Practical Guidance on how to use Heart Failure Medications

This document outlines the evidence, indications, contraindications and practical tips when using commonly prescribed heart failure drugs. Please refer to the BNF SPC for more detailed information.

ACE-i/ARBs

Why?

Reduces mortality and hospitalisation – evidence for ACEi includes CONSENSUS, which showed all cause mortality reduced by 40% at 6 months, and SOLVD-TREATMENT, which showed a 26% reduction in all-cause mortality and HF hospitalization rate. CHARM-alternative provided evidence for ARB, showing a combined reduction in CV mortality or HF hospitalisation rate of 23%.

Dose Targets

- Ramipril 5mg bd
- Perindopril 8mg od
- Lisinopril 35mg od
- Enalapril 20mg bd (non-formulary –historical use)
- Candesartan 32mg od
- Losartan 100mg od
- Valsartan 160mg bd (non-formulary-historical use)

Contra-indications

- History of angioedema
- Known bilateral renal artery stenosis
- Pregnancy/risk of pregnancy
- Severe aortic stenosis (no need to stop if already established but do not start)

Cautions/Specialist advice

- Potassium >5mmol/l
- Significant renal dysfunction (eGFR<30ml/min/1.73m^2)
- Blood pressure <90mmHg systolic
- Beware of drug interactions – risk of hyperkalaemia when combined with potassium-sparring diuretics/MRAs. Hyperkalaemia also a potential risk when combined with trimethoprim.

Problem-solving

- Asymptomatic low blood pressure does not usually require any change in therapy
- Symptomatic hypotension is common and often improves with time; need for nitrates and calcium-channel blockers should be reviewed and the doses of these reduced/stopped if appropriate. Diuretic dose could also be reduced if no signs/symptoms of congestion.

Author: Dr Y Ismail in collaboration with other local Heart Failure specialists.
Approved by: BNSSG APMOC September 24. Review Date: September 2026. Version 1.6

- Cough: establish if pre-dates ACEi (overlap in population with HF/population with smoking-related lung disease.) Cough is also a symptom of pulmonary oedema, which should be excluded in a patient with a new worsening cough. If troublesome, consider substitution with an ARB.
- Worsening renal function: accept an increase in creatinine of up to 50% above baseline or 266µmol/l or eGFR <25ml/min/1.73m^2, whichever is smaller
- Hyperkalaemia: an increase to ≤5.5mmol/l is acceptable
- If creatinine or potassium does rise excessively, consider stopping concomitant nephrotoxic drugs/if no signs of congestion, reducing dose of diuretic.
  If K>5.5mmol/l or creatinine increases >100% or to >310µmol/l, STOP drug and seek specialist advice.

Beta blockers

Why?

Multiple studies have shown reduction in all-cause mortality, with reductions of around 34% (COPERNICUS, CIBIS-II and MERIT-HF). Evidence also for reduction in cardiovascular mortality or hospitalisation (by 21% in CIBIS II) and decrease risk of sudden death by 41% in MERIT-HF.

Dose Targets

- Bisoprolol 10mg od
- Carvedilol 25mg bd
- Nebivolol 10mg od

Contra-indications

- Second or third degree AV block (in the absence of a permanent pacemaker
- Critical limb ischaemia
- Asthma – this is a relative contra-indication and if cardio-selective beta-blockers are used, it is not necessarily an absolute contra-indication. Please seek specialist advice if needed.

Problem solving

- If HR <50, halve dose of beta blocker
- Asymptomatic low blood pressure does not usually require an change in therapy
- Symptomatic hypotension: need for nitrates and calcium-channel blockers should be reviewed and the doses of these reduced/stopped if appropriate. Diuretic dose could also be reduced if no signs/symptoms of congestion.

MRAs

Why?

Use of spironolactone in the RALES trial resulted in a 30% reduction in all-cause mortality and a reduction in cardiac hospitalization rate by 35%. The EMPHASIS-HF trial showed a reduction in all-cause mortality by 24% and HF hospitalisation rate by 42%.

Dose Targets

- Spironolactone 50mg od
- Eplerenone 50mg od

Cautions/seek specialist advice

- Potassium >5mmol/L
- Significant renal dysfunction – creatinine >221µmol/l or eGFR <30ml/min/1,73m2
- Beware of interactions with other drugs that increase potassium, and potential interaction with trimethoprim

Problem-solving

- If K rises to above 5.5mmol/l or creatinine rises to >221µmol/l or eGFR <30ml/min/1.73m^2, halve dose and monitor carefully
- If K+ rises to >6.0 mmol/L or creatinine to >310 µmol (3.5 mg/dL) eGFR <20 mL/min/1.73 m^2, stop MRA immediately and seek specialist advice
- Male patients may rarely develop breast discomfort or gynaecomastia with spironolactone; if this occurs, please consider referral to secondary care to switch to eplerenone.
- Prescribing guidance available on formulary website HERE

Ivabradine

Why?

