



CHRONIC HEART FAILURE IN ADULTS CLINICAL PRACTICE GUIDELINES

Revised 7/2017

Definition	<p>A complex clinical syndrome that impairs the ability of the ventricle to fill with and eject blood. It may result from a structural or functional cardiac disorder. In systolic dysfunction, there is decreased cardiac contractility. In diastolic dysfunction, there is abnormal cardiac relaxation due to stiffness with resultant decreased filling. Systolic and diastolic function are usually found together.</p> <p>There are two broad categories:</p> <ol style="list-style-type: none"> 1. Heart Failure with preserved ejection fraction (HFpEF) with ejection fraction ≥ 50 percent and diastolic dysfunction. 2. Heart Failure with reduced ejection fraction (HFrEF) with ejection fraction of ≤ 40 percent. <p>Occasionally Heart Failure has features of HFpEF and HFrEF with ejection fractions of 41-49 percent.</p>		
Target Population	Adults with chronic heart failure or at high risk of developing heart failure		
Goal	Improvement in symptoms and reduction in morbidity and mortality		
Risk Factors	<ul style="list-style-type: none"> • Hypertension • Diabetes Mellitus • Metabolic syndrome • Atherosclerotic Disease 		
Classification	ACCF/AHA Stages of heart failure	NYHA Functional Classification	
	A	At high risk for heart failure but without structural heart disease	
	B	Structural heart disease without signs or symptoms of heart failure	I Asymptomatic with normal activity
	C	Structural heart disease with prior or current symptoms of heart failure	I Asymptomatic with normal activity
			II Comfortable at rest ,but symptomatic normal

				activity
			III	Comfortable at rest, but symptomatic with less than normal activity
			IV	Symptomatic with any activity or at rest
	D	Refractory heart failure requiring specialized intervention	IV	
ACCF—American College of Cardiology Foundation AHA—American Heart Association NYHA—New York Heart Association				
History and physical exam	A thorough history and physical exam to include: <ul style="list-style-type: none"> • History of alcohol and drug abuse • Orthostatic blood pressure changes • Weight and height • Calculation of body mass index • Depression screening and education • OSA screening • Determining HF stage and NYHA class during assessment 			
Symptoms of Heart Failure	Due to excess fluid	Dyspnea, orthopnea, edema, abdominal pain due to hepatic congestion, and abdominal distension due to ascites		
	Due to reduction in cardiac output	Fatigue and weakness		
Positive Physical findings	Vital signs	<ul style="list-style-type: none"> • Resting sinus tachycardia, narrow pulse pressure. (Decrease cardiac output suggested when pulse pressure below 25 mmHg) 		
	Appearance	<ul style="list-style-type: none"> • Diaphoresis • Cool, pale, and sometimes cyanotic extremities suggesting decreased perfusion and 		

		oxygenation.
	Additional findings	<ul style="list-style-type: none"> • Jugular venous distention • Pulmonary congestion manifested by rales • Displace precordial impulse • S3 gallop • Hepatomegaly, splenomegaly, scrotal edema • Peripheral edema. • Pulsus alternans (virtually pathognomonic of severe left ventricular failure)
Initial Testing	<ul style="list-style-type: none"> • ECG • CBC • Serum electrolytes including calcium and magnesium, BUN, and creatinine • Liver function tests • Lipid profile • FBS • TSH • BNP or NT-proBNP helpful in making diagnosis (levels below 100pg/ml have a very high negative predictive value for heart Failure. Most patients with heart failure have values above 400 pg/ml) • Troponin I or T in patients presenting with acutely decompensated heart failure • Chest X-ray • Echocardiogram • Exercise testing in selected patients. • Natriuretic peptide biomarker screening and early intervention may prevent heart failure. Measurement is useful to support a diagnosis, to establish a prognosis and pre-discharge to establish a post-discharge prognosis. <p>Note: There are two types of similar assays, BNP (B-type natriuretic peptide and NT-proBNP (N-terminal pro-B-type natriuretic peptide NT-proBNP). Because BNP is a substrate for neprilysin, it can elevated BNP levels, but not NT-proBNP levels.</p>	
Therapy for HFpEF	<p>Treatment is directed to management of associated conditions with diuretics to relieve volume overload.</p> <ul style="list-style-type: none"> • Monitoring of serum natriuretic peptide levels • Sodium and alcohol restriction • Treatment with a mineralocorticoid receptor antagonist if patients can be monitored for potassium and renal function changes. 	

