence-based recommendations of Observation Medicine protocols, our committee has created a protocol for the management of Acute Heart Failure in an observation unit. This protocol can serve as a compliment in the treatment of heart failure at your institution; it also requires proper vetting, support, and implementation to succeed. We hope these protocols can assist other emergency physicians that currently have or are thinking of starting an observation unit.

#### **INCLUSION CRITERIA** <sup>[1, 2, 5]</sup>

- Pulse ox  $\geq 90\%$  with normal home requirements
- Clinical improvement with ED treatment
- High likelihood of further clinical improvement and discharge home within 24 hours

#### **Absolute Exclusion Criteria** <sup>[1, 2, 3, 5, 6]</sup>

- **Clinical exam:** Acute confusion or delirium. Signs/symptoms of impending respiratory fatigue or failure (ex. High RR, requiring Bipap, accessory muscle use)
- **Objective findings:** SBP  $< 100\text{mmHg}$  or symptomatic hypotension. Troponin elevation from baseline. Significant dysrhythmia or new ischemic ECG changes.
- **Treatment requirements:** Patient requiring inotropic support or active titration of vasoactive medications
- Clinical deterioration despite ED therapy
- Presence of serious active co-morbidities (ex. ACS, COPD, pneumonia, thyroid storm)

#### **Suggested Exclusion Criteria** <sup>[1, 2, 6]</sup>

- Serum Na  $< 135\text{ mEq/L}$
- Cr  $> 3\text{ mg/dL}$  or BUN  $> 40\text{ mg/dL}$
- Anemia requiring transfusion
- BNP elevations over 50% of patients baseline or BNP  $> 1000\text{ pg/mL}$  or NT-BNP  $> 5000\text{ pg/mL}$
- Significant barriers to self care not addressable within 24 hours
- New onset CHF

#### **CDU INTERVENTIONS AS INDICATED** <sup>[7, 5, 8, 4, 12, 15]</sup>

##### ***Monitoring:***

- Continuous cardiac and pulse oximetry monitoring
- Daily weight as well as strict daily intake and output monitoring
- Labs: Troponin, BMP, BNP, magnesium level
- Repeat ECG

##### ***Evaluation:***

- Identify ADHF triggers [see Table 1]
- Perform thorough medication reconciliation and identify any potential medication triggers of acute decompensated heart failure (e.g. NSAIDs, calcium channel blocker if EF  $< 40\%$ , Actos/Avandia, gabapentin).
- If no obvious inciting event and no echocardiogram within six months, consider transthoracic echocardiogram

##### ***Treatment:***

- Sublingual, oral, or topical nitrates

- Place on fluid and sodium restricted diet (2 L/day and 2 g sodium per day)
- IV loop diuretic dosed BID for fluid over-loaded patients continue IV loop diuretic with dose up to 2.5 times greater than home oral dose BID. Transition to lower IV dosing or oral dosing as volume status normalizes
- Optimize home medications with a goal BP < 130/80 mmHg in those with hypertension
- Document patients optimized weight

**Disposition planning:**

- Risk factor modification (smoking cessation, dietary recommendations, medication compliance)
- Heart failure education
- Case management evaluation for home care and arrangement for a home scale if needed
- Arrange heart failure focused outpatient follow up with PCP or cardiologist, ideally within one week to further optimize outpatient treatment regimen

**DISPOSITION** [7, 5, 11, 9, 10, 16]

**HOME**

- Improvement in symptoms with ability to lay flat and ambulate without recurrent symptoms or hypoxia (if ambulatory).
- No significant alterations in serum chemistries (particularly Na and Cr)
- Transition from IV to oral medications and appropriate med reconciliation has been completed
- ACEI or ARB for patients with systolic dysfunction without AKI
- Once the patient is not acutely decompensated ensure beta blocker use for systolic dysfunction (EF < 40%, only Coreg (carvedilol), Zebeta© (bisoprolol) or Toprol XL/CR© (metoprolol) proven to reduce mortality)
- A therapeutic regimen of an ACE inhibitor or ARB or ARNI (Angiotensin Receptor-Neprilysin Inhibitors) along with a beta blocker and an aldosterone antagonist is the recommended therapy for patients with chronic symptomatic heart failure with a reduced ejection fraction
- Outpatient follow up arranged with PCP or cardiology within 7 days
- Reason for exacerbation has been addressed
- Consider need for sleep apnea referral and testing as outpatient

**ADMISSION**

- Criteria for discharge have not been met
- Worsening clinical picture despite appropriate therapy
- No or minimal response to OU therapy
- Requiring vasoactive infusion (e.g. milrinone)

**Table 1 ADHF Triggers**

Medications	Uncontrolled BP	Thyroid dysfunction
Dietary factors	Uncontrolled DM	Sleep apnea
ACS	Alcohol and substance abuse	Tobacco use

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The MCEP Observation Committee meets quarterly to discuss current issues and common goals of Observation Medicine in our state. Our members consist of Observation medical directors and physicians. We welcome anyone with an interest in Observation Medicine to join our committee! Please contact Margarita Pena at: [margarita.pena@ascension.org](mailto:margarita.pena@ascension.org).

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