



# Heart failure: Highlights from new consensus guidelines

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Recommendations for the Management of Chronic Heart Failure

### ABSTRACT

New guidelines for managing heart failure urge physicians to identify patients likely to benefit from therapy, obtain an echocardiogram to measure the ejection fraction, and, in patients with systolic dysfunction (ie, an ejection fraction  $\leq 40\%$ ), institute therapy with an angiotensin-converting enzyme (ACE) inhibitor and a beta-blocker if at all possible. Digoxin and diuretics can relieve symptoms but do not affect the mortality rate. Spironolactone in low nondiuretic doses may reduce mortality when added to baseline drug regimens. The proper role of angiotensin II receptor blocking agents has yet to be determined.

**A** WEALTH OF STUDIES<sup>1,2</sup> performed in the past 10 years indicate that we can halt the progression of chronic heart failure and reduce mortality if we intervene early enough. To this end, a committee of experts convened by a not-for-profit educational organization called the Advisory Council To Improve Outcomes Nationwide in Heart Failure (ACTION HF) published a consensus document in January 1999 regarding treatment of stable outpatients with congestive heart failure due to left ventricular systolic dysfunction<sup>3</sup>; this paper presents some of the highlights.

Heart failure is a challenging syndrome to treat, but we have a good deal of insight into which drugs to prescribe and which to avoid. With persistence and patience clinicians will

be able, most of the time, to get their patients on appropriate polypharmacy protocols.

### DO NOT WAIT FOR HEART FAILURE TO BECOME CONGESTIVE

Traditionally, we have thought of heart failure in terms of congestion and the hemodynamic abnormalities that lead to congestion. However, these are but the manifestations of underlying biochemical and molecular biodynamic abnormalities within the myocyte and the support structures of the heart, which lead to a change in cardiac geometry and hemodynamics with subsequent activation of the sympathetic nervous system and the angiotensin-renin-aldosterone system.<sup>4</sup>

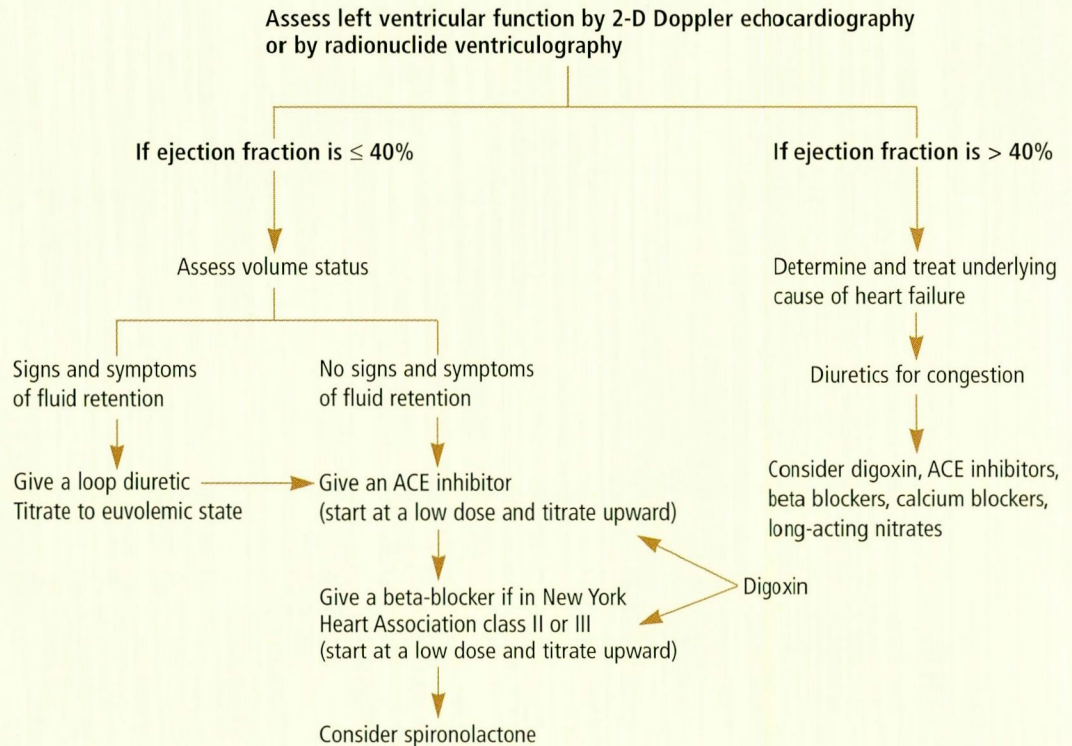
Not all patients with heart failure have congestion, measurable decrements in stroke volume or cardiac output, or an elevated wedge pressure. Indeed, patients may have no symptoms or only nonspecific ones such as dyspnea and fatigue. An estimated 20 million Americans have asymptomatic impairment of cardiac function and could develop symptoms of heart failure in 1 to 5 years.

The challenge is to identify these persons early on, before symptoms develop. One should suspect heart failure in patients not only with congestion but also if the patient has a history of:

- Myocardial infarction
- Angina pectoris
- Hypertension
- Valvular heart disease
- Palpitations
- Diabetes mellitus
- Thyroid disease
- Anemia
- Family history of cardiomyopathy, sudden death, or heart failure.

**We can reduce  
mortality if we  
intervene early  
enough**

## Approach to the patient with heart failure: Consensus recommendations



**FIGURE 1.** Algorithmic approach to heart failure.

ADAPTED FROM ROBERTS WC, PACKER M, COHN JN, ET AL. CONSENSUS RECOMMENDATIONS FOR THE MANAGEMENT OF CHRONIC HEART FAILURE. AM J CARDIOL 1999; 83(SUPPL 2A):1A-38A.

