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Prescribing Practice Review

No. 41 Improving outcomes in chronic heart failure

Dear Dr Sample,

Heart failure remains a leading cause of premature death and disability in Australia. This *Prescribing Practice Review* addresses some key messages for improving outcomes in chronic heart failure.

Identify high-risk heart failure patients for frequent review and management of risk factors

High-risk patients with heart failure need frequent review to help avoid preventable causes of worsening heart failure, such as poor understanding of their condition and non-adherence with drug or non-drug therapies.

Order an echocardiogram in suspected heart failure due to symptoms, signs or risk factors

Consider the possibility of heart failure in people with indicative symptoms and/or relevant clinical history and investigate further. Confirm the diagnosis with an echocardiogram.

Titrate ACE inhibitors using heart failure dosing regimens; optimal doses may be higher than those used in hypertension

Increase the dose of ACE inhibitors at regular intervals until the recommended target heart failure dose is achieved, or the highest tolerated dose.

Use heart-failure-specific beta blockers for all patients with systolic heart failure after stabilisation, and up-titrate slowly to the maximally tolerated or target dose

Routinely use heart-failure-specific beta blockers in addition to ACE inhibitors in stable symptomatic heart failure, and titrate toward doses with proven survival benefits.

Identify and avoid drugs that exacerbate heart failure

Review medication lists regularly and eliminate where possible drugs known to exacerbate heart failure.

Use the heart failure action plan to discuss fluid balance, medication adherence and lifestyle changes

Integrate self-management advice with written information to improve a patient's understanding of their condition and its treatment.

The Clinical Audit: *Management of systolic chronic heart failure* is now available. See the enclosed enrolment form for more information. A brochure on the Quality Prescribing Initiative is also enclosed for your information.

Yours sincerely,

Dr Janette Randall
Chair, National Prescribing Service Limited

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funded by the Australian Government Department of Health and Ageing.

Improving outcomes in chronic heart failure

Key Messages

- Identify high-risk heart failure patients for frequent review and management of risk factors
 - Order an echocardiogram in suspected heart failure due to symptoms, signs or risk factors
 - Titrate ACE inhibitors using heart failure dosing regimens; optimal doses may be higher than those used in hypertension
 - Use heart-failure-specific beta blockers for all patients with systolic heart failure after stabilisation, and up-titrate slowly to the maximally tolerated or target dose
 - Identify and avoid drugs that exacerbate heart failure
 - Use the heart failure action plan to discuss fluid balance, medication adherence and lifestyle changes
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Heart failure is a clinical syndrome of limited cardiac output and/or fluid congestion. It results from the inability of the heart to meet the body's demands at normal filling pressure. Chronic heart failure is usually progressive, but with appropriate diagnosis and treatment the symptoms and prognosis are markedly improved.

High-risk heart failure patients need frequent review and individualised management

Review patients with heart failure more often if they are at high risk

Frequently review patients with established heart failure when they are at high risk of premature mortality, morbidity or hospital re-admission. Risk factors include:

- age \geq 65 years
- NYHA Class III or IV symptoms
- comorbidities
- left ventricular ejection fraction (LVEF) \leq 30%
- living alone or remote from specialist medical services
- depression
- language barrier (e.g. non-English speaking)
- lower socio-economic status
- significant renal dysfunction (estimated glomerular filtration rate $<$ 60 mL/min/1.73m²).¹

High-risk patients, especially the elderly, more frequently develop decompensation of heart failure. More frequent clinical review permits early detection of impending deterioration and adjustments in therapy.

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Assess high-risk patients, especially the elderly, for preventable causes of worsening heart failure

More than half of all hospital admissions for worsening heart failure are preventable.² Addressing these causes with tailored patient education and support, and close follow-up, can reduce the need for hospital admission.^{3,4}

Preventable causes include:

- inadequate or inappropriate medical treatment
- adverse effects of prescribed therapy
- poor understanding of the underlying diagnosis or therapy
- unrecognised decompensation of symptoms or volume overload
- non-adherence with drug and non-drug therapies
- poor social support.^{1,2}

Ensure optimal drug doses are being taken that improve survival

Effective drugs exist for all stages of systolic heart failure. Check for optimal doses by reviewing medication lists at routine visits. Regularly review adherence with medications and identify and address the barriers for individual patients.

Data extraction tools that conduct a practice wide search of electronic records can help to identify patients who may benefit from a medication review. NPS is currently incorporating heart failure indicators into two available tools that extract data from prescribing software.

