

This guideline summary is based on the 2010 National Heart Failure Guideline and was developed to assist Primary Care physicians and other health care professionals in the treatment of Heart Failure in adults. The guideline was developed by the National Heart Failure Guideline Development Team (GDT). Following an updated evidence review, the recommendations remain the same as in the 2008 guideline.

Note: The term “heart failure” is used to refer to patients who have either heart failure with left ventricular systolic dysfunction (LVSD) or heart failure with preserved ejection fraction, unless otherwise distinguished.

Pharmacological Management

Diuretics

Loop diuretics* are recommended for the management of hypervolemia in Heart Failure. Use the minimal dosage needed to restore normal volume status.

Use combination loop* and thiazide-type diuretics if the patient is unresponsive to loop diuretics alone.

* Furosemide, hydrochlorothiazide, and metolazone (Mykrox) are not FDA-approved for heart failure.

Vasodilators in Left Ventricular Systolic Dysfunction (LVSD)

Use of Renin-Angiotensin System Inhibitor/Blockers and/or Vasodilators

It is strongly recommended that ACE inhibitors (ACEIs) be given to patients with LVSD.

If the patient is intolerant to ACEIs due to cough, allergy, or angioedema; angiotensin-receptor blockers* (ARBs) are a recommended alternative. However, if ACEI-induced angioedema is severe, use caution when ARBs are used.

If both ACEIs and ARBs* are contraindicated, the combination of hydralazine and isosorbide dinitrate is recommended.

The routine addition of ARBs* to ACEIs is not recommended. If ARBs are added to ACEIs it should be done for specific reasons, such as uncontrolled hypertension or insufficient vasodilation. This recommendation applies whether or not a patient is treated with beta-blockers.

* Valsartan is FDA-approved for heart failure; losartan and candesartan are not.

Disclaimer

These Clinical Practice Guidelines are provided as a community service for reference purposes only, and may be used only in conjunction with the caveats set forth in this disclaimer.

These Clinical Practice Guidelines are designed for use by clinicians within the Kaiser Permanente Medical Care Program to assist them by providing an analytical framework for the evaluation and treatment of certain, specified health conditions. These Guidelines are not intended to replace a clinician’s judgment or to establish a protocol for all patients. While the guidelines provide one approach to evaluating a medical condition, clinical conditions can be expected to vary significantly from individual to individual. Moreover, the clinical conditions delineated within the Guidelines may not match precisely with a patient’s condition, and a Clinical Practice Guideline will rarely establish the only appropriate approach to a medical problem. Therefore, the clinician must exercise independent professional judgment and make decisions based upon the situation presented. While great care has been taken to assure the accuracy of the information presented, the reader is advised that Kaiser Permanente cannot be responsible for continued currency of the information, for any errors or omissions in these guidelines, or for any consequences arising from their use.

These Guidelines are protected by copyright, and unless stated otherwise, may be reproduced by users solely for their own personal, noncommercial use. Any other activity or reproduction of these documents or the information in them requires prior written permission from Kaiser Permanente. The trade names or trademarks or service marks of any of the organizations within Kaiser Permanente may not be used for any purpose.

Target Dosage of ACE Inhibitors

Target dose of ACEIs should be at least that used in major clinical trials in patients with LVSD.

- ▶ Lisinopril — 20 mg daily
- ▶ Captopril — 50 mg three times daily
- ▶ Enalapril — 10 mg twice daily

Renal Function and ACE Inhibitors

ACEIs can be used for patients with serum creatinine levels up to 2.5 mg/dl or eGFR > 30 mL/min/1.73 m².

Use of ACEIs in patients with serum creatinine levels higher than 2.5 mg/dl or eGFR < 30 mL/min/1.73 m² should be determined on a case-by-case basis.

Aspirin and ACE Inhibitors

Aspirin (ASA) (81 mg) is recommended for patients taking ACEIs for LVSD if they have concomitant cardiovascular disease (CVD).

Beta-Blockers in LVSD

Use of Beta-Blockers

Beta-blockers are strongly recommended for patients with LVSD NYHA class II-IV, or with asymptomatic LVSD (NYHA class I) and concomitant CAD.

Beta-blockers are recommended for patients with asymptomatic (NYHA class I) LVSD without concomitant CAD.

Which Beta-Blockers to Use

Carvedilol, metoprolol succinate or bisoprolol* are the recommended choices of beta-blockers for patients with LVSD.

Metoprolol tartrate* (short-acting formulation), titrated to maximum tolerated dosage, is an acceptable but less well-established alternative to carvedilol, metoprolol succinate or bisoprolol*.

* Not FDA-approved for heart failure.

Beta-Blockers with Concomitant Asthma or COPD

Cardioselective beta-blockers (metoprolol or bisoprolol*) are recommended for patients with LVSD and concomitant well controlled asthma or COPD. Discuss the risks and benefits of treatment, and instruct the patient to report any increase in airway symptoms.

Carvedilol is an acceptable but less well-established option for patients with LVSD and well controlled asthma or COPD.

* Not FDA-approved for heart failure.

Aldosterone Antagonism

In addition to standard treatment, spironolactone is recommended for patients with LVSD, EF < 35%, NYHA class III or IV, and no contraindications.