**We encourage aerobic training to improve symptoms**

### ■ DETERMINE IF THE PATIENT HAS SYSTOLIC OR DIASTOLIC DYSFUNCTION

If one suspects that a patient has heart failure, the next step is to determine if he or she has systolic or diastolic dysfunction by obtaining an echocardiogram or other test of cardiac function (FIGURE 1). For example, I personally recommend obtaining an echocardiogram in any patient who has had a myocardial infarction, even if he or she has no symptoms of heart failure.

Nearly all the data showing the benefit of ACE inhibitors and beta-blockers comes from patients with systolic dysfunction, ie, with an ejection fraction of 40% or less. Therefore, the consensus committee strongly recommends these drugs for patients with an ejection frac-

tion in this range. Unfortunately, there is no consensus about the best treatment strategies for patients with congestive heart failure and preserved systolic ventricular function.

### ■ REMOVE OFFENDING AGENTS

If the patient has an ejection fraction of 40% or less, review the patient's medications. Drugs that can exacerbate or precipitate heart failure include:

- Class 1A or 1C antiarrhythmic drugs
- Nonsteroidal anti-inflammatory drugs
- Beta-blockers (in certain patients)
- Calcium channel blockers (except possibly for amlodipine and felodipine)
- Lithium (used in bipolar disorders)
- Some antihistamines and decongestants.





## ■ TREATMENT

For the past two centuries the aim of treatment was to make the heart squeeze harder by giving inotropes such as digitalis. Diuretics were usually prescribed to lessen the congestive state. Now the emphasis is shifting to toning down the underlying neurohormonal abnormalities known to potentiate the heart failure milieu.<sup>5</sup>

### Start an ACE inhibitor

Clinical trials<sup>1</sup> in almost 20,000 patients have provided incontrovertible evidence that all patients with an ejection fraction of 40% or less should receive an ACE inhibitor if they have no contraindications to them (eg, hypotension, renal failure, hyperkalemia, renal artery stenosis, or a history of angioedema).

The starting dose should be low and increased gradually. An example is enalapril or lisinopril 2.5 or 5 mg daily, doubled every week as tolerated to a target of 20 mg/day for enalapril or 30 to 40 mg/day for lisinopril. During therapy, monitor the patient for hypotension, worsening renal function, potassium retention, cough, and angioedema.

At present, angiotensin II receptor antagonists should not be considered substitutes for ACE inhibitors. We do not know if they are superior or even equivalent agents to ACE inhibitors. However, it is reasonable to consider angiotensin II receptor antagonists for patients who cannot tolerate ACE inhibitors.

### Start a beta-blocker

More than 20 trials have shown that beta-blockers can lessen the symptoms, improve the clinical status, and decrease the risk of death in patients with mild-to-moderate congestive heart failure.<sup>2</sup> Thus, although beta-blockers formerly were thought contraindicated in heart failure, the current recommendation is that all patients start a beta-blocker who are in stable New York Heart Association functional class II or class III heart failure and have an ejection fraction of 40% or less. At present, only carvedilol is approved for heart failure, but other beta-blockers (metoprolol and bisoprolol) are also pending approval for this indication.

As with ACE inhibitors, the starting dose should be low, ie, 3.125 mg carvedilol twice daily (with meals) and doubled every 2 to 4 weeks if the patient can tolerate it to 25 mg twice daily for an average-sized person. During therapy, monitor the patient for signs of worsening heart failure, bradycardia, hypotension, and fluid retention.

### Use loop diuretics to control fluid retention

Most patients with symptoms of heart failure and fluid retention need to take a loop diuretic. However, the consensus report emphasizes that diuretics should not be used as monotherapy, but rather should generally be combined with an ACE inhibitor and a beta-blocker.

The starting dose should be low (for example, furosemide 20 to 40 mg/day) and increased until urine output increases and weight decreases, generally by 0.5 to 1.0 kg/day. During therapy, monitor the patient's fluid status by checking for peripheral edema, measuring the height of any jugular venous distension, and obtaining daily weights. In addition, monitor the patient's electrolyte levels at regular intervals—loop diuretics cause wasting of potassium and magnesium, although concomitant use of an ACE inhibitor should counterbalance this effect.

### Consider spironolactone

A recent study<sup>6</sup> showed that spironolactone in very low, generally nondiuretic doses, reduced mortality in elderly class II and III patients with congestive heart failure and low ejection fractions. Potassium levels should be monitored when this drug is used.

### Digoxin for symptom control

The report states: "Digoxin can alleviate symptoms and improve clinical status, and thereby decrease the risk of hospitalization for heart failure. [However] the drug appears to have no or little effect on survival."<sup>3</sup> Moreover, it should be used in conjunction with a diuretic, an ACE inhibitor, and a beta-blocker.

Digoxin is one drug well studied in diastolic dysfunction patients and also proved effective in reducing symptoms.

**Start ACE inhibitors and beta-blockers at low doses and increase slowly**





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## Encourage a healthy lifestyle

Patients should be encouraged to stop smoking, limit their alcohol intake (or stop drinking entirely if they have dilated cardiomyopathy), lose weight if obese, and adhere to regimens for controlling hypertension, hyperlipidemia, or diabetes. Sodium restriction may permit lower doses of diuretics to be used; in addition, patients should weigh themselves daily at home. They should receive the pneumococcal vaccine once, and every fall they should be immunized against influenza.

In the days before effective drugs were available we used to encourage patients to rest and be sedentary. No more. Now we encourage aerobic training, which may improve symptoms and exercise capacity<sup>7-9</sup> and decrease the risk of disease progression<sup>10,11</sup> in patients with mild to moderate symptoms. 

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