

## Chronic Heart Failure

### Key Facts:

- Left ventricular ejection fraction (LVEF) = the amount of blood pumped out of the ventricles at each contraction
- Classification 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
<p><i>Most common in Sub-Saharan Africa:</i> hypertension, valvular heart disease due to rheumatic heart disease and infectious endocarditis, cardiomyopathies, congenital CAD increasingly common cause</p> <p><i>Other common causes:</i> atrial fibrillation, alcohol, HIV, non-smoking-related chronic lung disease causing pulmonary HT</p>	<p><i>Typical:</i> Fatigue, leg swelling, breathlessness – on exertion, on lying down (orthopnoea), paroxysmal nocturnal dyspnoea,</p> <p><i>Less typical:</i> palpitations, nocturnal cough/wheeze, dizziness, syncope, bloated, reduced appetite</p>	<p><i>Specific:</i> raised JVP, hepato-jugular reflex, third heart sound (gallop rhythm), laterally displaced apex beat</p> <p><i>Less specific:</i> tachycardia, tachypnoea, murmur, crackles at lung bases, signs of pleural effusion, peripheral oedema, hepatomegaly, ascites</p>

### Investigations

CXR: oedema, effusion, cardiomegaly (cardiothoracic ratio >50%), prominent upper lobe veins; rule out differentials  
 ECG: LVH, ischaemia, old infarct (Q waves), A Fib, axis deviation, bundle branch block (*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**

