



# CHRONIC HEART FAILURE

## Top tips for MURs

- Check that patient understands why medication has been prescribed
- Counsel patient on the need to take medication regularly and address any adherence issues – intentional or unintentional non adherence
- Confirm that patients who have heart failure due to left ventricular systolic dysfunction (LVSD) have had their ACE inhibitor, angiotensin-2-receptor antagonist and beta-blocker titrated up to the target or maximum tolerated dose. Reassure patients who cannot tolerate the maximum dose they are still gaining benefit from their treatment
- Check that the patient has had an annual influenza vaccination and a one off pneumococcal vaccination
- Check that the patient has had their heart failure and renal function tested at least every six months
- Advise patient to sit up and stand slowly first thing in the morning and to drink adequate but not excessive amounts of fluids to prevent hypotension (dizziness & light headedness)
- Counsel patients on signs and symptoms of complications that need urgent referral (**see red flags overleaf**) and common side effects (**see overleaf**)
- Check that the patient is monitoring their weight at the same time each day
- Report any relevant adverse drug reactions to the Yellow Card Scheme

## Pathophysiology of chronic heart failure

Heart failure is a complex syndrome of signs and symptoms that suggest the efficiency of the heart is impaired. It is caused by structural or functional abnormalities of the heart and the most common is damage to the left ventricular muscle. It is classified as either heart failure with preserved left ventricular ejection fraction (HFpEF), mid-range (HFmrEF) or reduced left ventricular ejection fraction (HFrEF)<sup>1</sup>. The treatment of chronic heart failure aims to relieve symptoms, improve exercise tolerance, reduce the incidence of acute exacerbations and reduce mortality.

## Lifestyle issues

- Advise patients who smoke of benefits of smoking cessation and refer to Pharmacy Stop Smoking or Stop Smoking Wales services if willing to stop
- Advise patient to maintain adequate general nutrition, reduce salt intake and advise not to use a salt substitute which is high in potassium
- Encourage physical activity within the patient's capacity
- Counsel patient on reducing alcohol intake to within safe limits (up to 14 units a week, spread evenly over 3 more days, with several alcohol free days)
- Avoid excessive fluid intake, advise instead 1.5 to 2 litres per day; increase in hot weather
- Counsel patient on weight reduction if overweight. Signpost to local weight management or exercise programmes

## How do drugs used to treat heart failure work?

Loop, thiazide and potassium sparing diuretics	Increases excretion of sodium, potassium and water, which causes the circulating volume to be diminished, reducing preload on the heart and cardiac output which reduces BP.
ACE inhibitors (ACEi) / angiotensin-2-receptor antagonists (ARBs)	Suppresses the renin angiotensin system which reduces vasoconstriction and aldosterone production. Lowers blood pressure.
Beta-blockers i.e. bisoprolol, carvedilol	Acts on sympathetic nervous system reducing the burden on the heart and reduces cardiac response to stress and exercise, which lowers heart rate, BP and myocardial contractility.
Aldosterone antagonists i.e. spironolactone, eplarenone	Reduces salt and water retention by antagonising the effects of aldosterone in the distal convoluted renal tubule.
Digoxin	Increases the force of myocardial contraction and reduces cardiac conductivity.
Hydralazine	Mechanism of action is not fully understood but it lowers blood pressure by exerting a peripheral vasodilating effect on smooth muscle.
Isosorbide dinitrate	Vasodilation resulting in reduced burden on the heart and improved blood flow to heart muscle.





