Chronic Heart Failure

Key Facts:

- Left ventricular ejection fraction (LVEF) = the amount of blood pumped out of the ventricles at each contraction
- Main types of heart failure:
  - **Heart failure with reduced ejection fraction (HFrEF) = LVEF <50%;** large, flabby heart which contracts poorly
  - **Heart failure with preserved ejection fraction (HFpEF) =** echo shows normal LVEF (>50%) with LVH, large left atrium and raised atrial pressure; mostly caused by hypertension; may ultimately cause HFrEF
  - **Right heart failure** – most often secondary to LV failure (causing biventricular failure). Isolated right heart failure can be caused by chronic lung disease causing pulmonary hypertension (Cor Pulmonale), RV myocardial infarction, PE, valvular disease, congenital disease or pericardial disease.
- The biggest mistake in management of chronic heart failure is forgetting to **titrate up medication to the maximum tolerated dose**

Common causes	Common symptoms	Typical findings on examination
Most common in Sub-Saharan Africa: hypertension, dilated cardiomyopathies, rheumatic heart disease, non-smoking-related chronic lung disease causing pulmonary hypertension, HIV, CAD increasingly common *Other common causes:* atrial fibrillation, non-rheumatic valvular disease, alcohol, other cardiomyopathies	*Typical:* Fatigue, leg swelling, breathlessness – on exertion, on lying down (orthopnoea), paroxysmal nocturnal dyspnoea, *Less typical:* palpitations, nocturnal cough/wheeze, dizziness, syncope, bloated, reduced appetite	*Specific:* raised JVP, hepato-jugular reflex, third heart sound (gallop rhythm), laterally displaced apex beat *Less specific: t*achycardia, tachypnoea, murmur, crackles at lung bases, signs of pleural effusion, peripheral oedema, hepatomegaly, ascites

Investigations

CXR: oedema, effusion, cardiomegaly (cardiothoracic ratio >50%), prominent upper lobe veins; rule out differentials
ECG: ischaemia, old infarct, atrial fibrillation, axis deviation, BBB, hypertrophy *(a normal ECG makes heart failure very unlikely – sensitivity 89%)*
Lab: Hb, creatinine, Na, K, HbA1c, urine dipstick, (TSH if clinically indicated)
Echo (if affordable)

Management – see following pages

Cardiology referral

- Most patients with heart failure can be managed in OPD
- Refer patients with isolated right heart failure if possible
- If considering referral to a cardiologist, please discuss with consultant

Prognosis and palliative care

- Heart failure has a prognosis equivalent to many cancers with a ***5-year mortality of around 50%***
- The progression of the disease is unpredictable – there will likely be periods of stability then sudden exacerbations which may/may not be recoverable from
- Generally, the lower the LVEF, the poorer the prognosis
- Other poor prognostic factors: increasing age, smoking, diabetes and other comorbidities (atrial fibrillation, CKD, COPD, obesity or low BMI)
- **Refer patients with significant symptoms to palliative care** e.g. NYHA Class III and IV, or >1 hospital admission due to heart failure in a year

Discuss with consultant if:

- Diagnosis not clear
- Right heart failure
- Symptoms not controlled after step 1 and 2
- Standard medication contraindicated or not tolerated
- Considering referral to cardiologist
- Considering alternative medication
- A woman of child-bearing age declines contraception or desires pregnancy

The New York Heart Association classification:

Class I:	No symptoms on ordinary activity
Class II:	Slight limitation of activity due to symptoms
Class III:	Marked limitation of activity - minimal activity causes symptoms
Class IV:	Inability to carry out any activity without symptoms. Symptoms present even at rest.

Management of Chronic Heart Failure

For all types of heart failure

General advice for patient:

- Stop **smoking**
- **Fluids** - strict fluid restriction not necessary in mild-moderate heart failure – but avoid large volumes. In *severe* HF or caus hyponatraemia, consider a fluid restriction of 1.5-2L/day but care to avoid dehydration.
- **Salt** – avoid excessive intake e.g. don't add salt to food, keep food 'salt-neutral' (so can't taste salt)
- **Diet** – avoid alcohol; eat a varied, balanced diet high in whole grains, fruit and vegetables
- Advise patient to **avoid NSAIDs** and herbal medications
- **Exercise** – carry on with everyday activities, try to undertake regular exercise and be physically active
- Advise patient to seek medical help if worsening symptoms such as weight gain, shortness of breath, peripheral oedema, dizziness or fainting episodes
- Patient can see **www.heartfailurematters.org** for further information

