northern health
the northern way of caring

Regional Order Set

Adult Heart Failure Orders

 PATIENT LABEL

Allergies: ☐ None known ☐ Unable to obtain
List with reactions: _____

Admit to: ☐ Critical Care/High Acuity ☐ Telemetry ☐ Medical **MRP:** _____

Diagnosis

☐ New onset of heart failure ☐ Exacerbation of chronic heart failure ☐ Undetermined

☐ Heart failure with reduced ejection fraction (HFrEF) ____% Confirmed date: _____

☐ Heart failure with preserved ejection fraction (HFrEF) ____% Confirmed date: _____

Comorbidities: ☐ COPD ☐ Diabetes ☐ CKD

New York Heart Association (NYHA) functional class: _____

American Heart Association (AHA) HF stage: _____

Goals of care discussed: ☐ Yes ☐ No MOST level discussed: ☐ Yes ☐ No

Care, diagnostics, and laboratory tests

- Saline lock
- O_2 to maintain O_2 saturation at: _____
- Vital signs per acute care standards
- Record daily intake and output
- Heart failure patient education (discharge teaching record)
- Activity as tolerated
- Daily weights (in the morning, standing preferred)
- Daily CP7 for 3 days then reassess, BNP or NT-proBNP, Uric acid, TSH, liver functions tests, CBC, INR/PTT, troponin, iron studies

Book: ☐ Echo → Rationale: _____
☐ MIBI (by Internist order only) ☐ MUGA
☐ Other: _____

☐ CXR ☐ ECG ☐ Other: _____

Fluid restriction: ☐ 1500 to 2000 mL ☐ Other: _____

Diet: ☐ Cardiac ☐ Other: _____

Sodium: ☐ Less than 2000 mg/day ☐ Other: _____

- Previous LV function known: ☐ Yes (obtain for chart) ☐ No

Referrals: ☐ Palliative care ☐ Dietitian ☐ Physiotherapy ☐ Mental health ☐ Social work ☐ Spiritual care
☐ Other: _____

Patient education: Daily weight, fluid restriction, sodium restriction, activity, immunizations, medications, who to call for counselling and education materials for current tobacco users treatment advice/questions/problems, smoking cessation

Appointments

- Refer to Heart Function Clinic (**10-120-5005 NORTH Heart Function Clinic Referral**) for education.
- Book for GP appointment on discharge

☐ Refer to NORTH Heart Function Clinic for shared care (**10-120-5005 NORTH Heart Function Clinic Referral**)
☐ Book for specialist appointment on discharge
☐ Refer to NH Cardiac Rehabilitation (**10-120-6008 Cardiac Rehabilitation Rack Card**)

Physician signature: _____ **College ID:** _____ **Date:** _____ **Time:** _____

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Management of heart failure (HF) algorithm

- Identify precipitants or causes of HF decompensation (i.e., medication non-adherence, dietary indiscretion, uncontrolled HTN, ischemia, progression of valve disease, AF, poorly controlled DM, influenza, ETOH)
- To prevent HF, treat all cardiac risk factors
- If LVEF low, prescribe angiotensin converting enzyme inhibitor (ACEI) with or without beta blocker (BB)
- Control volume with minimum effective diuretic dose
- Re-evaluate drugs that can exacerbate HF, such as **NSAIDs**, **rosiglitazone**, **pioglitazone**, **dronedarone**, and if LVEF less than 40%, non-dihydropyrindine calcium channel blockers (**verapamil** or **dilTIAZem**). Review indication and consider alternate therapy.
- Educate patient/family on heart failure, signs and symptoms, self-management, medication and prognosis.

HF with **preserved** ejection fraction (HFpEF) greater than or equal to 40%

Treat underlying causes (e.g., HTN, ischemia)
Consider: ACEI or ARB, BB, MRA (if BNP elevated, GFR greater than 30 mL/minute, potassium less than 5 mmol/L)

Practical tips for HFpEF
- Control resting HR to 70 bpm, especially if atrial fibrillation present
- Patients with atrial fibrillation should be anticoagulated unless contraindicated
- Beta blockers can be used but rate limiting calcium channel blockers (**dilTIAZem** or **verapamil**) may be considered
- Control hypertension
- Treat ischemia if present
- Determine if valvular heart disease present and treat if necessary
- Be vigilant of aortic stenosis and mitral regurgitation
- Control volume and minimum effective diuretic dose
- Loop diuretics are generally needed, renal function can be impacted by volume status

Shortness of breath and/or LVEF above 50%

Cardiac causes:
- Coronary artery disease
- Valvular heart disease
- Hypertrophic cardiomyopathy
- Restrictive cardiomyopathy
- Constrictive pericarditis
- Intracardiac shunt
- Pulmonary arterial hypertension

