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MQIC

Michigan Quality Improvement Consortium Guideline

Adults with Heart Failure with Reduced Ejection Fraction

The following guideline recommends diagnostic evaluation, pharmacologic treatment and education that support effective patient self-management.

Eligible Population	Key Components	Recommendation and Level of Evidence
Adults with suspected heart failure, with reduced (EF<40%) or mildly reduced ejection fraction (EF 40-50%)	Evaluation	Initial assessment should include: Thorough history and physical examination **[C]**, including depression screening, assessment for coronary artery disease and risk factors, detailed FHx to identify cardiomyopathy, sudden cardiac death, or unexplained death in first/second degree relative(consider genetic testing) [5] Testing includes: chest X-ray, 12-lead electrocardiogram, lipid profile, CBC, comprehensive metabolic panel and magnesium, TSH, serum iron, ferrtin, transferrin saturation, urinalysis, echocardiography with Doppler to assess LV function **[C]**, and >35 y/o an ischemic evaluation (CT coronary angiogram, Cardiac PET) **[D].** Natriuretic peptide levels (e.g., BNP and NT-proBNP) are useful for diagnosis and therapy response. NT-proBNP is preferred for those on ARNI therapy. **[B]** Serial monitoring should include weight, volume status, electrolytes, renal function and activity tolerance.
Adults with heart failure with reduced ejection fraction	Management	Recommended for routine use: ACE inhibitors **[A],** ARB's **[A]** or Angiotensin receptor blocker/neprilysin inhibitor (AR/NI) in all patients unless contraindicated[1], but drugs from these classes should not be used together. **[A]** Beta-blockade using carvedilol, sustained-release metoprolol, or bisoprolol in all stable patients, unless contraindicated[1,3] **[A]** Mineralocorticoid Receptor Antagonists (e.g., spironolactone, eplerenone) for patients with symptoms of heart failure, preserved renal function (creatinine < 2.0 in women; creatinine < 2.5 in men) and normal serum potassium concentration. **[A]** Sodium-Glucose Cotransporter 2 Inhibitors (SGLT2i, e.g. empagliflozin, dapagliflozin) should be used in all patients, unless contraindicated, including those with or without type 2 diabetes **[A]** Contraindicated in Type I diabetes. Use with caution in patients with eGFR<20.[4] Consider hydralazine and isosorbide dinitrate for patients who cannot tolerate ACE inhibitors or ARBs **[A]**, or as an adjunct treatment for patients who self-identify as African American who remain symptomatic and/or hypertensive (SBP > 120 mm Hg) despite standard therapy despite standard therapy.[2] Diuretics and sodium restriction for evidence of fluid retention. **[A]** Digoxin should only be used for patients who remain symptomatic despite optimized use of diuretics, ACE inhibitors, ARBs and beta blockers. **[A]**; Referral to heart failure specialist is recommended. Ivabradine for patients with symptomatic HF, LVEF <35%, on maximally tolerated (or target) beta blocker dose, in sinus rhythm with rate >70 bpm, and if hospitalized within the last year. **[A]** Referral to heart failure specialist is recommended. IV (not oral) iron for patients with anemia and ferritin < 100 ug/L or 100-300 ug/L and transferrin saturation <20%. **[A]** Recommend initiating a cardiac rehabilitation program. Vaccination against influenza and pneumococcal disease **[B]** and any other age- and condition-specific CDC recommended vaccines. Recommended for use in select patients: Referral for cardiac resynchronization therapy (e.g., biventricular pacemaker) for patients with LVEF < or = 35%, LBBB, QRS duration > 150 msec and class II, III or ambulatory class IV heart failure. **[A]** Referral for evaluation for implantable defibrillator in patients with LVEF <35% and either symptomatic heart failure or ischemic cardiomyopathy. **[A]** Consider referral of complex patients to an advanced heart failure management program, including one that specializes in heart failure rehabilitation. Based on current evidence, guideline directed medical therapy should be continued indefinitely. **[B]**
	Counseling and care management	Engage patients in office-based care management and self-management: ◆ Careful review of medication regimen with patient and caregivers at hospitalization or other changes in treatment ◆ Recommend alignment with a Clinical Pharmacist ◆ Daily self-monitoring of weight and adherence to recommended patient action plan ◆ Recognition of symptoms and when to seek medical attention ◆ Moderate dietary sodium restriction (e.g., 2,000-2,500 mg sodium/day) and fluid restriction (e.g., 60-70 oz fluids) ◆ Risk factor modification (regular exercise 5 times per week as tolerated; smoking cessation; control of BP, DM, lipids) ◆ Avoid alcohol intake, illicit drug use, and the use of NSAIDs ◆ Discuss goals of care, prognosis, advance directives, and palliative care; reassess goals of care as disease progresses

[1]Contraindications include: life-threatening adverse reactions (angioedema or anuric renal failure), pregnancy, hypotensive patients at immediate risk of cardiogenic shock, systolic blood pressure < 80 mm Hg, serum creatinine > 3 mg/dL, bilateral renal artery stenosis, or serum potassium > 5.5 mmol/L.

[2] https://www.ahajournals.org/doi/10.1161/CIR.0000000000001063 www.jacc.org/doi/10.1016/j.jacc.2023.12.024

[3]Contraindications include: patients with current or recent fluid retention history, unstable or poorly controlled reactive airway disease, symptomatic bradycardia or advanced heart block (unless treated with a pacemaker), or recent treatment with an intravenous positive inotropic agent.

[4] SGLT2i contraindicated for eGFR<20, limited data for eGFR <30, use with caution.

[5] GENETC Testing No controlled studies have shown clinical benefits of genetic testing for cardiomyopathy, but genetic testing contributes to risk stratification and has implications for treatment, currently most often for decisions regarding defibrillators for primary prevention of sudden death5 and regarding exercise limitation for hypertrophic cardiomyopathy and the desmosomal variant

Levels of Evidence for the most significant recommendations: A = randomized controlled trials; B = controlled trials, no randomization; C = observational studies; D = opinion of expert panel

This guideline lists core management steps. It is based on the 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; and 2013 ACC/AHA Guideline for the Management of Heart Failure: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Developed in Collaboration With the American College of Chest Physicians, Heart Rhythm Society and International Society for Heart and Lung Transplantation. Individual patient considerations and advances in medical science may supersede or modify these recommendations. 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure" Circ 2022:145e895-1032.