

Suspect Heart Failure

Symptoms	Signs	Risk Factors	Electrocardiogram (ECG)	Chest X-Ray (CXR)
<ul style="list-style-type: none"> Breathless Fatigue Leg swelling Confusion* <p>* especially in the elderly</p>	<ul style="list-style-type: none"> Lung crackles Elevated Jugular Venous Pressure (JVP) Ankle oedema Displaced apex 3rd heart sound, 4th heart sound (S3, S4) Heart murmur Low Blood Pressure (BP) 	<ul style="list-style-type: none"> Hypertension Ischemic Heart Disease (IHD) Valve disease Diabetes mellitus Heavy alcohol use Chemotherapy Family History of HF Smoking Hyperlipidemia 	<ul style="list-style-type: none"> Previous Myocardial Infarction (MI) Left Ventricular Hypertrophy (LVH) Left Bundle Branch Block (LBBB) Abnormal T waves Tachycardia 	<ul style="list-style-type: none"> Cardiomegaly Pulmonary Venous Redistribution Pulmonary oedema Pleural effusion No lung tumour No lung disease

If Heart Failure Diagnosis Remains in Doubt

Echocardiogram (ECHO)	Multiple-gated acquisition radionuclide ventriculography (MUGA)	B-type Natriuretic Peptide (BNP) and NT-proBNP, if available	REFER
<ul style="list-style-type: none"> Left Ventricular Ejection Fraction (LVEF) Left Ventricular End-Diastolic Diameter Left Ventricular Hypertrophy Wall motion abnormalities RV Size and function Valve dysfunction 	<ul style="list-style-type: none"> LV function (EF) LV size RV size Wall motion abn.'s 	<ul style="list-style-type: none"> BNP - < 100 pg/ml, HF unlikely - > 500 pg/ml, HF likely NT-proBNP - < 300 pg/ml, HF unlikely - > 900 pg/ml, HF likely (age 50-75) - > 1800 pg/ml, HF likely (age > 75) 	<ul style="list-style-type: none"> Acute & Severe - Emergency Room (ER) Chronic - HF Specialist - moderate/severe in 2 weeks - mild in 4 weeks

Educate Patient About Heart Failure

Warning Signs and Symptoms	Lifestyle	Drug and Device Treatment Regimen
<ul style="list-style-type: none"> Dyspnea <ul style="list-style-type: none"> - When flat - During sleep - With less exertion Fatigue with less exertion Symptoms at rest Sudden weight gain Lightheaded/faint Prolonged palpitations Eliminate added salt 	<ul style="list-style-type: none"> No need to push oral fluids Lose weight if significant obesity Regular tolerated activity Reduce cardiovascular risk factors <ul style="list-style-type: none"> - Hypertension - Lipids - Diabetes Mellitus (DM) Weigh daily if fluid retention Smoking cessation 	<ul style="list-style-type: none"> Diuretics, nitrates, digoxin <ul style="list-style-type: none"> - Improve symptoms Angiotensin Converting Enzyme Inhibitor (ACE-I)/Angiotensin Receptor Blocker (ARB), Beta Blocker (BB), spironolactone <ul style="list-style-type: none"> - Improve survival Combination drug regimen is required Most require dose adjustments Most will be used long term What are the common side effects Consider devices with low LVEF or wide QRS

Follow and Refer Your Heart Failure Patient

How Often To Follow

- Acute change in HF symptoms
 - within 24-48 hrs
- After HF hospitalization:
 - within 2 weeks
- After HF ER visit
 - within 2 weeks
- After addition of HF medication or increase in dose
 - if unstable: within 7 days
 - if stable: within 2 weeks
 - if asymptomatic: 1 month
- Stable on optimized therapy
 - 3 months

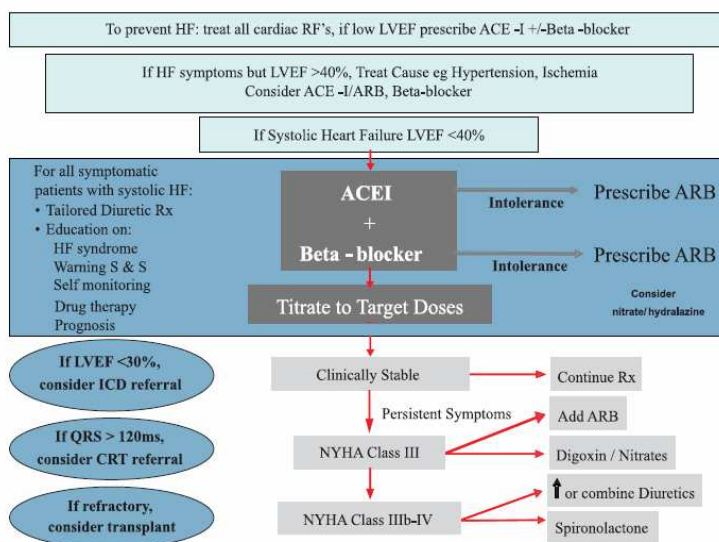
What To Follow

- At each visit record:
 - HF symptoms as per New York Heart Association (NYHA) classification
 - new symptoms
 - body weight
 - Heart Rate (HR)
 - sitting and standing BP
 - JVP
 - ankle oedema
 - auscultate heart & chest
 - check drugs used (prescription and non-prescription)
- Periodic based on above:
 - ECG, CXR, ECHO, BNP

When To Refer

- New onset HF
- Recent HF hospitalization
- HF associated with:
 - ischemia
 - hypertension
 - valvular disease
 - syncope
 - renal dysfunction
 - multiple comorbidities
- Unknown aetiology
- Family history of HF
- Intolerance to therapies
- Poor compliance with treatment regimen

Prevention and Treatment of Heart Failure



Evidence Based Heart Failure Drugs and Doses (mg)*

Drug	Start Dose	Target Dose
ACE Inhibitors		
Captopril	6.25-12.5 mg TID	25-50 mg TID
Enalapril	1.25-2.5 mg BID	10 mg BID
Lisinopril	2.5-5 mg OD	20-35 mg OD
Perindopril	2-4 mg OD	4-8 mg OD
Ramipril	1.25-2.5 mg BID	5 mg BID*
Trandolopril	1-2 mg OD	4 mg OD
Beta-Blockers		
Bisoprolol	1.25 mg OD	10 mg OD
Carvedilol	3.125 mg BID	25 mg BID
[Metoprolol CR/XL**]	12.5-25 mg OD	200 mg OD]
ARBs		
Candesartan	4 mg OD	32 mg OD
Valsartan	40 mg BID	160 mg BID
Aldosterone Antagonists		
Spironolactone	12.5 mg OD	50 mg OD
[Eplerenone**]	25 mg OD	50 mg OD]
Vasodilators		
Hydralazine	37.5 mg TID	75 mg TID
Isorbide dinitrate	20 mg TID	40 mg TID

* HEART trial showed 10 mg OD was effective to attenuate LV remodeling ** Not available in Canada