		<ul style="list-style-type: none"> Nitrates, phosphodiesterase-5 inhibitors, and digoxin should not be used.
Therapy for HFrEF		
	Stage A	<ul style="list-style-type: none"> Control hypertension with diuretics, ACE inhibitors, Angiotensin receptor blockers and Beta blockers. Data is less clear for calcium channel blockers and alpha blockers for reducing the risk of heart failure. Aggressive lipid control Promote heart healthy life style. Stop smoking Restrict alcohol use and eliminate drugs of abuse Promote weight reduction to within 10 percent of ideal body weight Control blood sugar Drugs that contribute to heart failure (such as non-steroidal anti-inflammatory drugs, antiarrhythmic drugs, calcium channel blockers, thiazolidinediones) should be avoided. Sodium restriction to < 1500 mg/d. Use of ACE inhibitor or Angiotensin Receptor Blocker (if ACE inhibitor intolerant) and one of 3 beta blockers bisoprolol, carvedilol or sustained release metoprolol succinate) in patient with reduced ejection fraction and current or prior symptoms.
	Stage B	<ul style="list-style-type: none"> All recommendations for stage A Treatment of sleep disorders In selected patients, intra-cardiac defibrillator, valvular surgery or revascularization as appropriate.
	Stage C	<ul style="list-style-type: none"> All recommendations for stage A Specific education on monitoring symptoms, changes in weight, sodium restriction, medication compliance, and maintaining physical activity. Sodium restriction to < 3 g/day. Exercise training or regular physical activity Omega 3 polyunsaturated fatty acid supplementation. Loop diuretics in patients with reduced ejection who have fluid retention to improve symptoms. Use of ACE inhibitor or (ARB) Angiotensin

		<p>Receptor Blocker (if ACE inhibitor intolerant) and one of 3 beta blockers bisoprolol, carvedilol or sustained release metoprolol succinate in patient with reduced ejection fraction and current or prior symptoms.</p> <ul style="list-style-type: none"> • Aldosterone antagonists • In selected patients <ul style="list-style-type: none"> ○ Hydralazine/isosorbide dinitrate ○ ACE inhibitor and ARB ○ Digitalis ○ Angiotensin receptor neprilysin inhibitor (ARNI) in place of an ACE or ARB for patients with chronic heart failure Should not be given within 36 hours of ACE inhibitors. ○ Ivabradine <p>In selected patients</p> <ul style="list-style-type: none"> • Cardiac resynchronization therapy • Implantable cardioverter-Defibrillator • Revascularization or vascular surgery
	Stage D	<ul style="list-style-type: none"> • Advanced care measures • Heart transplant • Positive inotropic agents only as palliation for end stage disease. • Temporary or permanent Mechanical cardiac support
	Immunizations	Influenza and pneumococcal
	Exercise training	Offered to patients with stable New York Heart Association class II-III who do not have advanced arrhythmias or other contraindications to exercise.
Medication Reconciliation	Accurately and completely reconcile all medications patient is taking across the continuum.	
Member Education	<p>Member Education should focus on:</p> <ul style="list-style-type: none"> • Diagnosis • Prognosis • Weight parameters • Self-monitoring of daily weights • Symptoms of worsening heart failure • Dietary recommendations • Fluid intake 	

	<ul style="list-style-type: none"> • Activity • Medication knowledge and compliance. • Limiting alcohol intake • Smoking cessation
End of Life Issues	<ul style="list-style-type: none"> • Patient and family education regarding prognosis is recommended with heart failure at end of life. • Advance directives are recommended. • Palliation and hospice care are appropriate to relieve suffering. • Aggressive procedures within the final days of life are not appropriate.

Source:

Borlaug, BA, Pathophysiology of heart failure with preserved ejection fraction, Dec 2016.

Borlaug, BA and Colucci, WS, Treatment and prognosis of heart failure with preserved ejection fraction., April 2017.

Yancy CW, Jessup M, et. al. 2017 ACC/AHA/HFSA focused update of the 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America. Circulation. 2017;135:e240–e327. DOI: 10.1161/CIR.0000000000000509.

Yancy CW, Jessup M et. al. 2016 ACC/AHA/HFSA focused update on new pharmacological therapy for heart failure: an update of the 2013 ACCF/AHA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America. J Cardiac Fail 2016;22:659–69.

Yancy, CW, Jessup, M., Bozkurt, B., et. al. ACCF/AHA Guideline for the Management of Heart Failure, A Report of the American College of Cardiology Foundation/American Heart Association Task Force of Practice Guideline, Circulation. 2013: 128: e240-e327.

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