Healthcare Improvement Scotland

SIGN

SIGN 147 • Management of chronic heart failure

Quick Reference Guide

March 2016

Scottish Intercollegiate Guidelines Network

Management of chronic heart failure

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This Quick Reference Guide provides a summary of the main recommendations in **SIGN 147 Management of chronic heart failure.**

Recommendations **R** are worded to indicate the strength of the supporting evidence. Good practice points ✓ are provided where the guideline development group wishes to highlight specific aspects of accepted clinical practice.

Details of the evidence supporting these recommendations can be found in the full guideline, available on the SIGN website: www.sign.ac.uk.

This QRG is also available as part of the SIGN Guidelines app.

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www.sign.ac.uk

DIAGNOSIS AND INVESTIGATIONS

There is no symptom or sign that is both sensitive and specific for the diagnosis of heart failure and a purely clinical diagnosis is problematic. Basic early investigations are necessary to differentiate heart failure from other conditions and to provide prognostic information.

✓ Patients with suspected chronic heart failure should receive a range of basic tests. The investigations chosen will vary depending on the presentation but should usually include a full blood count, fasting blood glucose, serum urea and electrolytes, urinalysis, thyroid function, electrocardiogram and chest X-ray.

✓ An ECG should be carried out once heart failure is diagnosed to assess rhythm and possible underlying causes of heart failure and determine future management such as cardiac resynchronisation therapy, ivabradine and anticoagulation for atrial fibrillation.

R **Natriuretic peptide** (BNP-type natriuretic peptide or NT-proBNP) **levels** (or an electrocardiogram if BNP testing is not available) **should be measured to decide if echocardiography is indicated or not, in patients with suspected heart failure.**

✓ In the assessment of suspected heart failure, BNP or NT-proBNP levels should ideally be checked on samples taken prior to commencing therapy.

R **Patients with suspected heart failure and a BNP level above 400 pg/ml** (116 pmol/litre) **or an NT-proBNP level above 2,000 pg/ml** (236 pmol/litre) **may be referred for echocardiography and specialist assessment within two weeks.**

R **Patients with suspected heart failure and a BNP level between 100 and 400 pg/ml** (29–116 pmol/litre)**, or an NT-proBNP level between 400 and 2,000 pg/ml** (47–236 pmol/litre) **may be referred for echocardiography and specialist assessment within six weeks.**

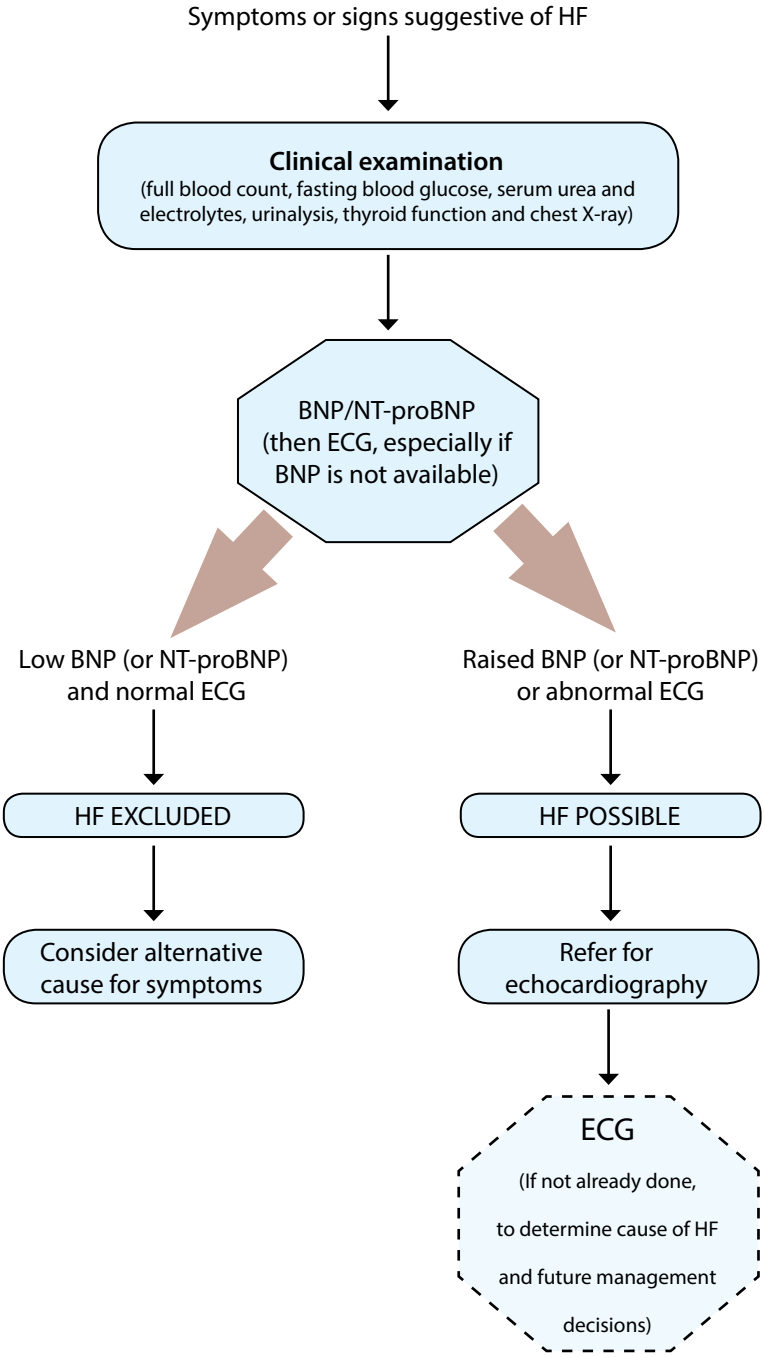
✓ Echocardiography is recommended in patients with suspected heart failure who have either a raised BNP or NT-proBNP level or abnormal electrocardiograph result to confirm the diagnosis and establish the underlying cause. The investigation should include:

