

Heart Failure

Screening

ANNUALLY ask about symptoms of heart failure in everyone with:

- Hypertension
- Diabetes
- Smoking
- Advanced age (>60y.o)
- Valvular heart disease, including history of ARF/RHD,
- Ischaemic heart disease or high risk for IHD (see IHD protocol)
- Family history of cardiomyopathy
- History of arrhythmia
- Unexplained abnormal ECG
- History of current or past excessive alcohol consumption
- Obesity.

Case Definition

Heart failure (HF) is a complex clinical syndrome that can result from any structural or functional cardiac disorder that impairs the ability of the ventricle to fill with (diastolic) or eject (systolic) blood. It is largely a clinical diagnosis that is based on a careful history, physical examination and Echocardiogram.

CLINICAL PRESENTATION

Typical symptoms:

- Dyspnoea (shortness of breath)
- Orthopnoea (shortness of breath when lying flat)
- Paroxysmal nocturnal dyspnoea (episodes of acute and severe shortness of breath which occur at night)
- Reduced exercise tolerance
- Fatigue
- Ankle oedema

Less typical symptoms:

- Nocturnal cough
- Wheeze
- Loss of appetite
- Palpitations
- Syncope

EVALUATION

CLINICAL EVALUATION

Systolic Dysfunction

Tachycardia, low volume pulse, tachypnoea, laterally displaced apex beat, bilateral bibasal crackles, pleural effusion, poor peripheral perfusion

Diastolic Dysfunction

Elevated JVP, right ventricular heave, peripheral/ankle oedema, hepatomegaly, ascites

INVESTIGATION

Echocardiogram is gold standard for evaluation of heart failure. It has a clear role in diagnosing heart failure, however it does have some limitations.

Systolic heart failure is defined as Left Ventricular Ejection Fraction (LVEF) <40%.

Heart failure with preserved systolic function (otherwise known as diastolic heart failure) is defined as symptoms of heart failure with normal or slightly abnormal LVEF. It must be noted that echocardiograms have limitations in assessing diastolic function of the heart.

The commonest causes of HF in the Kimberley include coronary artery disease and previous MI, hypertension, valvular heart disease (eg rheumatic heart disease), cardiomyopathy (commonly alcoholic) and arrhythmias.

Principles of Management

BASELINE CLINICAL ASSESSMENT

- Weight, height, BMI measurement
- Waist circumference
- Blood pressure
- Full cardiovascular examination, particularly evaluating for fluid overload
- ECG
- Spirometry: to detect and exclude associated airway dysfunction

BASELINE INVESTIGATIONS:

- FBE, U&E, LFTs, Lipids, TFTs
- Screen for diabetes: HbA1c
- CXR
- Consider BNP if limited access to echocardiogram
 - if NT-proBNP <300ng/L:
 - HF is unlikely, alternate diagnosis should be sought
 - Do not proceed to echocardiogram
- Echocardiogram at the earliest opportunity.

MANAGEMENT

Treat and manage co-morbidities such as diabetes, hypertension, ischaemic heart disease and anaemia (aim for Hb>100).

Avoid exacerbating medications:

- NSAIDs
- COX II Inhibitors
- Calcium channel blockers
- Thiazolidinediones
- Corticosteroids
- Tricyclic antidepressants
- Some antipsychotics eg clozapine

**There is currently no safety data on the use of DPP4 and GLP-1 inhibitors in patients with heart failure*

NON- PHARMACOLOGICAL MANAGEMENT

(see also HEALTHY LMING).

- Education and support
- Encourage smoking cessation
- No alcohol is best
- Healthy diet with no added salt and limited caffeine intake
- Maintain a healthy weight
- Exercise– encourage walking or aerobic exercise for 30 minutes at least 5 days each week
- If available locally, refer motivated patients for cardiac rehabilitation
- Limit fluid intake to 1.5-2L per day in patients with moderate to severe disease (NYHA III & IV), particularly hyponatraemic patients
- SCREEN for sleep apnoea (Epworth Sleepiness Scale)
- SCREEN for depression
- Ensure influenza (annual) and pneumococcal 23PPV vaccine is up to date (at age 60 & 65yrs or ATSI patients > 15yrs, two vaccinations, 5 years apart)

PHARMACOLOGICAL MANAGEMENT

1. ACE Inhibitors (ACEi)

- Indicated as first line and improves prognosis in all grades of heart failure (NYHA I-IV)
- Start with ramipril 2.5mg and up-titrate to maximal tolerated dose (aim for 10mg) for most prognostic benefit
- Monitor BP, U&E and eGFR (baseline and at 2 weeks)
- Do not increase dose if worsening renal function ie creatinine increase>15-20% or potassium ≥ 6 (See PROTEINURIA WITH eGFR >60 protocol), consult nephrologist.
- For those who do not tolerate ACEi an ARB (irbesartan) can be trialed and has some proven prognostic benefit

Heart Failure

2. Diuretics

- First line treatment for fluid overload
- Frusemide, 20-40mg (mane) initially
- Titrate against symptoms and weight gain
- Monitor electrolytes and renal function
- Monitor for hypotension
- IV doses can be trialed if severe fluid overload
- Not recommended long term and should be reviewed regularly

