Heart Failure – Diagnosis
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Heart failure (HF) is a major health problem in the U.S. More than 5 million Americans have HF, and each year some 300,000 individuals die from it. The direct and indirect costs of HF exceed $35 billion per year.

HF is more common with increasing age. In fact, one in every 100 people over 65 have HF, and 80% of people hospitalized with HF are over 65. HF is the most common diagnosis made in hospitalized older adults.

This issue of Elder Care is the first of two that will be devoted to HF. This issue will review the approach to diagnosis of HF. Another issue will discuss treatment of HF in outpatient settings.

Clinical Presentation

HF occurs when the heart is unable to relax and fill with blood (diastolic HF), unable to contract and eject blood normally (systolic HF), or both. The most common cause of systolic HF in the U.S. is myocardial infarction (MI). The most common cause of diastolic HF is hypertension.

Symptoms of HF include shortness of breath, exercise intolerance, and/or edema. Older patients, however, may have more subtle symptoms, such as fatigue or weakness. Many older individuals believe exercise intolerance or fatigue is part of normal aging, and do not bring the problem to their provider’s attention. It is important, therefore, to assess patients’ exercise tolerance, often with input from family members, especially when patients have the key risk factors of MI or hypertension.

Echocardiography

Echocardiography is vital in evaluating patients with known or suspected HF. An echocardiogram will not only distinguish the low ventricular ejection fraction of systolic HF from the poor ventricular relaxation of diastolic dysfunction, it will also identify other causes of HF, such as valvular disease or hypertrophic cardiomyopathy. Patients with HF and severe valve dysfunction should be referred for consideration of valve replacement.

While echocardiography is useful for diagnosis, the results don’t always correlate with severity of HF symptoms. For example, some people with very low ejection fractions have minimal symptoms, while others with only minimally depressed ejection fractions can have marked symptoms.

Laboratory Testing

Upon initial diagnosis of HF, a provider must exclude secondary or non-cardiac causes, including anemia, renal insufficiency, hypoalbuminemia, and thyroid dysfunction (see Table 1). An electrocardiogram will help to identify evidence of ventricular hypertrophy or previous infarction. A routine chest x-ray is helpful to assess heart size, rule out pulmonary disease, and confirm congestion (effusions, cephalization, Kerley-B lines).

B-type natriuretic hormone (BNP) should also be ordered as part of the initial assessment of patients with HF. Different BNP assays have different normal values, and

TIPS FOR DIAGNOSING HEART FAILURE IN OLDER PATIENTS

- Order an echocardiogram to distinguish systolic from diastolic heart failure, and to detect unsuspected causes of heart failure such as valvular disease.
- Refer patients to be evaluated for valve replacement if they have heart failure plus either severe disease in one valve or moderate disease in multiple valves.
- Exclude secondary causes of heart failure by ordering tests to assess for anemia, renal insufficiency, hypoalbuminemia, and thyroid dysfunction.
- Measure BNP on initial diagnosis of heart failure to help confirm the diagnosis.
- Evaluate for coronary artery disease with non-invasive testing for patients with mild symptoms. Consider coronary angiography when patients have significantly decreased ejection fraction.
Assessing Coronary Circulation

Coronary artery disease (CAD) is common in older people and may present with the same symptoms as HF. Older HF patients who might be candidates for revascularization should undergo an evaluation for coronary ischemia. For patients with normal or mildly decreased systolic function, non-invasive testing (nuclear medicine scan, stress echocardiography) is acceptable. For those with an ejection fraction below 40% and normal renal function, consideration should be given to cardiac catheterization to assess for multi-vessel disease amenable to revascularization.

References and Resources


ACOVE Quality Indicators
1. IF a vulnerable elder is newly diagnosed with heart failure, THEN he or she should undergo the following studies within 1 month of the diagnosis (unless they have already been performed within the prior 3 months): chest x-ray, electrocardiogram, CBC, serum sodium and potassium, serum creatinine, and TSH in patients with atrial fibrillation or heart failure with no obvious etiology. 2. IF a vulnerable elder is newly diagnosed with heart failure, THEN he or she should be offered an evaluation of left ventricular ejection fraction within 1 month. 3. IF a vulnerable elder has heart failure and atrial fibrillation, THEN he or she should be offered anticoagulation to achieve an INR of 2.0 to 3.0.