Summary of Heart Failure Guidelines

Health Net®

1 Diagnostic evaluation of heart failure

History	Symptoms	Examination	Diagnostic tests
• Family history: – Cardiomyopathy • Cardiovascular disease history • Comorbidities • Relevant exposures • Medications that may cause or exacerbate HF	• Dyspnea • Orthopnea/PND • Bendopnea • Edema • Fatigue • Cognitive dysfunction and depression • Chest pain • Sleep disorders	• Appearance • Vital signs, weight • Jugular venous distension • Pulmonary evaluation: – Rales – Effusion • Cardiac evaluation • Abdominal evaluation: – Hepatomegaly – Ascites • Extremities evaluation • Assess risk for adverse outcomes – Seattle HF Model	• CBC, CMP, TSH, Mg, UA • Measurement of natriuretic peptide • Chest radiograph • Electrocardiogram • Echocardiogram • Consider testing cardiac troponin • Other potential tests: – Noninvasive imaging for myocardial ischemia – Cardiac MRI – Radionuclide ventriculography – Left-heart cath

2 Diagnosis

Type	Ejection fraction
I. HF with reduced EF (HFrEF)	≤ 40%
II. HF with midrange EF (HFmrEF)	> 40 but < 50%
III. HF with preserved EF (HFpEF)	≥ 50%

2a NYHA functional classification

Class	Objective assessment
I	No limitation of physical activity. Ordinary activity does not cause symptoms of HF
II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity causes symptoms of HF
III	Marked limitation of physical activity. Comfortable at rest but less than ordinary physical activity causes symptoms of HF
IV	Unable to carry on any physical activity without symptoms of HF, or symptoms of HF at rest

3 Common factors that precipitate HF decompensation

- Medication and/or sodium and/or fluid restriction nonadherence
- Acute myocardial ischemia
- Uncontrolled high blood pressure
- AF and other arrhythmias
- Initiation of negative inotropic drugs (e.g., verapamil, nifedipine, diltiazem, beta blockers)
- Initiation of drugs that increase salt retention (e.g., corticosteroids, thiazolidinediones, NSAIDs)
- Pulmonary embolus
- Excessive alcohol use
- Illicit drug use: amphetamines, cocaine
- Endocrine abnormalities (e.g., diabetes, hyperthyroidism, hypothyroidism)
- Concurrent infections (e.g., sepsis, pneumonia, viral illnesses)
- Additional acute cardiovascular disorders (e.g., valvular disease, endocarditis, myopericarditis, aortic dissection)
- Deterioration of renal function