3. Long Acting Beta Blockers

- Reduce mortality and morbidity
- Start only once patients are stable and euvolemic
- Bisoprolol, start 1.25mg daily, double the dose fortnightly, increasing to a target dose of 10mg daily
- Ensure resting systolic BP >85mmHg before commencing
- Monitor BP and heart rate

4. Aldosterone Antagonist

- For use in patients with moderate-severe heart failure (NYHA III & IV) with symptoms despite ACEi, B-blocker and diuretic therapy
- Spironolactone 12.5-50mg daily
- Start with low doses and increase slowly
- Contraindicated in patients with renal failure (eGFR <60) or if the baseline potassium is >5
- Systolic BP must be >85mmHg
- Check potassium levels regularly

5. Digoxin

- Commence in discussion with physician/cardiologist
- Considered if HF is not controlled with ACEi, B-blocker, diuretic and aldosterone antagonist, even if the patient is in sinus rhythm

Thiamine replacement (100mg daily) should be given to patients with excessive alcohol consumption.

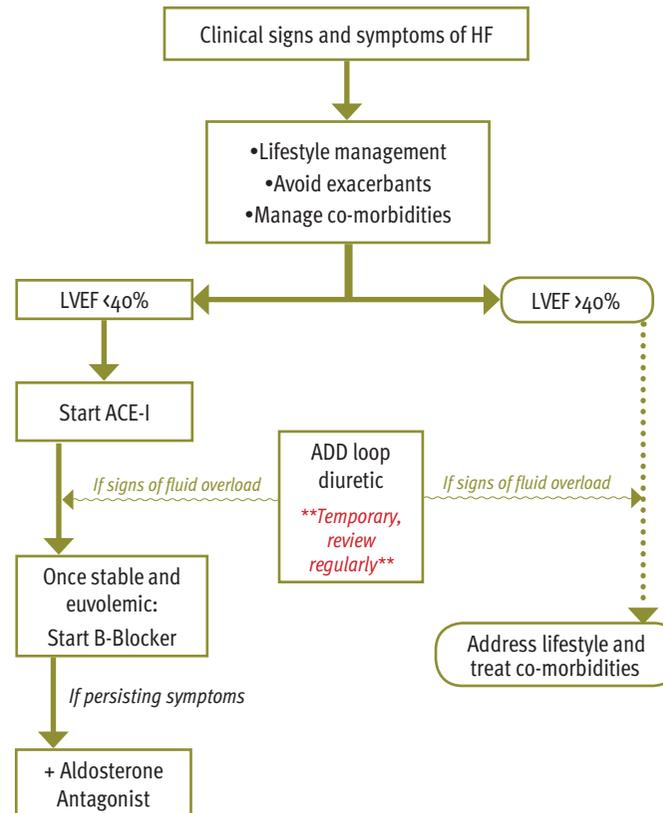
Anticoagulants should be considered in patients with AF and heart failure. Review the CHADSVASC₂ risk calculator and liaise with a physician before commencement.

Table 1. New York Heart Association (NYHA) Functional Classification of Chronic Heart Failure.

NYHA I	No symptoms, even during moderate-intensity physical exercise
NYHA II	Reduced physical capacity for moderate-intensity physical activity (e.g. breathlessness when climbing stairs)
NYHA III	Severely reduced physical capacity for low-intensity physical activity (e.g. breathlessness except when at rest)
NYHA IV	Symptomatic at rest

Therapeutic Protocol

NOTE: If Chronic kidney disease, discuss with Physician / Renal Physician. (see CKD protocol)



Follow Up

Monitor and discuss side effects

MAIN SIDE EFFECTS OF MANAGEMENT:

- Symptomatic postural hypotension (ramipril, irbesartan, bisoprolol, frusemide)
- Hyperkalaemia (ramipril, irbesartan, spironolactone)
- Deterioration in renal function (ramipril, irbesartan, spironolactone, frusemide)
- Hypokalaemia (frusemide)

VISIT FREQUENCY:

- At least every 2 weeks while titrating therapy, check creatinine, electrolytes, weight and BP (weekly in CKD)
- Once stable, check these parameters every 3 months
- If asymptomatic, a systolic blood pressure \geq 90mmHg is acceptable.

ECHOCARDIOGRAM:

- Yearly if LVEF < 40% or if any symptomatic decline

Women of Childbearing Age

Strongly encourage use of reliable contraception, pre-pregnancy counseling and early antenatal care. At this time review medications, particularly ACEi, ARB, statin, spironolactone, frusemide and beta-blockers (d/w physician/obstetrician).

Pregnancy should be avoided in patients with moderate-severe CHD (NYHA III-IV)

IF PREGNANT:

- Discuss with obstetrician/physician as soon as pregnancy is confirmed. Review medications as above.

IF BREASTFEEDING:

- Use enalapril 5mg daily doubling every 2 weeks to maximum dose 40mg daily
- Review use of spironolactone, frusemide and beta blockers with assistance from obstetrician/physician

Refer/ Discuss

PHYSICIAN / CARDIOLOGIST:

- LVEF <35% (for consideration of device therapies)
- Persisting symptoms despite maximal tolerable therapy
- Arrhythmia, such as AF
- eGFR <60
- Planning pregnancy or currently pregnant
- Those with significant co-morbidities
- For consideration of digoxin

OBSTETRICIAN:

If planning pregnancy or early pregnancy

PALLIATIVE CARE:

Consider in patients who have symptoms consistent with NYHA IV