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ELDER CARE

A Resource for Providers



Heart Failure – Treatment

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A previous issue of Elder Care dealt with the diagnosis of heart failure (HF). This newsletter discusses treatment, and includes self-management, medications, and anti-arrhythmic devices.

Self-Management

Self-management (Table 1) includes teaching patients to monitor their weight each day, and report a weight gain of more than 2-4 lbs over 1-2 days. They should engage in regular aerobic activity and adhere to medication regimens. Nutritional counseling to maintain a low-sodium, fluid-restricted diet is also important. Patient education is essential, as medication and diet non-adherence are the most common reasons for HF hospital readmission.

Medications

Most patients with HF need treatment with multiple medications. Many patients are undertreated.

Diuretics, while never shown to improve survival, are a key treatment for reducing symptoms in HF patients who experience fluid overload.

Afterload Reduction with an angiotensin converting enzyme inhibitor (ACEI) has been shown to improve both survival and symptoms. ACEI dosing should be started at a low dose and gradually increased to goal (Table 2). Outpatient treatment should be once daily, and there are data to suggest that evening dosing may be more effective due to diurnal variations in activity of the renin-angiotensin system. In patients with low blood pressure, evening dosing of ACEI may be better tolerated. Check potassium and renal function before starting treatment, and 2-3 weeks after initiating ACEI treatment or increasing dose. Use estimated creatinine clearance (CrCl) to determine renal function, because serum creatinine can be misleading in older adults due to low muscle mass.

When patients cannot tolerate ACEIs because of cough, angiotensin receptor blockers (ARBs) can be alternatives.

Angioedema from ACEIs, however, precludes ARB therapy due to cross-over reactions between the two drug classes. As with ACEIs, potassium levels and renal function should be monitored when patients take ARBs.

Isosorbide and hydralazine, in combination, can be used as an alternative for afterload reduction when patients cannot tolerate either ACEIs or ARBs.

Beta Blockers, namely carvedilol, bisoprolol, and extended-release metoprolol, improve symptoms and enhance survival (Table 2) There is no proven “class effect” for beta blockers and consequently they cannot be freely interchanged in HF patients. Carvedilol is the most studied of the beta blockers and all of the clinical trials have shown benefit. Dosing should begin at 3.125 mg bid and be increased slowly every 2-3 weeks until the patient reaches target dose (Table 3) or cannot tolerate increased dosing due to side effects, e.g. bronchospasm, symptomatic bradycardia, or hypotension.

Aldosterone Antagonists include spironolactone and eplerenone. Spironolactone has been shown to improve survival in patients with activity-limiting HF symptoms at the studied dose of 25 mg daily. Gynecomastia is a side effect of spironolactone in 10% of patients. Eplerenone is a selective antagonist and has fewer side effects but it has been studied only in post-MI HF, is much more expensive, and it yields a smaller mortality reduction than spironolactone. With both of these drugs, potassium levels should be monitored one week after starting treatment and periodically thereafter. Life-threatening hyperkalemia can occur, especially when patients have renal impairment or are also taking an ACEI or ARB. Avoid aldosterone antagonists when patients have renal insufficiency (CrCl <50 ml/min).

TIPS FOR TREATING PATIENTS WHO HAVE HEART FAILURE

- Use the key components of medical therapy – ACE inhibitors and beta blockers – in all patients with heart failure for survival benefit and symptom improvement, unless contraindicated.
- Up-titrate to target or maximally tolerated doses to optimize survival benefit.
- Monitor potassium levels and renal function to avoid life-threatening complications.
- Consider implantation of a cardioverter-defibrillator in patients with an EF < 35% on optimal medical therapy—remember the benefit is less in older adults, those with multiple co-morbidities, and others with a limited lifespan.

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Digoxin improves symptoms and reduces hospitalizations for patients with systolic heart failure, but it does not improve survival. Consequently, digoxin should only be given to HF patients with symptoms unrelieved by standard therapy. Monitoring serum levels is important because levels ≥ 1.0 mg/dl are associated with increased mortality rates.

Antiarrhythmic Therapy

HF patients whose ejection fraction remains below 35% despite good medical therapy should be considered for an automatic implantable cardioverter defibrillator (AICD). Survival benefit may not be realized for 5-7 years after implantation and older patients (>75 years) may not experience the same benefit as younger patients. A patient's overall functional status and life expectancy should thus be considered prior to referral for implantation of an AICD.

Table 1. Self Management for Heart Failure	
WEIGHT	Monitor daily and report weight gain exceeding 2-4 lbs over 1-2 days.
ACTIVITY	Aerobic activity as tolerated on most or all days of the week
DIET	Low-sodium, fluid restricted. Patients may benefit from formal nutrition consultation
MEDS	Emphasize importance of adhering to medication regimens and obtaining interval lab

Table 2. Results of Beta Blockers Studies in Older Adults with Heart Failure		
Drug	Ages Studied	Reduction in Death Rate vs Placebo
Carvedilol	≥ 59 yr	62%
Bisoprolol	≥ 71 yr	32%
Metoprolol (extended release)	≥ 65 yr	37%
	≥ 75 yr	29%

Geriatric Principles

Heart failure affects over 10% of the elderly population over age 80, and effective treatment involves working in partnership with your older patients. Optimizing function and comfort while minimizing hospital admissions should be the aim of all health care givers treating geriatric HF patients. Preventing complications from both the disease processes and medication side effects are additional goals. Further, as HF treatment usually requires multiple medications, physicians should consider cost when prescribing newer drugs for older adults. If your patient cannot afford the medication, they will not derive benefit from your treatment.

Treating HF well in the geriatric population is a challenge, and your patients will benefit from your expertise. Get comfortable with the nuances of CHF care in older adults and you will greatly improve the quality of life of your older adult HF patients.

Table 3. Starting and Target/Maximal Doses of Medications Commonly Used to Treat Heart Failure		
ACE Inhibitors (Once-daily preparations)	Dose	
	Initial	Target
Fosinopril	10 mg qd	40 mg qd
Lisinopril	2.5 mg qd	40 mg qd
Perindopril	2 mg qd	16 mg qd
Ramipril	1.25 mg qd	10 mg qd
Trandolapril	1 mg qd	4 mg qd
Angiotensin Receptor Blockers (Once-daily preparations)		
Candesartan	4 mg qd	32 mg qd
Beta Blockers		
Carvedilol	3.125 mg bid	25 mg bid
Bisoprolol	2.5 mg	10 mg qd
Metoprolol (ER)	12.5 mg	200 mg qd

References and Resources

- Hunt SA, Abraham WT, Chin MH, et al. ACC/AHA 2005 guideline update for the diagnosis and management of chronic heart failure in the adult: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. <http://www.acc.org/clinical/guidelines/failure/index.pdf>.



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