

## Chronic Heart Failure

### Key Facts:

- Left ventricular ejection fraction (LVEF) = the amount of blood pumped out of the ventricles at each contraction
- There are two 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, left atrial enlargement and raised atrial pressure; mostly caused by hypertension; may ultimately cause HFrEF**
- **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, dilated cardiomyopathies, rheumatic heart disease, non-smoking-related chronic lung disease causing pulmonary hypertension, HIV</p> <p><i>Other common causes:</i> ischaemia, atrial fibrillation, non-rheumatic valvular disease, alcohol, other cardiomyopathies</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: 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**
- 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
- 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

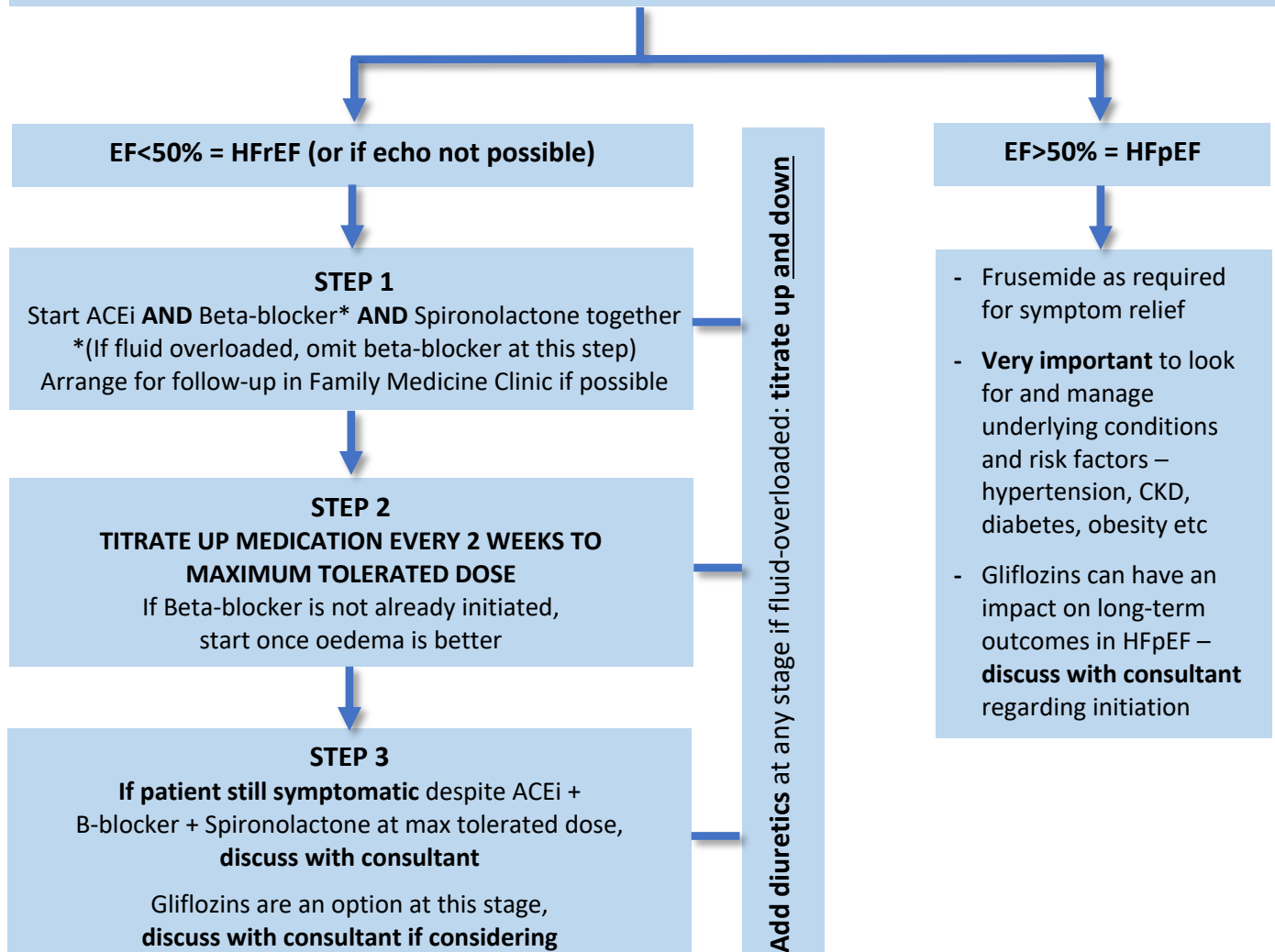
### For all types of heart failure

#### 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 hyponatraemia, consider a fluid restriction of 1.5-2L/day but care to avoid dehydration.
- **Salt** – avoid excessive intake e.g. keep to <1 teaspoon/day
- **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](http://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



### Medication in Chronic Heart Failure

		Dose	Considerations
<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; hold/reduce dose if HR&lt;50</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 stop beta-blockers unless patient is symptomatic</li> </ul>
	Carvedilol (2 <sup>nd</sup> -line)	Starting dose: 6.25mg BD Target dose: 25mg BD	
<b>MRAs</b>	Spironolactone	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+ before starting and after every increase in dose</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

#### 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