- a description of overall left ventricular systolic function (preferably measured by the LVEF) together with any wall-motion abnormalities
- Doppler assessment of any significant valve disease
- estimation of pulmonary artery systolic pressure, where possible.

R **A chest X-ray is recommended early in the diagnostic pathway to look for supportive evidence of heart failure and to investigate other potential causes of breathlessness.**

✓ Coronary artery imaging is not recommended as a routine test for patients with heart failure unless the patient has symptoms suggestive of cardiac ischaemia or has had cardiac arrest.

DIAGNOSTIC ALGORITHM FOR PATIENTS WITH SUSPECTED CHRONIC HEART FAILURE



EMOTIONAL WELLBEING AND HEALTH BEHAVIOUR CHANGE

DEPRESSION

✓ Patients with heart failure should be screened for depression using a validated measure and within the context of a collaborative, stepped-care model which includes a locally-defined clinical care pathway.

R **Cognitive behaviour therapy should be considered for patients with heart failure and clinical depression.**

✓ If antidepressant medication is prescribed, a tricyclic antidepressant should not be used in patients with heart failure.

DIETARY CHANGES

✓ Patients with heart failure should be advised:

- to aim for a salt intake of less than 6 g/day
- not to use 'low salt' substitutes due to their high potassium content.

✓ Healthcare professionals involved in the care of patients with frequent episodes of decompensated heart failure should assess individual patient's fluid intake and use a tailored approach when giving fluid restriction advice.

✓ Patients with chronic heart failure should be encouraged to weigh themselves at a set time of day, every day (after waking, before dressing, after voiding, before eating). Patients should report to their general practitioner or heart failure specialist any weight gain of more than 1.5–2 kgs (3–4 lbs) in two days.

✓ Patients with heart failure:

- who are taking warfarin should be advised to avoid cranberry juice (which may increase drug potency).
- who are taking simvastatin should be advised to avoid grapefruit juice (which may interfere with liver metabolism of the drug).
- should not take St John's wort supplements due to the interaction with warfarin, digoxin, eplerenone and selective serotonin reuptake inhibitors.

ALCOHOL

R **Patients with heart failure should be advised to refrain from excessive alcohol consumption. When the aetiology of heart failure is alcohol related, patients should be strongly encouraged to stop drinking alcohol.**

SMOKING

R **Patients with heart failure should be strongly advised not to smoke and should be offered smoking cessation advice and support.**

EXERCISE

R **Patients with stable heart failure in NYHA class II-III should be offered a moderate-intensity supervised exercise training programme to give improved exercise tolerance and quality of life.**

✓ Patients should be encouraged to take aerobic exercise within limits dictated by their symptoms.

R **A motivational interviewing style should be used to promote regular low-intensity physical activity amongst patients with stable heart failure.**

PHARMACOLOGICAL THERAPIES

BETA BLOCKERS

R **All patients with heart failure with reduced ejection fraction, NYHA class II-IV, should be started on beta blocker therapy as soon as their condition is stable.**

✓ Bisoprolol, carvedilol or nebivolol should be the first choice of beta blocker for the treatment of patients with heart failure with reduced ejection fraction.

