

Clinician's Guide To Heart Failure Management

An overview of issues commonly encountered in the management of heart failure (HF)

Making the Diagnosis



Diagnosis begins with the clinical examination

Primary symptoms Dyspnea, fatigue, edema

Secondary symptoms Paroxysmal nocturnal dyspnea, orthopnea, abdominal pain, nocturia, cough, anorexia

Primary physical signs Elevated jugular venous pressure, S3 gallop, rales, edema

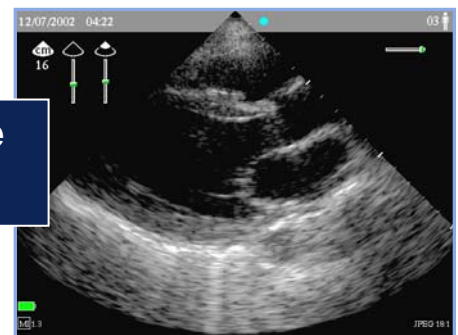
Secondary physical signs Ascites, hepatomegaly, weight loss

Confirming the Diagnosis

Primary tests (for all patients)

- Left ventricular imaging (echocardiography, nuclear scan, angiography)
- Electrocardiogram
- Chest x-ray
- Complete blood count
- Urinalysis
- Blood urea nitrogen
- Serum creatinine
- Blood glucose
- Liver function tests
- Thyroid stimulating hormone
- Electrolytes, calcium, magnesium, and phosphorus

A look at the ventricle is essential



Secondary tests (use as clinically indicated)

- BNP (B-type natriuretic peptide)
- Testing to exclude ischemic heart disease
- Consider testing for hemochromatosis, thyrotoxicosis, lupus, leptospirosis, pheochromocytoma, AIDS, or Chagas disease

Treating the Patient

General medical care

- Daily morning weights
- Low-sodium diet
- Daily exercise
- Smoking cessation
- Limit alcohol and avoid illicit drugs
- Family involvement
- Home health care and telephone follow-up

Other medical care

- Pneumococcal vaccine
- Yearly flu shot
- Lipid therapy
- HbA1c and blood pressure control

Drug Therapy for Systolic Heart Failure

Primary drugs

Angiotensin-converting enzyme inhibitor (ACEI)

ACE is first choice

Higher dose gives greater benefit. Watch potassium level, renal function and symptomatic hypotension.

Drugs: captopril 6.25 to 50 mg three times daily, enalapril 2.5 to 20 mg twice daily, fosinopril 5 to 40 mg once daily, lisinopril 2.5 to 40 mg daily, quinapril 10 to 40 mg twice daily, ramipril 1.25 to 10 mg once daily

Beta blocker

Treat all patients with BB

Higher dose gives greater benefit. Start low and increase dose every two weeks. Watch for fluid retention, bradycardia, hypotension and low output state. Treat fluid retention by increasing diuretic dose rather than decreasing beta blocker dose.

Drugs: bisoprolol 1.25 to 10 mg once daily, carvedilol 3.25 to 25 mg twice daily, metoprolol succinate extended release 12.5 to 200 mg once daily

Digitalis (digoxin)

Higher doses are dangerous for women

Current data support the use of digoxin only for symptom control. Usual dose 0.125 mg daily. Adjust dose for renal function.

Diuretics

Use maintenance dose and instruct patients in the use of sliding scale diuretics based on their daily morning weight. Whenever possible, decrease diuretics rather than ACEI or BB to manage symptomatic hypotension. For refractory volume excess, combine a loop diuretic with metolazone or thiazide, and spironolactone.

Drugs: *Loop diuretics:* furosemide 40 to 400 mg daily, bumetanide 1 to 10 mg daily, torsemide 20 to 200 mg daily

Other diuretics: Metolazone 2.5 mg every other day to 10 mg daily, hydrochlorothiazide 12.5 to 50 mg daily

Secondary drugs

Aldosterone antagonists

Adding low dose spironolactone for patients with Class III or IV symptoms extends life

Addition of spironolactone in low doses for patients with recent or current Class III or IV symptoms who were taking an ACE inhibitor has shown reduced risk of death and hospitalization. Watch for hyperkalemia. Monitor potassium supplements. Follow serum

creatinine (avoid aldosterone antagonists if creatinine is > 3.0). Gynecomastia is common. Eplerenone is approved for heart failure post infarction; it has a lower rate of gynecomastia and menstrual side effects.

Drugs: spironolactone 12.5 to 50 mg daily
eplerenone 25 to 50 mg daily

Angiotensin receptor blockers (ARB)

Angiotensin receptor blockers should be considered instead of ACE inhibitors for patients who are intolerant of ACEIs because of angioedema or intractable cough. Some data support the combined use of both ACEIs and ARBs.

Drugs: candesartan 4 to 32 mg daily, valsartan 80 to 320 mg daily. Eprosartan, irbesartan, telmisartan, and valsartan are promising drugs not yet FDA-approved for heart failure treatment.

Isosorbide plus hydralazine

Isosorbide and hydralazine used together lower blood pressure and prolong life. The combination may be considered as a therapeutic option for patients who are intolerant of ACEIs and ARBs, who cannot take ACEIs because of hypotension or renal insufficiency, or who are persistently hypertensive on full-dose ACEI, ARB, and beta blocker drugs.

Drugs: isosorbide 10 to 40 mg four times daily
hydralazine 10 to 100 mg four times daily

Be sure to document your reasons for not prescribing evidence-based drugs

Drug Therapy for Diastolic Heart Failure

No large long-term studies are available to guide therapy. Careful diuretic titration is the key to control of symptoms. Avoid both bradycardia and tachycardia. Control blood pressure aggressively. Use of ACEI may decrease myocardial fibrosis. See above for ACEI, beta blocker, diuretic, spironolactone, and ARB doses.

If patient does not respond well to treatment, refer him or her to a heart failure specialist.

For more information see the *American College of Cardiology/American Heart Association Guidelines for the Evaluation and Management of Chronic Heart Failure in the Adult* at www.acc.org/clinical/guidelines/failure/hf_index.htm.

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