Other:

- Look out for and manage **depression/anxiety**
- **Vaccinations** – once-in-a-lifetime pneumococcal vaccination and annual flu shot recommended
- **Contraception and pregnancy** – pregnancy and childbirth very dangerous with heart failure; reliable form of contraception advised; discuss with consultant if contraception declined or if pregnancy desired
- **Anaemia** – treat and look for underlying cause (see anaemia guideline)
- Consider referral to **palliative care team** depending on severity of symptoms (see above)
- Monitor **weight** – rapid weight gain can indicate worsening heart failure
- **Regular review** to monitor and echo 6-monthly if possible to monitor LVEF

EF<50% = HFrEF (or if echo not possible)

STEP 1

Start ACEi **AND** Beta-blocker* **AND** Spironolactone together
*(If fluid overloaded, omit beta-blocker at this step)
Arrange for follow-up in Family Medicine Clinic if possible

STEP 2

TITRATE UP MEDICATION EVERY 2 WEEKS TO MAXIMUM TOLERATED DOSE
If Beta-blocker is not already initiated, start once oedema is better

STEP 3

If patient still symptomatic despite ACEi + B-blocker + Spironolactone at max tolerated dose, **discuss with consultant**

Gliflozins are an option at this stage, **discuss with consultant if considering**

Add diuretics at any stage if fluid-overloaded: **titrate up and down**

EF>50% = HFpEF

- Frusemide as required for symptom relief
- **Very important** to look for and manage underlying conditions and risk factors – hypertension, CKD, diabetes, obesity etc
- Gliflozins can have an impact on long-term outcomes in HFpEF – **discuss with consultant** regarding initiation

Isolated RV failure

Manage underlying cause and refer to cardiology if possible

Medication in Chronic Heart Failure

		Dose	Considerations
ACEi/ARB:	Enalapril Losartan (If ACEi not tolerated)	Starting dose: 2.5mg BD Target dose: 10-20mg BD Starting dose: 25mg OD Target dose: 150mg OD	• Start at low dose and titrate up every 2w until target or maximum tolerated dose is reached; hold/reduce dose if HR<50 • Check BP and creatinine before, 1-2w after starting and after each dose increase. - If creatinine rises 15-30%, continue ACEI/ARB and repeat creatinine in 1-2 weeks - if creatinine rises >30%, stop ACEI/ARB or return to previous dose and recheck in 5-7 d • eGFR<45: use lower doses and slower titration eGFR<30: discuss with consultant
Beta-blockers	Bisoprolol (1st-line) Carvedilol (2nd-line)	Starting dose: 2.5mg OD Target dose: 10mg OD Starting dose: 6.25mg BD Target dose: 25mg BD	• Start low and go slow: after each dose increase measure heart rate and BP • COPD, diabetes, peripheral vascular disease and erectile dysfunction are NOT contraindications, but watch for worsening COPD • In asthma beta-blockers are less safe – discuss with consultant • If BP or pulse rate low, no need to stop beta-blockers unless patient is symptomatic
MRAs	Spironolactone	Starting dose: 12.5mg OD Target dose: 25-50mg OD	• Risk of hyperkalaemia when used with ACEi/ARBs, especially if renal impairment. (Counsel to avoid bananas and avocados in this situation as high in potassium) • Check creatinine and K+ before starting and after every increase in dose
Loop diuretics	Frusemide	Starting dose: 20-40mg OD Usual dose: 40-120mg OD	• For symptom control only. No survival benefit. • Avoid evening dosing to reduce nocturia • Reduce dose or stop once oedema controlled; it is more important to optimise other medication • Monitor creatinine, Na, K if dose increases or taking long-term

Other medications – discuss with consultant if considering or if patient already taking

- **Dapagliflozin** or **empagliflozin:** a consideration at step 3 if standard care is optimised, but *expensive* – discuss with consultant if considering
- **Digoxin:** not part of routine management, but may be considered if worsening heart failure despite first-line treatments
- **Hydralazine + nitrate:** small survival benefit; may be an option at step 3 if hypertension or if other medications not tolerated or contraindicated

References:

Kenya National Guidelines for Cardiovascular Diseases Management, chapter 5; MOH, 2018
Guidelines for the diagnosis and treatment of acute and chronic heart failure; 2021; European Society of Cardiology
Circulation 2022;145:e895
NICE NG106,2018
BMJ 2016;352:i1010