Non-cardiac causes:
- Lung disease
- De-conditioning
- Hyperventilation
- Extra cardiac shunt
- Obesity
- Anemia
- Thyrotoxicosis

HF with **reduced** ejection fraction (HFrEF) less than or equal to 40%

ACE inhibitors (ACEI)
(consider ARB if intolerant to ACEI)
+
Beta blockers (avoid if documented reactive airway disease or symptomatic bradycardia or AV block)

Titrate to target doses as tolerated

If clinically stable, continue therapy

If symptoms persist consider adding:
- NYHA class II to IIIa
  - Mineralocorticoid receptor antagonist (MRA)
- NYHA class IIIb to IV:
  - **digoxin**
  - **hydrALAZINE**/nitrate combination
  - Increase or combine diuretics
  - MRA

(MRA - caution/reassess if eGFR below 30 mL/ minute and/or potassium above 5 mmol/L)

Consider **hydrALAZINE** plus **nitrate** combination if renal impairment or other intolerance to ACEI and ARBs

- If LVEF less than 35%, consider referral for implantable cardioverter defibrillator (ICD) assessment
- If QRS greater than 130 ms, normal sinus rhythm and LBBB consider referral for cardiac resynchronization therapy assessment
- If refractory to all treatments, consider referral to HR specialist

PATIENT LABEL

• If patient is currently receiving NSAIDs, non-dihydropyridine calcium blockers, pioglitazone, rosiglitazone, and/or dronedarone, review indication and consider alternative agent.

Beta blocker (check one)

• Hold for heart rate less than _____ beats per minute or symptomatic hypotension or systolic BP less than _____ mmHg

☐ **carvedilol** _____ mg PO bid (starting dose 3.125 mg bid, target dose 25 mg bid or, if weight over 85 kg, 50 mg bid)

☐ **bisoprolol** _____ mg PO daily (starting dose 1.25 mg to 2.5 mg daily, target dose 10 mg daily)

☐ **metoprolol** _____ mg PO bid (starting dose 6.25 mg to 12.5 mg bid, target dose 100 mg bid)

☐ Other: _____

• If not ordered, indicate contraindication:

☐ Allergy ☐ Bradycardia ☐ Hypotension ☐ Cardiogenic shock ☐ Reactive airway disease

☐ 2nd or 3rd degree heart block on ECG ☐ Other: _____

☐ **Angiotensin converting enzyme (ACE-I)** (check one)

☐ **perindopril** _____ mg PO daily (starting dose 2 mg daily, target dose 8 mg daily)

☐ **ramipril** _____ mg PO bid (starting dose 1.25 mg to 2.5 mg bid, target 5 mg bid)

☐ Other: _____

• Hold for symptomatic hypotension or systolic BP less than _____ mmHg

or

☐ **Angiotensin receptor blocker (ARB)** (check one)

☐ **candesartan** _____ mg PO daily (starting dose 4 to 8 mg daily, target dose 32 mg daily)

☐ **valsartan** _____ mg PO bid (starting dose 20 mg to 40 mg bid, target dose 160 mg bid)

☐ Other: _____

• Hold for symptomatic hypotension or systolic BP less than _____ mmHg

If neither ACE-I nor ARB ordered, indicate contraindication:

☐ ACEI allergy ☐ ARB allergy ☐ Hypotension ☐ Known adverse reaction ☐ Aortic stenosis (moderate/severe)

☐ Hyperkalemia ☐ Renal insufficiency (creatinine, eGFR)

Angiotensin receptor neprilysin inhibitor (ARNI): ☐ Other: _____

Diuretic Target weight: _____ kg Current weight: _____ kg

☐ **furosemide** _____ mg IV direct _____ (frequency/duration)

☐ **furosemide** IV infusion _____ mg/h

☐ **furosemide** _____ mg PO bid

☐ **metOLazone** _____ mg PO daily (starting dose 2.5 mg daily, maximum dose 20 mg daily, give 30 minutes prior to morning dose of furosemide)

Mineralocorticoid receptor antagonist (MRA): (Review heart failure algorithm.)

☐ **spironolactone** _____ mg PO daily (starting dose 12.5 mg, maximum dose 25 mg once daily)

☐ Other: _____

hydrALAZINE/nitrate combination: (Review heart failure algorithm.)

• Hold for symptomatic hypotension or systolic BP less than _____ mmHg

☐ **hydrALAZINE** _____ mg PO tid (starting dose 10 mg tid, maximum dose 75 mg tid)

☐ **nitroglycerin** patch _____ mg/hour daily (on in the morning and off at bedtime)

☐ **isosorbide dinitrate** _____ mg PO tid (starting dose 10 mg tid, maximum dose 40 mg tid)

Physician signature: _____ **College ID:** _____ **Date:** _____ **Time:** _____