Suspect heart failure in people with risk factors, symptoms or clinical signs — order an echocardiogram

Be alert to signs and symptoms of heart failure

Symptoms of heart failure can be non-specific and the clinical findings subtle. Heart failure may be virtually asymptomatic in the early stages and many at-risk patients remain undiagnosed.⁵

Suspect heart failure in patients with unexplained breathlessness, fatigue, exercise limitation, weight gain or fluid retention, especially in the elderly.¹

Consider patients at high risk of developing heart failure for further investigation

Also suspect heart failure in people with established risk factors, such as advanced age, existing hypertension, obesity, diabetes, and coronary heart disease. Careful history and physical examination may help to identify heart failure in these patients early.

If heart failure is suspected, further investigations are required including an electrocardiogram (ECG), chest X-ray, echocardiography and, where indicated, specialist assessment.¹

Confirm the diagnosis with an echocardiogram

Refer all patients with suspected heart failure for an echocardiogram. This confirms the diagnosis and provides important information about underlying abnormalities in ventricular and valvular cardiac structure and function.

An echocardiogram distinguishes whether the diagnosis is systolic heart failure (left ventricular systolic dysfunction), diastolic heart failure (heart failure with preserved systolic function) or both, which has important treatment implications.^{1,6}

Use target doses of ACE inhibitors in all patients with systolic heart failure

Titrate the ACE inhibitor dose to the recommended target dose or that which is maximally tolerated

ACE inhibitor doses that improve survival in heart failure may be higher than those used to control hypertension. Start an ACE inhibitor at a low dose and increase the dose at regular intervals (no less than 2 weekly intervals).⁶⁻⁸ Refer to *NPS News 57* for target doses of ACE inhibitors that are recommended in heart failure.

To maximise the survival benefits of ACE inhibitor therapy, review medication lists regularly and increase the dose toward the recommended target. However, treatment must always be individualised depending on patient tolerability, blood pressure and renal function.

Angiotensin II-receptor antagonists are an alternative in ACE inhibitor intolerance

Angiotensin II-receptor antagonists appear to be as effective as ACE inhibitors in reducing mortality and morbidity in symptomatic heart failure (NYHA Class II – IV).⁹⁻¹² They are an alternative for those who are intolerant of ACE inhibitors.¹

Studies evaluating the effects of combined therapy with an ACE inhibitor and an angiotensin II-receptor antagonist have shown mixed results. Such combination therapy should generally only be undertaken under specialist supervision.⁶

Use diuretics for symptom relief only

Diuretics control fluid retention, they have no clear effect on mortality and thus should be used in combination with standard therapies that improve survival.¹ Titrate the dose according to symptoms and volume status to reduce fluid overload but minimise dehydration and intravascular volume depletion. Monitor renal function and potassium levels to avoid electrolyte disturbances.^{1,6}

Add spironolactone and/or digoxin for people who remain symptomatic despite optimal doses of an ACE inhibitor and diuretic

Low-dose spironolactone improves survival in severe symptomatic left ventricular systolic heart failure.¹³ Eplerenone is used early in addition to standard therapy (ACE inhibitor and beta blocker) for myocardial infarction complicated by heart failure and left ventricular impairment.¹⁴

Digoxin can be added to spironolactone if symptoms worsen or for rate control of coexisting atrial fibrillation.¹ Digoxin reduces hospitalisation due to worsening heart failure, but has no clear effect on mortality.¹⁵

Start a heart-failure-specific beta blocker in stabilised systolic heart failure and titrate toward the target dose

Add a heart-failure-specific beta blocker to an ACE inhibitor to improve survival

Add a heart-failure-specific beta blocker (carvedilol, bisoprolol or metoprolol SR) to an ACE inhibitor for all patients with stable symptomatic heart failure (NYHA Class II – IV), and those with asymptomatic left ventricular systolic dysfunction (NYHA Class I) following myocardial infarction.¹

Using a heart-failure-specific beta blocker with an ACE inhibitor provides significant additional mortality and morbidity benefits compared with placebo.¹⁶⁻²⁰ A meta-analysis of 22 trials with over 10 000 patients (mean duration 3 to 23 months), showed that adding a beta blocker to an ACE inhibitor reduced the risk of all-cause mortality and hospital admission for heart failure by about one third compared with placebo (8.4% vs 12.8% and 10.3% vs 15.6% respectively).²⁰

Start very low and go slow

Start heart-failure-specific beta blockers at a very low dose and slowly titrate upwards if tolerated (at not less than 2-weekly intervals). Aim for a target dose that has proven benefits in heart failure, or the maximally tolerated dose.^{6,8} Refer to *NPS News 57* for the recommended target doses of beta blockers in heart failure.