3a Medications that may cause or exacerbate heart failure

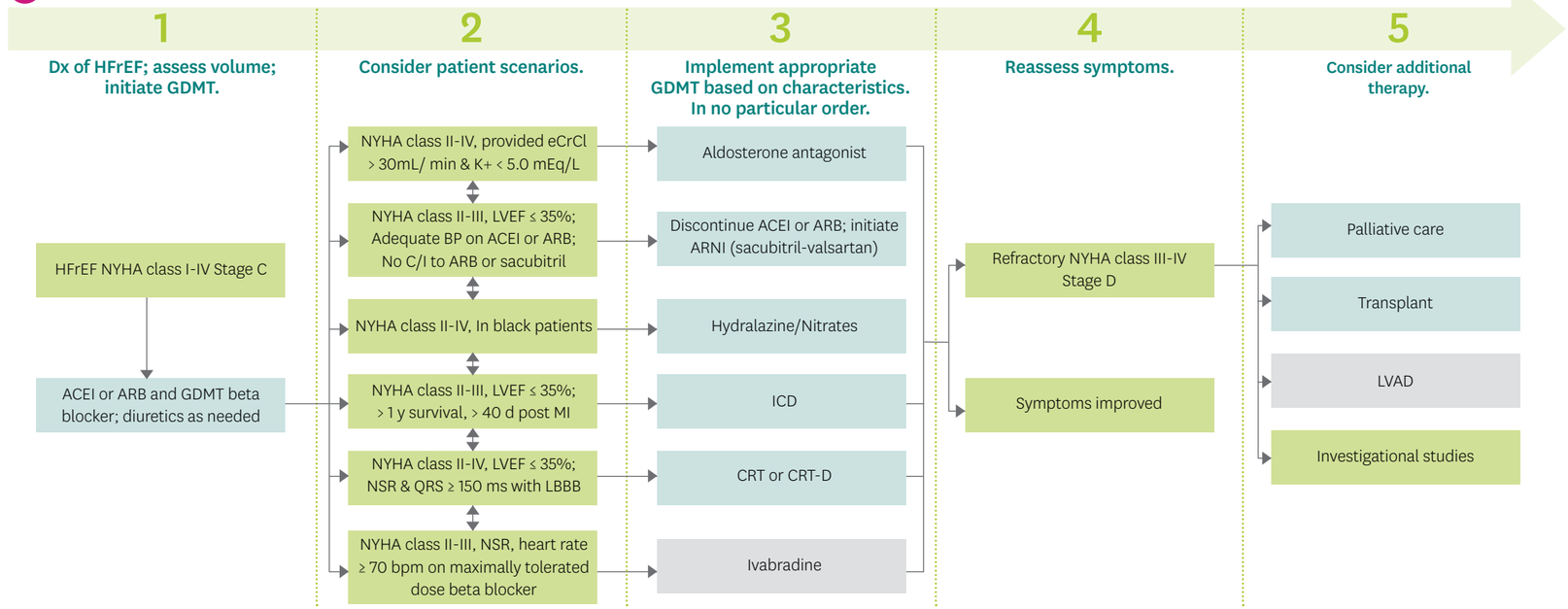
- Calcium channel blockers: verapamil, diltiazem, nifedipine
- Tricyclic antidepressants
- Type I antiarrhythmic agents (e.g. flecanide, disopyramide, and quinidine)
- Costicosteroids
- Thiazolidinediones (glitazones)
- Saxagliptin
- Anthracycline chemotherapeutic agents
- Tyrosine kinase inhibitors (e.g. sutinib)
- Beta-blockers, if used in unstable or unsuitable patients
- NSAIDS (nonselective and COX-2 selective)
- Recreational stimulants: amphetamines, cocaine
- Drugs that prolong the QT interval
- TNF-α receptor antagonists
- Trastuzumab (Herceptin)
- Minoxidil
- Clozapine

4

Progressive stages → Increased morbidity, mortality, and BNP → Progressive treatment

DX	Stage	NYHA	Clinical presentation	Theraphy goals and strategies	Treatment recommendations
At risk for heart failure	A	N/A	**At risk for HF but without structural heart disease or symptoms** • HTN, DM, obesity • Metabolic syndrome • Atherosclerotic disease • Using cardio toxins • FH of cardiomyopathy	• Heart-healthy lifestyle • Sodium restriction • Prevent vascular, coronary disease • Prevent LV structural abnormalities	• Treat HTN, optimal BP should be < 130/80 • Treat AF, DM, lipid disorders, and atherosclerotic vascular disease; use statins and ACEI or ARB as appropriate • Control or avoid obesity, tobacco use, and cardio toxic agents – Avoid cocaine, methamphetamines, excessive alcohol – Monitor patients receiving cardio toxic chemotherapy
At risk for heart failure	B	I	**Structural heart disease but without signs or symptoms of HF** • Previous MI • Left ventricle remodeling, including left ventricular hypertrophy (LVH) and low ejection fraction (EF) • Asymptomatic valvular disease	• Sodium restriction • Prevent HF symptoms • Prevent further cardiac remodeling	• ACEI or ARB, beta blockers, and statins as appropriate if history of MI or ACS • ACEI or ARB and beta blockers if rEF even without MI history • In selected patients: – ICD: ischemic cardiomyopathy with LVEF≤ 30% – Revascularization or valvular surgery – Avoid nondihydropyridine calcium channel blockers
Heart failure	C	I-IV	**Structural heart disease with prior or current symptoms** • Known structural heart disease, and • HF signs and symptoms: – Shortness of breath and fatigue – Reduced exercise tolerance	• Patient education on self-care • Sodium restriction • Identify comorbidities • Screen for and treat sleep disorders • Control symptoms, prevent hospitalizations and mortality • Improve health-related quality of life (HRQOL)	**HF*p*EF** • Follow guideline driven indications for comorbidities: – HTN: goal SBP < 130, use ACEI/ARB/beta blockers – AF, CAD, DM • Consider ARBs • Consider aldosterone receptor antagonists in appropriate patients • Diuretics as needed for fluid overload **HF*r*EF Step 1:** • ACEI or ARB and beta blockers • Diuretics as needed for fluid overload
Heart failure	D	IV	**Refractory HF requiring specialized interventions** • Marked HF symptoms at rest despite maximal medical therapy • Recurrent hospitalizations or cannot be discharged without specialized interventions	• Control symptoms • Improve HRQOL • Prevent hospital readmissions • Establish patient's end-of-life goals	• Palliative care • Transplant • Left Ventricular Assist Device (LVAD) • Investigational studies