✓ If beta blockers are contraindicated consider using ivabradine.

ACE INHIBITORS

R **Patients with heart failure with reduced ejection fraction of all NYHA functional classes, should be given angiotensin-converting enzyme inhibitors.**

ANGIOTENSIN RECEPTOR BLOCKERS

R **Patients with heart failure with reduced ejection fraction, NYHA class II-IV, who are intolerant of angiotensin-converting enzyme inhibitors should be given an angiotensin receptor blocker.**

R **An angiotensin receptor blocker in addition to an angiotensin-converting enzyme inhibitor should be considered in patients with heart failure with reduced ejection fraction NYHA class II-IV, who are unable to tolerate a mineralocorticoid receptor antagonist.**

MINERALOCORTICOID RECEPTOR ANTAGONISTS

R **Patients with heart failure with reduced ejection fraction who have ongoing symptoms of heart failure, NYHA class II-IV, LVEF ≤35%, despite optimal treatment, should be given mineralocorticoid receptor anatgonists unless contraindicated by the presence of renal impairment** (chronic kidney disease stage ≥4–5) **and/or elevated serum potassium concentration** (K^+ >5.0 mmol/l)**.**

✓ Eplerenone can be substituted for spironolactone in patients who develop gynaecomastia.

ANGIOTENSIN RECEPTOR/NEPRILYSIN INHIBITORS

R **Patients with heart failure and reduced ejection fraction who have ongoing symptoms of heart failure, NYHA class II-III, LVEF <40%, despite optimal treatment, should be given sacubitril/valsartan instead of their ACE inhibitor or ARB, unless contraindicated. It may be considered in patients with NYHA class IV symptoms.**

If the patient is already on an ACE inhibitor, the ACE inhibitor should be stopped for 36 hours before intitiating sacubitril/valsartan to minimise the risk of angioedema.

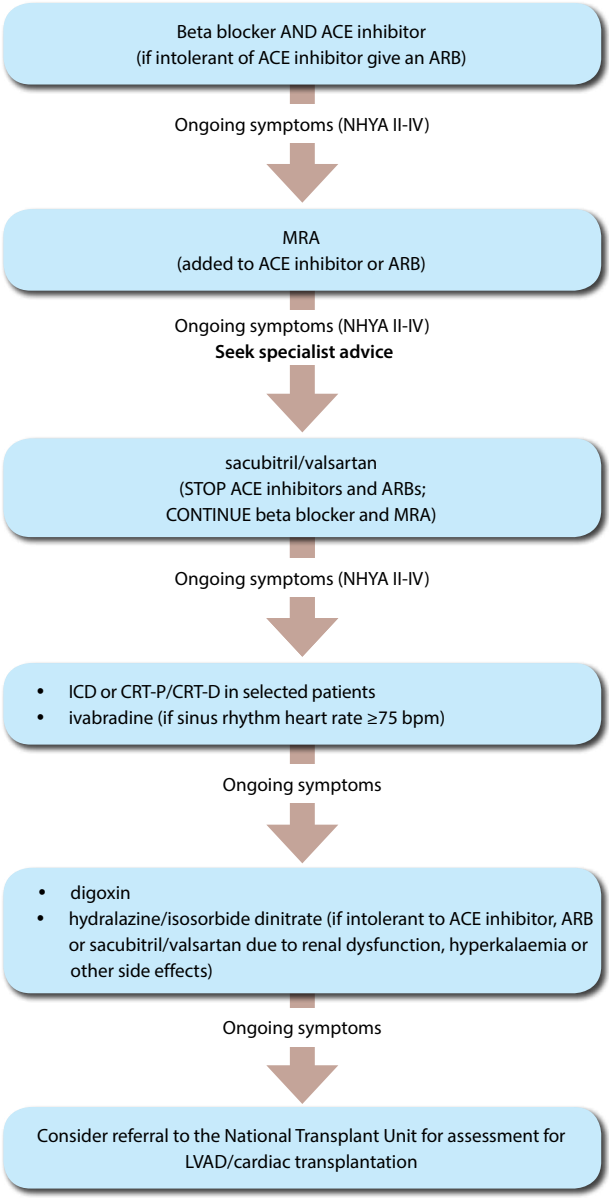
✓ Patients should be seen by a heart failure specialist with access to a multidisciplinary heart failure team before starting treatment with sacubitril/valsartan.

IVABRADINE

R **Patients with a diagnosis of heart failure with reduced ejection fraction of NYHA class II-IV, LVEF ≤35%, who have had a previous hospital admission for heart failure in the preceding 12 months but have stabilised on standard therapy for at least four weeks should be given ivabradine. Patients must have a sinus rhythm heart rate ≥75 beats/minute despite maximum tolerated dose of beta blockers.**

✓ Specialist advice should be sought before initiating ivabradine.

