

Somerset Adult Heart Failure Referral Pathway

Suspect heart failure if: breathlessness, fatigue, oedema

Mandatory baseline tests:

- NT-pro-BNP needed before referral in all patients.
- Blood tests: U+Es, FBC, TFTs, LFTs, HbA1c & lipids
- ECG
- CXR (but do not delay referral whilst awaited if BNP raised)

Check NT-pro-BNP

NT-pro-BNP
<400 pg/ml

Heart failure unlikely;
consider alternative
diagnosis.
Discuss with specialist if
ongoing concerns

Raised NT-pro-BNP ≥ 400 pg/ml

- > 2000pg/ml ; aim for review by heart failure service within 2 weeks
- > If raised but < 2000pg/ml, aim for review within 6 weeks

Refer to Heart Failure Service via eRS (Musgrove Park) or email to
ClinicalInvestigations@ydh.nhs.uk (Yeovil)

Patient will be triaged & seen by specialist Heart Failure Service with
echocardiogram as part of referral : DO NOT BOOK ECHOCARDIOGRAM.
The echocardiogram may identify the following:

**Systolic RV
Dysfunction**

Plan will be made by specialist
heart failure team

**Valvular Heart
Disease**

- For all HF patients:
- Discuss treatment goals & offer advanced care planning
 - Consider TEPP process

**HFpEF
LV EF $\geq 50\%$
Diastolic Dysfunction**

Optimise co-morbidities including

- Hypertension
- Diabetes
- Smoking
- Obesity
- Discontinue NSAIDs

Offer loop diuretic to relieve congestive symptoms.
Consider an SGLT2i and an MRA

**HFmrEF
LV EF 41-49%**

Manage as per HFpEF.
Possible benefit for HFrEF medications in this cohort. Patient specific specialist advice.

**HFrEF
LV EF $\leq 40\%$
Systolic Dysfunction**

- Assess NYHA status
- See treatment algorithm overleaf
- Ensure correct GP coding HFrEF code (SCTID: 703272007) to qualify for QOF

HFpEF: Heart failure with preserved ejection fraction (left ventricular ejection fraction $\geq 50\%$)

HFmrEF: Heart failure with mildly reduced ejection fraction (left ventricular ejection fraction 41-49%)

HFrEF: Heart failure with reduced ejection fraction (left ventricular ejection fraction $\leq 40\%$)

NYHA I: No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea.

NYHA II: Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea.

NYHA III: Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation, or dyspnea.

NYHA IV: Unable to carry on any physical activity without discomfort. Symptoms of heart failure at rest. If any physical activity is undertaken, discomfort increases.

Treatment Algorithm for LV Systolic Dysfunction - HFrEF

Diuretics for symptomatic relief

- Furosemide up to 120mg BD or Bumetanide up to 3mg BD
- If not responding consider addition of thiazide-like diuretic (bendroflumethiazide/metolazone)

Four Pillars of Guideline Directed Medical Therapy:

Order of initiation tailored to patient; commence all four classes and then up-titrate

- **ACEi**
 - Ramipril 1.25mg od, increase every 2 weeks, target dose 5mg bd
 - Consider ARB if ACEi intolerant (candesartan, valsartan or losartan)
- **Beta Blocker**
 - Bisoprolol 1.25mg od, increase every 2-4 weeks, target dose of 10mg, target HR <75bpm
- **Mineralocorticoid receptor antagonist (MRA)**
 - Spironolactone 12.5-50mg od or epleronone 25-50mg od
- **SGLT-2 inhibitor:**
 - Dapagliflozin 10mg OD or Empagliflozin 10mg OD

ADVISE PATIENT ON MEDICINE SICK DAY RULES

If NYHA II-IV and EF \leq 45% check iron deficiency status

- Step 1: Check anaemia status – If Hb <15g/l, proceed to step 2. No role for IV iron if Hb >15g/dl.
Consider investigations for cause of anaemia if Hb <13g/dL (male) or <12g/dL (female)
- Step 2: Check ferritin and iron studies – refer for consideration of IV iron if:
ferritin <100mcg/l or ferritin 100-299mcg/l and TSAT <20%

If NYHA II-IV consider specialist referral to assess need for

- Ivabradine 5 - 7.5mg bd if sinus rhythm and HR \geq 70bpm
- ARNI (sacubitril/valsartan) in place of ACEi/ARB
- CRT (cardiac resynchronization therapy) or ICD (implantable cardioverter-defibrillator)

If NYHA II-IV and EF \leq 35% despite optimised second-line treatments, consider under specialist advice:

- Digoxin
- Hydralazine in combination with a nitrate (especially if person is of African or Caribbean ethnicity, consider earlier in pathway).
- Cardiac transplantation / Left Ventricular Assist Device (LVAD)