## Red flags that need referral

- Signs of stroke or TIA (numbness, weakness/paralysis, slurred speech, blurred vision, confusion, severe headache)
- Any heaviness in centre of chest, triggered by effort or emotion
- Severe symptoms of chronic heart failure (fatigue, breathlessness, oedema)
- Signs of worsening renal failure (poor appetite, nausea, cramps, bone pain)
- Signs of digoxin toxicity (nausea, vomiting, confusion, blurred vision)
- Symptoms of depression (low self-esteem, lack of energy, weight loss, appetite loss, early morning waking, lack of concentration)

## What are the common side effects to look out for?

Drug	Common side effects	Recommendation
Diuretics	Gastro-intestinal disturbances, high blood glucose levels, hyperlipidaemia, hypokalaemia, hyponatraemia	Refer to prescriber for tests. Monitor closely in diabetics.
	Gout	Refer to prescriber for prophylaxis with allopurinol.
	Postural hypotension	Advise patient to sit up and stand slowly first thing in the morning.
	Cramps	Offer advice on exercises. Drink adequate but not excessive amounts of fluids as cramp is common symptom of dehydration.
Drugs affecting the renin-angiotensin system	Swelling of the hands, feet, eyes, lips or genitals (angioedema), hyperkalaemia	Refer to prescriber (if suspected angioedema refer urgently).
	Hypotension & dizziness	Advise patient to sit up and stand slowly first thing in the morning and also to take initial doses at night.
ACEi / ARB	Troublesome dry cough	Refer to prescriber to try a different ACEi/ARB.
Beta-blockers	Cold extremities, difficulty breathing, tiredness, extreme thirst, sleep disturbances, nightmares, gastrointestinal complaints	Refer to prescriber for potential change to another beta blocker licensed for heart failure.
	Masks hypoglycaemia	Diabetics to monitor blood glucose more closely.
Spironolactone/ Eplerenone	Gastro-intestinal disturbances, electrolyte imbalances- hyperkalaemia, hypercalcaemia	Refer to prescriber for tests. Monitor closely.
	Hypotension & dizziness	Advise patient to sit up and stand slowly first thing in the morning and also to take initial doses at night.
	Gynaecomastia	Specific to Spironolactone - refer to prescriber to consider an alternative.
	Rash, Pruritis or muscle spasms	Refer to prescriber.
Digoxin	Dizziness, blurred vision, gastrointestinal disturbance, rash	Refer to prescriber.
Hydralazine & isosorbide dinitrate	Palpitations, headache, dizziness	Transient, sit down or hold onto something if feeling light-headed.

## Potential serious drug interactions?

Medications for chronic heart failure interact with many other medications such as: ACE inhibitors, aliskiren, alpha-blockers, angiotensin-2 receptor antagonists, anti-arrhythmics, antibacterials, anticoagulants, antidepressants, antiepileptics, antifungals, antihistamines, antimalarials, antimuscarinics, antipsychotics, antivirals, atomoxetine, beta-blockers, calcium channel blockers, cardiac glycosides, ciclosporin, clonidine, colchicine, cytotoxics, diuretics, erectile dysfunction drugs (avoid with nitrates), ivabradine, lithium, NSAIDs, ranolazine, sympathomimetics. Spironolactone and drugs affecting the renin-angiotensin system should be used in caution together due to an increased risk of hyperkalaemia<sup>2</sup>. – **See BNF Appendix 1: Interactions for more details**

## Where can you find more information?

- Chronic heart failure; e-learning module. WCPPE website ([www.wcppe.org.uk](http://www.wcppe.org.uk))
- BNF sub-section 2.5 hypertension and heart failure ([www.bnf.org](http://www.bnf.org))
- NICE CG108 ([www.nice.org.uk](http://www.nice.org.uk))
- Clinical Knowledge Summary; heart failure - chronic (<http://www.cks.nice.org.uk>)
- NHS Choices; healthy living; leg cramps-treatment<sup>1</sup> ([www.nhs.uk/Livewell](http://www.nhs.uk/Livewell))
- British Heart Foundation ([www.bhf.org.uk](http://www.bhf.org.uk))

### References:

1. Ponikowski et al. 2016 ESC guidelines for the diagnosis and treatment of acute and chronic heart failure. May 2016
2. Drug Safety Update, MHRA, February 2016. Available online at <https://www.gov.uk/drug-safety-update/spironolactone-and-renin-angiotensin-system-drugs-in-heart-failure-risk-of-potentially-fatal-hyperkalaemia>