Spironolactone is recommended for patients with LVEF < 40%, recent MI, either diabetes or signs of heart failure, and no contraindications.

It is an acceptable but less well-established option to use spironolactone in patients with EF < 40%, any symptom of heart failure, and no contraindications.

For most patients, a dose of spironolactone of 25 mg daily or less is recommended. High doses may increase risk of serious hyperkalemia.

Eplerenone may be used as an alternative to spironolactone if gynecomastia is problematic.

Digoxin

Digoxin may be added to standard therapy of ACE inhibitors, diuretics, and beta-blockers for heart failure, to improve symptoms and reduce hospitalization.

Digoxin is not recommended for patients with few or no symptoms of heart failure who are in normal sinus rhythm, because it does not reduce mortality.

Because of possible toxicity, which may be more common in women, and for maximum benefit, use lower doses of digoxin, and consider maintaining serum digoxin levels to no more than 0.8 ng/ml.

Calcium Channel Blockers

Amlodipine* and felodipine* (second generation dihydropyridine calcium channel blockers) are options for the treatment of angina pectoris or hypertension in patients with LVSD.

The GDT recommends against the use of calcium channel blockers (CCBs) other than amlodipine* and felodipine* in patients with LVSD.

* Not FDA-approved for heart failure.

Medication Management based on Patients' Race/Ethnicity or Gender

For women and non-white populations, management of ACEIs, beta-blockers, and spironolactone should not be different from that in men and whites.

It is an option to add hydralazine and isosorbide dinitrate to standard HF therapy (including ACEIs and beta-blockers) in Black/African American patients and in patients who require additional vasodilation for uncontrolled hypertension or symptoms.

HF with Preserved Ejection Fraction

In patients with heart failure with preserved ejection fraction, treat the following concomitant conditions according to local and national guidelines: hypertension, rhythm abnormalities, ischemia, and edema.

Other Medications

Oral Anticoagulation - Warfarin

Warfarin is recommended for patients with LVSD and atrial fibrillation, unless contraindicated.

The routine use of warfarin for patients with LVSD in normal sinus rhythm has not been established. Its use should be based on a determination of the potential risks and benefits of treatment.

The use of warfarin is an option for LVSD patients in normal sinus rhythm, and with left ventricular thrombus on echocardiography or a history of thromboembolism.

Statin Therapy in HF Patients Without Documented CAD

Statins should be used in the heart failure population just as they are in the general population.

Thiazolidinediones (TZDs)

Do not initiate TZDs in HF patients unless there are no other alternatives for the treatment of diabetes.

Stop TZDs in HF patients who suffer an exacerbation while on them.

The Guideline Development Team (GDT) makes no recommendations for or against discontinuing TZD in HF patients who remain stable.

Use of Erythropoietin Analogs to Treat Anemia

The GDT makes no recommendation for or against the use of erythropoietin analogs to treat anemia in HF patients.

Omega-3 Supplementation

For heart failure patients with an ejection fraction less than 40%, omega-3 supplementation (1 g per day) is an option following consideration of benefits, risks, and costs of the supplement to the patient.**

**Omega-3 supplementation should not be emphasized over drugs with a solid body of evidence demonstrating strong clinical benefit.

COMORBID CONDITIONS

Hypertension

Target Blood Pressure (BP)

Target BP for most patients is <140/90mm Hg. Aim for a lower target BP (<130/80mm Hg) for patients with:

- ▶ diabetes mellitus
- ▶ renal disease
- ▶ coronary artery disease

Medications to Achieve Target Blood Pressure

The following medications are recommended in patients with heart failure with preserved ejection fraction to control hypertension:

- ▶ Diuretics
- ▶ ACEIs
- ▶ ARBs
- ▶ Beta-blockers
- ▶ Dihydropyridine CCBs

The following medications are recommended in patients with systolic heart failure to control hypertension:

- ▶ Diuretics
- ▶ Beta-blockers
- ▶ ACEIs or ARBs if intolerant of ACEIs
- ▶ Hydralazine/isosorbide dinitrate
- ▶ Amlodipine or felodipine

Sleep Apnea

Routine screening for sleep apnea in HF patients is not recommended because of the lack of evidence that screening improves outcomes.

The GDT makes no recommendation for or against treating sleep apnea in heart failure patients to improve heart failure-related outcomes.

Lifestyle Factors

Sodium Restricted Diet

Moderate sodium restriction, 2 to 2.4 grams (2,000 to 2,400 mg) per day, is recommended for patients with heart failure in order to assist in volume management, unless a low-sodium diet is contraindicated.

It is recommended that clinicians reinforce and/or increase sodium restriction when fluid retention requires increasing doses of diuretics.

Physical Activity

Light to moderate aerobic activity and resistance training is recommended for patients with stable heart failure, unless contraindicated.

Reassessment of Systolic Performance

A follow-up measurement of LVEF is recommended after patients have received optimal medical therapy or revascularization if change in cardiac function would impact candidacy for Implantable Cardioverter Defibrillator (ICD) therapy.

Repeat measurement of LVEF (after initial confirmation of LVSD) is an option in patients who have had a change in clinical status only if the results would affect therapy.

Repeat measurement of LVEF (after initial confirmation of LVSD) is not recommended in clinically stable patients when results will not alter therapy.