Frequent monitoring is required when initiating and titrating the dose

Initiating beta blocker therapy can temporarily worsen heart failure — it should not be started until patients are stabilised on appropriate doses of an ACE inhibitor and/or other medications.¹

Monitor heart rate, blood pressure and clinical status for signs of worsening heart failure when starting a beta blocker and during dose titration. Check serum urea, creatinine and electrolytes at baseline, 1–2 weeks after starting therapy, at each dose titration and regularly thereafter.^{6,8}

Symptomatic hypotension or bradycardia (heart rate less than 50 beats per minute) may necessitate a dose reduction. Manage other possible causes of hypotension or bradycardia and consider resuming beta blocker therapy once the patient is stable.^{6,8,21}

Specialist input may be valuable when initiating a beta blocker in primary care, especially for GPs less familiar with managing heart failure.⁸

Identify and avoid drugs that exacerbate heart failure

Ask patients what other drugs they take and regularly review medication lists for drugs that worsen heart failure

Identify and avoid where possible drugs known to exacerbate heart failure including:

- anti-arrhythmic drugs (except heart-failure-specific beta blockers and amiodarone)
- non-dihydropyridine calcium channel blockers (e.g. verapamil, diltiazem)
- tricyclic antidepressants (e.g. amitriptyline, doxepin)
- conventional NSAIDs
- COX-2 selective NSAIDs (e.g. celecoxib)
- thiazolidinediones (e.g. rosiglitazone, pioglitazone)
- corticosteroids (e.g. hydrocortisone, prednisone)
- clozapine
- oncology drugs (e.g. anthracyclines, trastuzumab)
- tumour necrosis factor antagonists (e.g. infliximab, etanercept)
- preparations with a high salt content (e.g. urinary alkalinisers).^{1,14}

Consider potential drug interactions that may occur between therapies for heart failure

Monitor adverse effects when adding a drug to existing therapy, especially in elderly patients and patients with renal impairment. Adding an aldosterone antagonist (spironolactone or eplerenone) to an ACE inhibitor or angiotensin II-receptor antagonist may cause hyperkalaemia. Additive hypotensive effects may occur if beta blockers are taken with other drugs that have this effect.¹⁴

Enabling patients to play an active role in self-management improves outcomes

Talk about heart failure using the 'Living well with chronic heart failure' information sheet and action plan

Ensure that patients understand their condition and treatment goals by providing the Heart Foundation's 'Living well with chronic heart failure' information sheet and action plan (see enclosed). This outlines important aspects of self-management and answers common questions asked by patients. This resource is available for download at www.heartfoundation.org.au/chf and can be printed from prescribing software.

Emphasise to patients the importance of:

- taking medicines as prescribed
- monitoring and controlling fluid balance (i.e. fluid and salt restriction, recording weight daily)
- making long-term lifestyle changes.

Reinforce at every visit the benefits of adherence with therapies and health-related behaviours, to prevent worsening heart failure.

Encourage patients to call the Heart Foundation's Heart Health Information Service on 1300 362 787 to obtain a copy of the 'Living well with chronic heart failure' booklet.

Refer patients to a specialised heart failure management program, ideally within their local community

There is increasing evidence to support multidisciplinary management of heart failure, especially in the elderly and those at high risk of re-admission to hospital.²²⁻²⁷ A systematic review found that specialised follow-up by a multidisciplinary team reduced all-cause mortality by 25%, all-cause hospitalisation by 19%, and heart failure hospitalisation by 26% compared with usual care.²²

Call the Heart Foundation on 1300 362 787 to find out what programs are available for your patients in their local area.

Provide patients with advice and strategies for making long-term lifestyle changes

Strategies for long-term lifestyle changes include:

- accessing smoking cessation information and support
- restricting alcohol intake to 1–2 standard drinks per day (preferably no intake)
- undertaking regular light to moderate physical activity
- participating in a rehabilitation or exercise program specifically designed for people with heart failure.¹

Call the Heart Foundation on 1300 362 787 for information about rehabilitation or exercise programs available in your local area.

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Citations available online at www.nps.org.au/healthpro

The information contained in this material is derived from a critical analysis of a wide range of authoritative evidence. Any treatment decisions based on this information should be made in the context of the clinical circumstances of each patient.



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