4a Treatment of HFrEF Stage C and D



Continue guideline directed management and therapy with serial reassessment and optimized dosing/adherence

PROVIDER COMMUNICATIONS

5 Drugs commonly used for HFrEF (Stage C HF)

Drug	Initial daily dose	Maximum daily dose
ACEIs: Angiotensin converting enzyme Inhibitors		
Captopril	6.25 mg TID	50 mg TID
Enalapril	2.5 mg BID	10-20 mg BID
Fosinopril	5-10 mg QD	40 mg QD
Lisinopril	2.5-5 mg QD	20-40 mg QD
Perindopril	2 mg QD	8-16 mg QD
Quinapril	5 mg BID	20 mg BID
Ramipril	1.25-2.5 mg QD	10 mg QD
Trandolapril	1 mg QD	4 mg QD
ARBs: Angiotensin receptor blockers		
Candesartan	4-8 mg QD	32 mg QD
Losartan	25-50 mg QD	50-150 mg QD
Valsartan	20-40 mg BID	160 mg BID
ARNIs: Angiotensin receptor-neprilysin inhibitors		
Sacubitril/valsartan	49/51 mg BID may start at 24/26 mg BID	97/103 mg BID
I_f channel inhibitor		
Ivabradine	5 mg BID	7.5 mg BID
Aldosterone antagonists		
Spironolactone	12.5-25 mg QD	25 mg QD or BID
Eplerenone	25 mg QD	50 mg QD
Beta blockers		
Bisoprolol	1.25 mg QD	10 mg QD
Carvedilol	3.125 mg BID	50 mg BID
Carvedilol CR	10 mg QD	80 mg QD
Metoprolol Succinate ER (metoprolol CR/XL)	12.5-25 mg QD	200 mg QD
Isosorbide dinitrate (ISDN) and Hydralazine (HYD)		
Fixed-dose combination	20 mg ISDN/37.5 mg HYD TID	40 mg ISDN/75 mg HYD TID
Isosorbide dinitrate and hydralazine	20-30 mg ISDN/25-50 mg HYD TID or QID	40 mg ISDN/100 mg HYD TID
Sodium-glucose cotransporter 2 inhibitors (SGLT2i)		
Dapagliflozin	10 mg once	10 mg once

6 Recommendations for hospital discharge after decompensated HF

Schedule follow-up visit within 7 to 14 days and telephone follow-up within 3 days

Address while inpatient, at discharge, and in follow-up visits:

- Initiation of GDMT if not done or contraindicated
- Causes of HF, barriers to care, and limitations in support
- Assessment of volume status and blood pressure with adjustment of HF therapy
- Optimization of chronic oral HF therapy
- Renal function and electrolytes
- Management of comorbid conditions
- HF education, self-care, emergency plans, and adherence
- Palliative or hospice care

Refer high-risk patients to multidisciplinary HF disease management programs

7 Recommendations for HF patient education and self-management

Heart failure disease education:

- Causes
- Definition, what is heart failure
- Diagnosis
- HF symptoms and signs of decompensation: fatigue/tiredness, weakness, weight gain, edema, SOB

Heart-healthy lifestyle:

- Diet: low sodium, limit fats and cholesterol, limit alcohol
- Monitor and control of high blood pressure
- Monitor intake and restrict fluids in advanced or decompensated HF
- Regular physical activity for patients able to participate
- Smoking cessation
- Stress reduction, adequate rest, and social support
- Weight loss if obese and maintenance of healthy weight if underweight

Take medications as prescribed

Identify and avoid decompensation triggers (e.g. excessive salt intake, missing medication doses, or exercising too hard)

Treatment:

- Cardiac rehabilitation to improve function: exercise, heart-healthy diet, and stress reduction
- Devices
- Medications
- Procedures and surgery

References and Resources

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