In patients with an EF of ≤ 35%, ivabradine decreased the combined CV mortality or HF hospitalisation rate by 18%.

Dose Target: 7.5mg bd

Contra-indications

- Severe liver or renal dysfunction
- Pregnancy or breastfeeding
- Persistent/continuous AF (will not have an effect)
- Resting HR <70bpm

Cautions/seek specialist advice

- Moderate liver dysfunction
- Chronic retinal diseases
- Interactions with drugs that are strong inhibitors of p450 (e.g. antifungal azoles, macrolide antibiotics, HIV protease inhibitors)

Problem solving

- If HR persistently <50bpm on treatment, reduce dose or stop
- Visual phenomena are usually transient and disappear during the first few months of treatment. However, if they are problematic to the patient, it should be stopped
- Shared Care Protocol available on formulary website HERE

Sacubitril with valsartan (Entresto)

Why?

The PARADIGM-HF study showed that compared to ACEi, use of Entresto showed a risk reduction in all cause mortality by 16%, cardiovascular mortality by 20% and heart failure hospitalisation by 21%.

NICE TA388 states it is recommended in patients with NYHA class II to IV symptoms AND LVEF ≤35% AND who are already on a stable dose of ACEi/ARB (but note this would have to be stopped for 36 hrs prior to initiating)

Dose Target: sacubitril 97mg/valsartan 103mg (one tablet) bd

Contraindications

- Use of ACE-i – do not initiate until at least 36 hours after discontinuation of ACE-i
- Concomitant use of ARB
- Systolic BP <100mg
- Severe liver impairment

Shared care protocol available on formulary website HERE

Digoxin

Why?

The DIG trial showed a 28% risk reduction in hospitalisation for heart failure and a trend towards decrease in the risk of death

Cautions

- Increased risk of digoxin toxicity if patient has hypercalcaemia, hypokalaemia or hypomagnesaemia

- Should not be used in the elderly at a long-term dose >125mcg if eGFR <30ml/minute/1.73m^2 due to increased risk of toxicity
- Interactions with other drugs which may increase risk of digoxin toxicity– see BNF but note these include macrolide antibiotics, colecalciferol, some antifungals, amiodarone and aminophylline

SGLT2 inhibitors (refer to dapagliflozin & empagliflozin guidance)

Why?

Recent studies (DAPA-HF, EMPEROR-Reduced) have shown the beneficial effects of SGLT2 inhibitors in patients with chronic heart failure both with and without pre-existing type 2 Diabetes Mellitus. There does appear to be both a mortality benefit as well as reduction in heart failure admissions and improvement in renal function.

Consider adding a SGLT2i to optimal medical treatment for **symptomatic chronic heart failure** (NYHA class II,III, IV) in patients with an **ejection fraction of <50% and NTproBNP > 600pg/ml** (or > 900 pg/ml if in AF) **or** >400 pg/ml if hospitalised in last 12 months for HF with eGFR≥15ml/min/1.73m^2 (dapagliflozin) or eGFR≥20ml/min/1.73m^2 (empagliflozin).

Recommended drug and doses:

Dapagliflozin 10 mg once daily refer to NICE guidelines (https://www.nice.org.uk/guidance/TA679)

Or

Empagliflozin 10mg once daily refer to NICE guidelines (https://www.nice.org.uk/guidance/ta773)

Cautions/Seek Specialist advice

Avoid if

- symptomatic hypotension or BP <95mmHg
- eGFR < 15 ml/min/1.73m^2 (dapagliflozin) or eGFR < 20 ml/min/1.73m^2 (empagliflozin)

Potassium Binders

Refer to adult treatment pathway for potassium binders (sodium zirconium cyclosilicate and patiromer calcium) for persistent hyperkalaemia for patients with chronic kidney disease (stages 3b-5) or heart failure here (TLS Amber specialist initiated for this indication).

References:

1. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure – Web Addenda - https://www.escardio.org/static-file/Escardio/Guidelines/ehw128_Addenda.pdf
2. British National Formulary https://bnf.nice.org.uk/

Author: Dr Y Ismail in collaboration with other local Heart Failure specialists.
Approved by: BNSSG APMOC September 24. Review Date: September 2026. Version 1.6