ALGORITHM FOR PHARMACOTHERAPY AND DEVICE THERAPY IN PATIENTS WITH HF-REF NHYA class II-IV



Other therapies to consider:
Intravenous iron (ferric carboxymaltose) if haemoglobin 9.5 to 13.5 mg/dl and iron deficiency (defined as ferritin <100 microgram/l or <300 microgram/l if TSAT <20%)

DIURETICS

R **Patients with heart failure and clinical signs or symptoms of fluid overload or congestion should be considered for diuretic therapy.**

✓ The dose of diuretic should be individualised to reduce fluid retention without overtreating which may cause dehydration or renal dysfunction.

DIGOXIN

R **Digoxin should be considered as an add-on therapy for patients with heart failure in sinus rhythm who are still symptomatic after optimum therapy.**

✓ If excessive bradycardia occurs with concurrent beta blockade and digoxin therapy, digoxin should be stopped.

NATRIURETIC PEPTIDE-GUIDED TREATMENT

R **NT-proBNP-guided treatment may be considered in patients with heart failure aged less than 75 years, especially in the presence of higher baseline NT-proBNP levels** (>2,114 pg/ml).

HYDRALAZINE AND ISOSORBIDE DINITRATE

R **Patients who are intolerant of an angiotensin-converting enzyme inhibitor and an angiotensin II receptor blocker due to renal dysfunction or hyperkalaemia should be considered for treatment with a combination of hydralazine and isosorbide dinitrate.**

R **African-American patients with heart failure with reduced ejection fraction, NYHA class III or IV, should be given hydralazine and isosorbide dinitrate in addition to standard therapy.**

PATIENTS WITH ANAEMIA

R **Patients with heart failure with reduced ejection fraction, NYHA class III with an LVEF ≤45%, or NYHA class II, LVEF ≤40%, who have a haemoglobin level of 9.5 to 13.5 and iron deficiency** (defined as ferritin <100 microgm/l or <300 microgm/l if TSAT <20%) **should be considered for therapy with intravenous iron.**

R **Erythropoietin is not recommended for patients with heart failure with reduced ejection fraction and iron deficiency.**

RENAL IMPAIRMENT

✓ Renal dysfunction in patients with heart failure caused by:

- dehydration, may require a reduction in dose or temporary cessation of the diuretic
- ACE inhibitor, ARB and/or spironolactone use, requires a cessation or a reduction in dose
- coincidental renal disease requires renal investigations (24 hour urine protein collection, kidney ultrasound and/or MRI of the renal arteries).

VACCINATIONS

R **Patients with chronic heart failure should receive one pneumococcal vaccination and an annual influenza vaccination.**

INTERVENTIONAL PROCEDURES

CARDIAC RESYNCHRONISATION THERAPY AND IMPLANTABLE CARDIOVERTER DEFIBRILLATORS

Treatment options with ICD or CRT for people with heart failure with an ejection fraction of 35% or less (according to NYHA class, QRS duration and presence of LBBB) (from NICE Multiple Technology Appraisal: Implantable cardioverter defibrillators and cardiac resynchronisation therapy for arrhythmias and heart failure).

	NYHA class			
QRS interval (ms)	I	II	III	IV
<120	ICD if there is a high risk of sudden cardiac death			ICD and CRT not clinically indicated
120–149 without LBBB	ICD	ICD	ICD	CRT-P
120–149 with LBBB	ICD	CRT-D	CRT-P or CRT-D	CRT-P
≥150 with or without LBBB	CRT-D	CRT-D	CRT-P or CRT-D	CRT-P
ICD = implantable cardioverter defibrillator; CRT-D = cardiac resynchronisation therapy with an implantable cardioverter defibrillator; CRT-P = cardiac resynchronisation therapy with pacing;				

R **Implantable cardioverter defibrillators, cardiac resynchronisation therapy with defibrillator or cardiac resynchronisation therapy with pacing are recommended as treatment options for patients with heart failure with reduced ejection fraction, LVEF ≤35%, as specified in the table above.**

✓ Patients receiving cardiac resynchronisation therapy and/or an implantable cardioverter defibrillator should be offered pre- and postplacement counselling, including discussion of potential shocks from the device, and device deactivation.

