Worsening Heart Failure in Veterans

Burden, Diuresis, and Economic Factors

US-NP-24-00005 03/2024

Worsening Heart Failure (WHF)

Definition[1]

Note: Criteria are based on treatment prescribed.

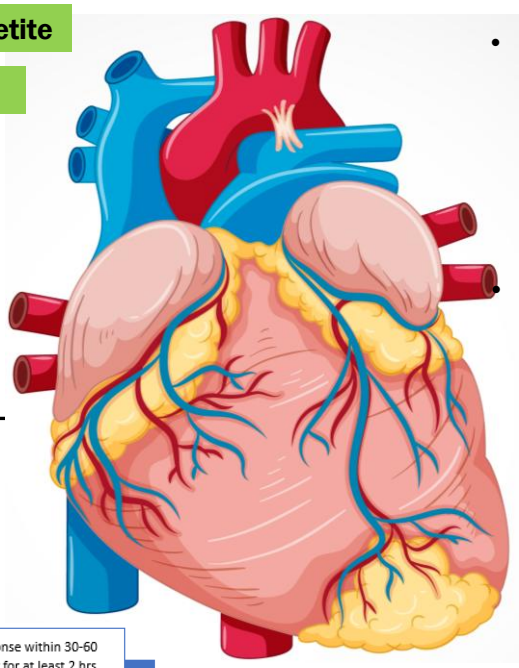
Deterioration of HF signs and symptoms in a patient with chronic heart failure, despite previous stable background therapy.

Treat to Resolve Congestive Symptoms[6]

- **Dyspnea**
- **Dry, hacking cough**
- **Inability to lay flat**
- **Poor appetite**
- **Fluid gain (such as 3 lb/day)**

WHF is *not*[1,3,4]

- *Gross lack of adherence*
- *Acute secondary disease (acute coronary syndrome, respiratory failure, pulmonary embolism, or new atrial fibrillation)*
- *De novo heart failure*



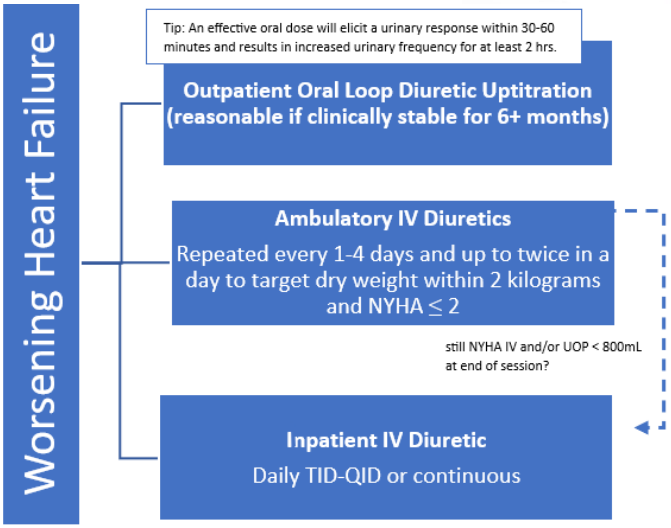
Decongestive therapy, dependent on care setting selection[1,2,5,13-15]

- ***Increasing oral maintenance diuretics***
  - Absorption is impaired in setting of worsening congestion and mucosal gut edema[16]
- ***IV diuresis****
  - Hospitalization or Hospital-in-your-home
  - Emergency room visit
  - Short Stay Observation Unit
  - Infusion Clinic Based (Outpatient)
- ***Self administered subcutaneous diuretic therapy***

**IM not commonly recommended[2,11]*

IV Decongestion:

Costly & Places Strain on Healthcare System[3-4,11-12,14]



VHA Heart Failure Statistics



- ~98% male[7-8]
- ~30% are ≤ 65[7]

$21k-52,800 per patient per year[8]

50% of cost is inpatient,[9] a modality of last resort in VHA.[10]





V shaped association

Spending vs. Survival[8]

VHA IV Diuresis Costs

$839	St Louis IV Clinic[4]	**$1649**	St Louis IV hospital day[4]	**$1076**	Pittsburg IV Clinic[3]	**$1912**	Pittsburg IV hospital day[3]

Additional Reading/References

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Summary of ACCF/AHA Recommendations for Treatment of Fluid Overload in HF[5]

Key ACCF/AHA 2022 Recommendations in the Treatment of Fluid Overload in HF
Diuretics and Decongestion Strategies in Patients with HF (Outpatient)
In patients with HF who have fluid retention, diuretics are recommended to relieve congestion, improve symptoms, and prevent worsening HF (Class I, Level of Evidence: B-NR)
For patients with HF and congestive symptoms, addition of a thiazide (eg, metolazone) to treatment with a loop diuretic should be reserved for patients who do not respond to moderate or high-dose loop diuretics to minimize electrolyte abnormalities (Class I, Level of Evidence: B-NR)
The most commonly used loop diuretic for the treatment of HF is furosemide, but some patients respond more favorably to other agents in this category (eg, bumetanide, torsemide)
Diuretics should not be used in isolation but always combined with other guideline-directed medical therapies for HF that reduces hospitalizations and prolongs survival
In outpatients, oral diuretic therapy is commonly initiated with low doses, and the dose is increased until urine output increases and weight decreases, generally by 0.5 to 1.0 kg daily
Diuretic resistance can be overcome in several ways, including escalation of loop diuretic dose, IV administration of diuretics, or combination of different diuretic classes
Diuretics in Hospitalized Patients: Decongestion Strategy
Patients with HF admitted with evidence of significant fluid overload should be promptly treated with IV loop diuretics to improve symptoms and reduce morbidity (Class I, Level of Evidence: B-NR)
For patients hospitalized with HF, therapy with diuretics and other guideline-directed medications should be titrated with a goal to resolve clinical evidence of congestion to reduce symptoms and rehospitalizations (Class I, Level of Evidence: B-NR)
For patients requiring diuretic treatment during hospitalization for HF, the discharge regimen should include a plan for adjustment of diuretics to decrease rehospitalizations (Class I, Level of Evidence: B-NR)
In patients hospitalized with HF when diuresis is inadequate to relieve symptoms and signs of congestion, it is reasonable to intensify the diuretic regimen using either: a. higher doses of IV loop diuretics; or b. addition of a second diuretic (Class IIa, Level of Evidence: B-NR)
In patients who are admitted with decompensated HF, in the absence of systemic hypotension, IV nitroglycerin or nitroprusside may be considered as an adjuvant to diuretic therapy for relief of dyspnea (Class IIb, Level of Evidence: B-NR)

Key: ACCF – American College of Cardiology Foundation; AHA – American Heart Association; ED – emergency department; HF – heart failure; IV – intravenous; kg – kilogram.