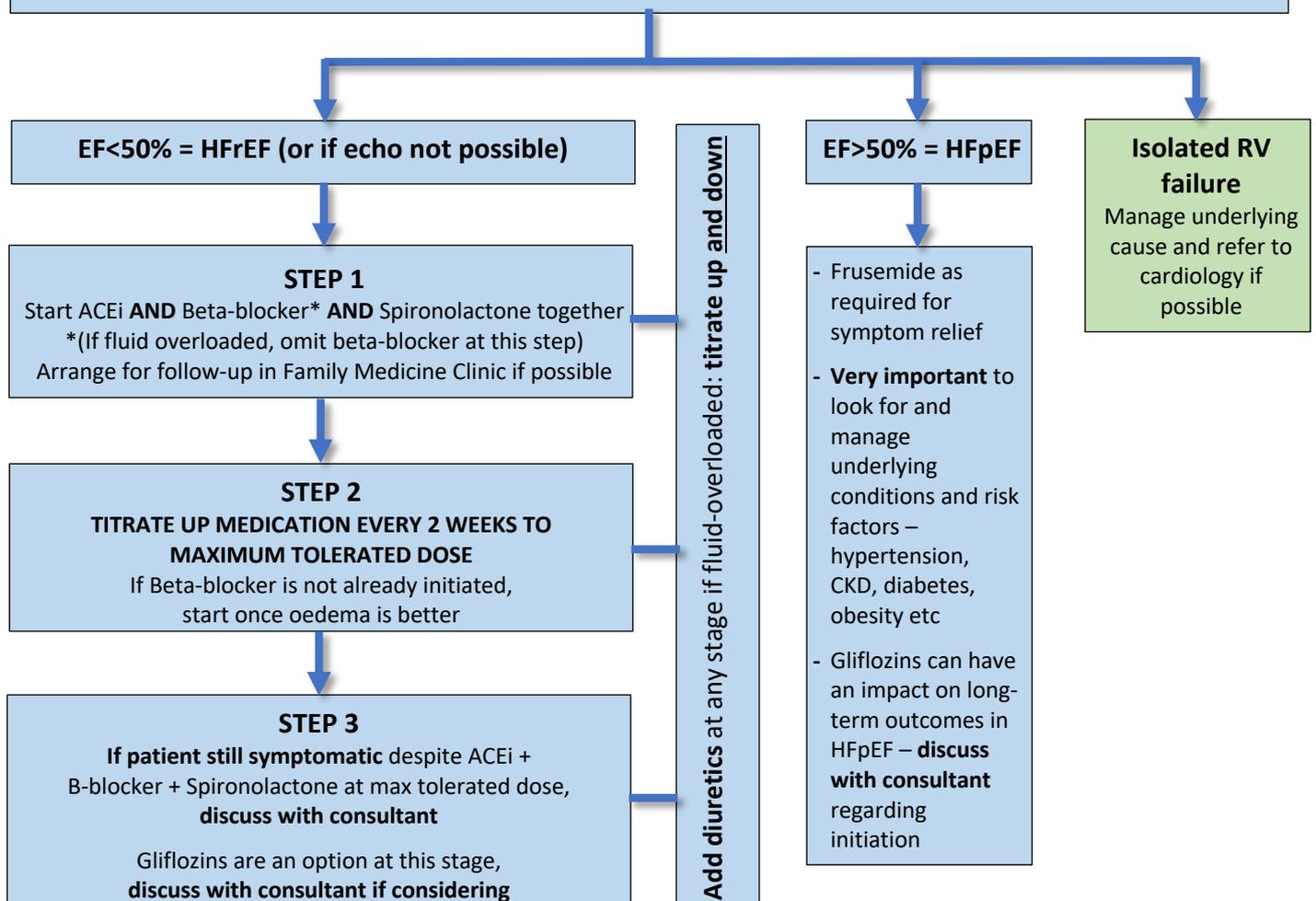
**For all types of heart failure**

**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:**

- Optimise any underlying comorbidities
- 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

		<b>Dose</b> (aim to titrate to target dose within 3 months)	<b>Considerations</b>
<b>ACEi/ARB:</b>	Enalapril	Starting dose: 2.5mg BD Target dose: 10-20mg BD	<ul style="list-style-type: none"> <li>Start at low dose and titrate up every 2w until target or maximum tolerated dose is reached</li> <li>Check BP and creatinine before, 1-2w after starting and after each dose increase.               <ul style="list-style-type: none"> <li>- If creatinine rises 15-30%, continue ACEi/ARB and repeat creatinine in 1-2 weeks</li> <li>- if creatinine rises &gt;30%, stop ACEi/ARB or return to previous dose and recheck in 5-7 d</li> </ul> </li> <li>eGFR&lt;45: use lower doses and slower titration</li> <li>eGFR&lt;30: discuss with consultant</li> </ul>
	Losartan (If ACEi not tolerated)	Starting dose: 25mg OD Target dose: 150mg OD	
<b>Beta-blockers</b>	Bisoprolol (1 <sup>st</sup> -line)	Starting dose: 2.5mg OD Target dose: 10mg OD	<ul style="list-style-type: none"> <li>Start low and go slow: after each dose increase measure heart rate and BP</li> <li>COPD, diabetes, peripheral vascular disease and erectile dysfunction are NOT contraindications, but watch for worsening COPD</li> <li>In asthma beta-blockers are less safe – discuss with consultant</li> <li>If BP or pulse rate low, no need to automatically stop beta-blockers unless patient is symptomatic, but if HR&lt;50 hold/reduce dose</li> </ul>
	Carvedilol (2 <sup>nd</sup> -line)	Starting dose: 6.25mg BD Target dose: 25mg BD	
<b>MRAs</b>	Spirolonactone	Starting dose: 12.5mg OD Target dose: 25-50mg OD	<ul style="list-style-type: none"> <li>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)</li> <li>Check creatinine and K<sup>+</sup> before starting and after every increase in dose</li> <li>Gynaecomastia is a possible side effect of spironolactone – if this is problematic, discuss with a consultant to consider stopping or switching to eplerenone (will depend on individual patient circumstances)</li> </ul>
<b>Loop diuretics</b>	Furosemide	Starting dose: 20-40mg OD Usual dose: 40-120mg OD	<ul style="list-style-type: none"> <li>For symptom control only. No survival benefit.</li> <li>Avoid evening dosing to reduce nocturia</li> <li><u>Reduce dose or stop once oedema controlled</u>; it is more important to optimise other medication</li> <li>Monitor creatinine, Na, K if dose increases or taking long-term</li> </ul>

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



Always be aware of local medication prices and prescribe accordingly!

#### References:

Kenya National Guidelines for the Management of Cardiovascular Diseases; MOH, 2024  
 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