ASSISTED VENTILATION

R **Patients with central sleep apnoea and heart failure due to reduced ejection fraction should not be treated with adaptive servoventilation.**

CORONARY ARTERY BYPASS GRAFTING SURGERY

R **Patients with heart failure and angina who require revascularisation can be considered for coronary artery bypass grafting. This can be considered after assessment of their operative risk.**

CARDIAC TRANSPLANTATION

✓ Patients with drug refractory severe heart failure should be referred to an advanced heart failure centre where they can be assessed with regard to suitability for transplantation.

POSTDISCHARGE CARE

R **Comprehensive discharge planning should ensure that links with postdischarge services are in place for all those with symptomatic heart failure.**

✓ Comprehensive planning requires communication between primary- and secondary- care teams, including discharge planning following a hospital admission, anticipatory care planning, specialist nurse input and, where appropriate, home-based care.

NURSE-LED FOLLOW UP

R **Patients who have been hospitalised with heart failure should be followed up after discharge by a specialist nurse who has the resource to initiate and adjust medication.**

ROLE OF PHARMACISTS

R **Patients with heart failure should be offered multidisciplinary follow up, which includes pharmacy input addressing knowledge of drugs and compliance. Follow up should include feedback to clinicians about possibilities for optimising pharmacological interventions.**

SELF MANAGEMENT

✓ Self-management programmes should be tailored to individual patient requirements, paying particular attention to those with low literacy.

PALLIATIVE CARE

✓ Patients with advanced heart failure with ongoing symptoms despite optimally-tolerated heart failure treatment should have access to a collaborative cardiology and palliative approach to their care. This includes:

- active heart failure management in conjunction with symptom control
- rationalisation of medical therapy
- anticipatory care planning
- co-ordination of care
- multidisciplinary team working and
- communication across primary and secondary care
- good end-of-life care.

This approach to care should be practised by all healthcare professionals involved in the management of patients with advanced disease with access to specialist advice as needed.

✓ Issues of sudden death and living with uncertainty are pertinent to all patients with heart failure. The opportunity to discuss these issues should be available to patients at all stages of their care.

✓ After optimising diet, fluid intake and standard management for chronic heart failure, prescription of low-dose opioids, titrated against effect, should be considered in patients with dyspnoea.

RATIONALISING TREATMENTS

✓ Medications should be reviewed regularly and decisions to adjust or stop drugs should be taken actively rather than in response to adverse effects, in conjunction with the patient and their family. Consideration should be given to the difference between treatments prescribed for symptomatic relief and prognostic benefit.

R **Healthcare professionals should follow the advice from the Resuscitation Council (UK) on device deactivation in patients with advanced heart failure who are near the end of life.**

SOURCES OF FURTHER INFORMATION

NHS inform
www.nhsinform.co.uk

Heart zone
www.nhsinform.co.uk/heart

NHS inform A-Z articles
Heart failure: www.nhsinform.co.uk/health-library/articles/h/heart failure/introduction
High blood pressure: www.nhsinform.co.uk/health-library/articles/b/blood-pressure-high
Heart attack: www.nhsinform.co.uk/health-library/articles/h/heart-attack

Caledonia House , Fifty Pitches Road, Cardonald Park, Glasgow G51 4EB
Tel: 0800 22 44 88 • Email**:** nhs.inform@nhs24.scot.nhs.uk

The national health and care information service for Scotland which includes conditions such as heart failure, high blood pressure, depression and diabetes. The heart zone provides information and advice on heart conditions.

Heart Failure Matters
www.heartfailurematters.org

A website produced by the European Society of Cardiology which provides information and monitoring tools for patients, families and caregivers.

British Heart Foundation
Ocean Point 1, 94 Ocean Drive, Edinburgh, EH6 6JH
Tel: 020 7554 0000; Heart Helpline: 0300 330 3311
www.bhf.org.uk • Email: bhfhi@bhf.org.uk

The nation's heart charity and the largest independent funder of cardiovascular research. The BHF provides information for patients and carers.

Chest Heart & Stroke Scotland
Third Floor, Rosebery House, 9 Haymarket Terrace, Edinburgh EH12 5EZ
Tel: 0131 225 6963 • Advice Line Nurses: 0808 801 0899
www.chss.org.uk • Email: admin@chss.org.uk

The Scottish health charity set up to improve the quality of life for people in Scotland affected by chest, heart and stroke illness, through medical research, influencing public policy, advice and information and support in the community.

www.sign.ac.uk

www.healthcareimprovementscotland.org

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The Healthcare Environment Inspectorate, the Scottish Health Council, the Scottish Health Technologies Group, the Scottish Intercollegiate Guidelines Network (SIGN) and the Scottish Medicines Consortium are key components of our organisation.