

Practice Guideline Update for the Management of Chronic Congestive Heart Failure

Heart failure (HF) is a major public health problem in the United States with an increasing prevalence. Approximately five million patients in the United States have heart failure and there are currently over one million annual hospitalizations in the US with this diagnosis. Most cases of heart failure are due to hypertension, diabetes mellitus, coronary artery disease, and idiopathic dilated cardiomyopathy. Up to 30% of patients with dilated cardiomyopathy may have a genetic cause. Several new recommendations have been made by the ACC/AHA 2005 guideline for the treatment of heart failure compared with the previous 2001 guidelines. Specific among these has been increased attention to prevention with specific emphasis on the treatment of risk factors, such as hypertension, diabetes mellitus, dyslipidemia, obesity, smoking, physical inactivity, and excessive alcohol consumption that predispose to left ventricular dysfunction. Because occult coronary artery disease may be a cause of “idiopathic” cardiomyopathy, coronary arteriography should be done when patients initially present with this diagnosis.

For over two decades, angiotensin converting enzyme inhibitors (ACEs) have been the cornerstone of therapy in blocking the renin angiotensin aldosterone system. In recent years, it has become clear that inhibiting the adverse effects of the sympathetic nervous system with beta blockade therapy is equally important, and both ACE inhibitors and beta blockade therapy now form the cornerstone of treatment in patients with heart failure. All patients with a recent or remote history of myocardial infarction (MI) should be taking both a beta-blocker and an ACE inhibitor regardless of the ejection fraction or presence of heart failure. Both beta-blockers and ACE inhibitors should also be used in patients with reduced left ventricular ejection fraction (LVEF) without a history of heart failure. In this regard, the indications for the use of both these agents parallel each other. Beta-blockade therapy added to traditional therapy of ACE inhibitors, digitalis, and diuretics, has been shown to reduce all cause mortality by approximately 23% and the risk of sudden death by approximately 30%. Currently, three beta-blockers are approved for use with congestive heart failure, Bisoprolol (initiate 1.25 mg qd to 10 mg qd), Carvedilol (initiate 3.125 mg bid to 25 mg. bid or 50 mg bid in patients over 85 kg), and sustained release Metoprolol Succinate (initiate 12.5 to 25 mg qd, increasing to 200 mg qd). The combination of both an ARB and an ACE inhibitor in patients who remain symptomatic is also another option. Angiotensin receptor blockers (ARBs) have also been used for patients with congestive heart failure, though the experience with these agents in controlled clinical trials is considerably less than that with ACEIs. For patients unable to tolerate ACEIs because of cough or angioedema, ARBs remain an alternative choice, though patients who have developed angioedema while taking an ACEI have also developed angioedema with ARBs and thus caution is recommended when substituting an ARB in this situation.

The addition of a specific aldosterone antagonist (spironolactone or eplerenone) should be considered in carefully selected patients with moderately severe to severe heart failure, or with left ventricular dysfunction early after MI, though the risk of hyperkalemia must be carefully weighed in patients with underlying even mild renal dysfunction. In addition, caution must be exercised when starting aldosterone antagonists in the very elderly, patients with diabetes mellitus, or those with medications that may exacerbate hyperkalemia, such as non-steroidal anti-

inflammatory drugs and Cyclooxygenase 2 inhibitors. When in doubt, either avoid this class of agents or use an initial dose of spironolactone of 12.5 mg or eplerenone 25 mg per day. (Antiandrogenic effects such as gynecomastia sometimes seen with spironolactone are not usually seen with Eplerenone).

The use of the fixed dose hydralazine/isosorbide dinitrate (37.5/20) has been shown in the A-HeFT study to result in a 43% reduction in mortality in African Americans with heart failure when this drug is used on top of standard care in class III or IV heart failure. This combination could also be considered for others who remain symptomatic on traditional therapy.

Device therapy has found an increased role in patients with congestive heart failure. Ventricular dyssynchrony between the left and right ventricles is seen in approximately 15-30% of heart failure patients, adversely affects cardiac function and is associated with a worse clinical outcome. Those with wide QRS complex morphology (typically LBBB) are candidates for cardiac resynchronization therapy (CRT) with biventricular pacing. Ventricular dyssynchrony has also been associated with worsening mitral regurgitation. CRT has been found to increase survival in patients on standard medical therapy. Typical candidates for CRT include patients with underlying normal sinus rhythm and a QRS duration of greater than 120 ms and an ejection fraction of less than 35% with class III or IV symptoms. Areas of uncertainty regarding CRT include patients with atrial fibrillation, right bundle branch block, New York Heart Association class II, or QRS duration between 120 and 150 ms or less than 120 ms. Implantable cardioverter defibrillators (ICD) are recommended in post MI patients (40 days from the incident event and an ejection fraction of less than 30%), patients with a dilated cardiomyopathy of any cause (ischemic or non-ischemic), and an ejection fraction of 30-35% with class II or III symptoms and perhaps in patients with an ejection fraction of less than 30% who are asymptomatic. The order and timing of device therapy, i.e., whether the patient should have CRT, ICD, or both therapies remains to be more further delineated.

In summary, the new guidelines call special attention to the prevention of heart failure by earlier treatment of risk factors and seek to identify conditions where heart failure may be particularly prevalent. For example, heart failure has a 50% higher incidence in the African American population and is more often associated with hypertension. End-stage renal disease due to hypertension is 20 fold higher in African Americans as well. Heart failure in elderly patients has also been inadequately recognized. The prevalence of heart failure in the elderly population rises from 2-3% at age 65 to more than 80% in persons over 80 years of age. In this population, especially elderly women with a history of hypertension, many will often be found on non-invasive cardiac imaging to have preserved systolic function and heart failure on the basis of diastolic dysfunction. In this patient subset, maintenance of sinus rhythm or effective control of the ventricular rate in those with chronic atrial fibrillation, may significantly improve symptoms. A careful awareness of early risk factors in susceptible populations and attention to adding and titrating appropriate medications at desired doses in combination with consideration for device therapy form an integral part of the ACC/AHA 2005 guidelines.

BIBLIOGRAPHY

NEJM 2004; 351:2049-2057.
Circulation 2005; 112:1-28