Monitoring

- Review pts 6-12 monthly if stable – this should include an assessment of functional capacity, fluid status, cardiac rhythm (minimum of examining the pulse), cognitive status and nutritional status
- Monitor renal function after each dose change of diuretic
- MRA: monitor renal function 1 week after initiation, after any dose increase, monthly for 1st 3 months then every 3 months for 1 year and 6 monthly after
- ACEi/ARB/ARNI: monitor renal function 1 to 2 weeks after initiation and after any dose increment. Once on a stable dose monitor monthly for 3 months and then at least once every 6 months and at any time the pt is unwell

See 'Change in renal function associated with HF drug treatment' for advice on how to manage results

Lifestyle Advice -

- Exercise (ideally formal cardiac rehab programme)
- Smoking, diet
- Sexual activity, pregnancy & contraception
- Flu vaccination, air travel
- Driving
- COVID-19 precautions
- Occupational support/advice

Patients with a poor prognosis/palliative care needs:

Identify and add to practice register if :

NYHA III/IV & progressive deterioration despite treatment, frequent hospital admissions, resistant hyponatraemia, frequent ICD shocks; (consider device deactivation), patient requests palliative approach.
See [End Stage Heart Failure Pathway on Somerset EoL website](#):
Assess, communicate, Advance Care Planning including TEPP form. Consider referrals for: Hospice Fatigue and Breathlessness Course, Psychological support e.g. The Harbour, Hospice support if complex/intense needs not met elsewhere.

Change in renal function associated with drug treatment in stable heart failure

This advice applies to monitoring of pharmacotherapy in clinically stable patients – it does NOT apply to patients with intercurrent acute illness.

Use the immediate pre-treatment serum creatinine concentration as the baseline.

Remember that the risk of death is higher in acute hyperkalaemia than in

Creatinine Rise



Serum creatinine rise <15% from baseline

→ No action required



Serum creatinine rise >15% but <30% from baseline

→ Continue current dose
 → Arrange clinical review to assess:
 a) fluid status – reduce concurrent diuretics if hypovolaemic
 b) blood pressure – stop or reduce other BP-lowering drugs if SBP <120mmHg

→ Repeat U&Es in a further 1 to 2 weeks



Serum creatinine rise 30% - 50% from baseline

→ Aim to initially continue RAAS inhibitor
 → Arrange clinical review to assess:
 a) fluid status – reduce concurrent diuretics if hypovolaemic
 b) blood pressure – stop or reduce other BP-lowering drugs if SBP <120mmHg
 → Repeat U&Es within 5 to 7 days; if serum creatinine remains >30% from initial baseline either ↓ dose or temporarily stop - discuss with HF team



Serum creatinine rise >50% from baseline OR eGFR <20

→ Temporarily stop
 → Seek advice from HF/renal service

Potassium Rise



Potassium <5.5mmol/L

→ No action required



Potassium 5.5-5.9mmol/L

→ As long as patient well and no AKI, increase frequency of biochemical monitoring but do not stop RAAS
 → Look for and remove other contributors to hyperkalaemia*
 → Consider reducing dose



Potassium 6.0-6.4mmol/L

→ Stop RAAS inhibitors/MRA
 → If hyperkalaemia is unexpected, consider arranging a repeat test the following day
 → Look for and remove other contributors to hyperkalaemia*
 → Repeat potassium within 1 week
 → Re-start at lower dose once K<5.5
 → Re-start one drug at a time, with close monitoring



Potassium ≥6.5mmol/L

→ Refer to hospital for immediate treatment

* Factors to consider in hyperkalaemia:

- Artefactual
 - Trimethoprim/co-trimoxazole/NSAIDs
 - Potassium supplements
 - Potassium-sparing diuretics
 - Check for overdiuresis/hypovolaemia
 - Non-selective beta-blockers
 - Digoxin toxicity
 - Use of salt substitutes e.g. 'LoSalt'
- Consider specialist review for access to renal dietician and potassium binder

References

Think Kidneys, the Renal Association and the British Society for Heart Failure. Changes in kidney function and serum potassium during ACEI/ARB/diuretic treatment in primary care. 2017. Available from <https://www.thinkkidneys.nhs.uk/aki/wp-content/uploads/sites/2/2017/10/Changes-in-Kidney-Function-FINAL.pdf>
 Clark, AL et al. Change in renal function associated with drug treatment in heart failure: national guidance. Heart 2019; 105:904-910.

Dr Amy Burchell, June 2022

References

- **NICE Guideline 106: Chronic heart failure in adults: diagnosis and management, accessed at:**
<https://www.nice.org.uk/guidance/ng106>
- **2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure, accessed at:**
<https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines/Acute-and-Chronic-Heart-Failure>
- **2023 Focused Update of the 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure, accessed at:**
<https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines/Focused-Update-on-Heart-Failure-Guidelines>
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<https://www.st-margarets-hospice.org.uk/wp-content/uploads/2025/02/Heart-Failure-guideline-Dec-24.pdf>