LVSD medicines management pathway

York and Scarborough Teaching Hospitals NHS Foundation Trust
Harrogate and District NHS Foundation Trust
Vale of York Commissioning Group
North Yorkshire Clinical Commissioning Group

Manage symptoms: use **loop diuretics** to offload fluid with a view to reduce later if possible once established on all HF medicines.

Prevent: Drug initiation of all 4 of these drug groups should be considered after individual assessment. The 1st choice depends on signs and symptoms the patient presents with initially:

1. If HR >100 and in sinus rhythm, start with a **beta-blocker**.
2. If fluid overloaded, despite loop diuretics, start with a **MRA**. Also, consider **dapagliflozin** in non-diabetes and type 2 diabetes patients, after discussion with HF team.
3. If patient does not have any of the above, use an **ACEi** first.

Initiate beta-blocker

Initiate **bisoprolol** 1.25mg od

Check HR, BP, side effects at 2-4 weeks.
If HR>50bpm & systolic BP >100mmhg

Double the dose after 2-4 weeks. Then increase by 2.5mg /day every 2-4 weeks until max 10mg od or Heart rate consistently <60

Check HR, BP, side effects at 2-4 weeks.
Ensure HR>50bpm & systolic BP >100mmhg

If HR not controlled (aim resting HR <100; optimal 50-65) or having side effects, refer to cardiology for consideration of ivabradine or digoxin.

Ivabradine

If in sinus rhythm and heart rate remains >75
Initiate **ivabradine** 5mg bd and up titrate as tolerated to 7.5mg bd
If issues with hypotension, fatigue or sensitivity with Bisoprolol: then reduce/stop Bisoprolol and combine/replace with Ivabradine titrated up to 7.5mg bd determined by heart rate.
Ivabradine cannot be used in AF

Initiate ACEi then on to Entresto

Initiate **ramipril** 2.5mg od

*Check U&Es & BP at 2 weeks, if patient has LVEF <35% Plan switch to Entresto; (with heart failure advice) otherwise continue increasing towards target of 10mg/day

If switching to Entresto then Stop **ramipril** for 48hrs then switch ramipril 5mg to **Entresto** 24mg/26mg bd or ramipril 10mg to Entresto 49/51 bd

*Check U&Es & BP at 2 weeks

If BP & U&Es acceptable increase **Entresto** towards target of 97mg/103mg bd

Initiate MRA

If Cr <200 µmol, K<5.0 mmol
Initiate **spironolactone (or eplerenone if previous anterior MI)** at 25mg (12.5mg if frail)

*Check U&Es & BP at 2 weeks

If Cr <200 µmol, K<5.0 mmol
Increase **spironolactone/eplerenone** to 50mg (25mg if frail)

Potassium binders

If hyperkalemia persists or causes inability to use ACE/ARNI/MRA and patient is symptomatic then, refer to cardiology for initiation of either **patiromer** or **sodium zirconium cyclosilicate** as per Shared Care Guidelines.

*Continue dose increase of ACE, Entresto and MRA if:

Cr <200umol or NO increase >30% from baseline	K<5.3mmol
Euvolaemic; No diarrhoea / vomiting	BP stable; systolic BP>100mmHg
No symptoms orthostatic hypotension; consider split dose	

Continue treatment and monitor U&Es at:
2w→4w→8w→12w→6m
Thereafter 6 monthly U&Es

Initiate dapagliflozin

Check baseline U&Es, BP, HbA1c (delay initiation if volume depleted, systolic BP <95; do not initiate in dialysis patients or if eGFR <30mL/min)**

Initiate **dapagliflozin** 10mg od

For type 1 diabetes patients, **refer to diabetes team.**
For type 2 diabetes patients: consider dose reduction of insulin and sulfonylureas. **Refer to diabetes team** for advice if:

- There is a history of previous/frequent hypoglycemia.
- Impaired renal function: The glycaemic effect is dependent on renal function. Additional glucose-lowering treatment may need to be considered if eGFR falls persistently below 45mL/min.

Highlight indication as HF to ensure it's not stopped as part of a routine diabetes review.
If already on a different SGLT2 inhibitor (e.g. empagliflozin), this may be continued or switched to dapagliflozin if appropriate.

Check U&Es and BP at 4 weeks. If eGFR is less than 60mL/min, repeat every 3-6 months. Monitor for fluid depletion; may need to reduce dose of loop diuretic.

Counsel patients on DKA, the sick day rule and side effects.
****See Dapagliflozin Prescribing Information**

ACUTE USE OF LOOP DIURETICS FOR EXACERBATIONS

Sudden increase in weight (>1Kg above dry weight sustained over 2 days) +/- increasing by oedema +/- breathlessness.
Increase furosemide by 40mg (or bumetanide by 1mg) following U&Es.
Maintain dose change for 3 days arrange repeat U&Es and review of weight/symptoms.

Check with patient, if:

- Return to dry weight, then return to previous dose to avoid AKI
- No change, maintain for further 3 days
- Ongoing deterioration, then consider alternative intervention – increased dose of loop or addition of thiazide or referral to local HFSN for IV diuretics.

If patient deteriorate again within 2-3 weeks, then consider making the dose increase in loop diuretic permanent.

AKI

Suspend ACE/Entresto and MRA if creatinine increases by 30% and restart once resolved.

Developed in consultation with CV/Endocrine specialists at York Hospital, the Vale of York CCG and the North Yorkshire CCG Medicines Commissioning Committee. Written: May 2021. Version 1. Review: May 2024.