

PRACTICE

10-MINUTE CONSULTATION

Diagnosis and management of chronic heart failure

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This is part of a series of occasional articles on common problems in primary care. The *BMJ* welcomes contributions from GPs.

An 80 year old woman who rarely attends your surgery presents with a two month history of difficulty getting her shoes on due to swollen feet and breathlessness going upstairs.

What you should cover

Ask about

- How far can she walk before feeling breathless? Does she wake at night feeling breathless? How many pillows does she use? Has she ever had chest pain or been told she's had a heart attack? Any palpitations or feeling faint?
- Risk factors or causes of heart failure:
 - Any history of myocardial infarction or angina, hypertension, valvular heart disease, atrial fibrillation, diabetes, smoking, excessive alcohol intake, or family history of ischaemic heart disease or cardiomyopathy?
 - Coronary heart disease is the most common cause of heart failure and requires a specialist referral within two weeks (see box 1).
- Precipitating factors for heart failure:
 - Any recent symptoms of tachyarrhythmias, hyperthyroidism, or anaemia?
 - Is she taking any drugs that might exacerbate heart failure (such as non-steroidal anti-inflammatory drugs, steroids, diltiazem, or verapamil)?
- Differential diagnoses:
 - Consider other causes of breathlessness such as pulmonary emboli, lung malignancy, chronic obstructive pulmonary disease, and chest infection. Any cough, haemoptysis, pleuritic chest pain, smoking, or weight loss?
 - Consider other causes of ankle swelling such as dependent oedema due to sleeping in a chair all night.

Clinical examination

- Check pulse rate and rhythm (for tachycardia or atrial fibrillation), blood pressure, and listen for murmurs suggesting valvular heart disease.
- Check respiratory rate and listen for bilateral basal crepitations.
- Assess volume overload including extent of peripheral oedema and weight. Assess overall severity (see box 1).

What you should do

Talk to the patient

- Explain her heart may not be pumping very efficiently. She may have heart failure, which is a common, treatable condition affecting about one in 20 people her age.
- Arrange for her to have blood tests and an electrocardiogram this week and to see you in 7-10 days with the results. Depending on these, you plan to refer her for an echocardiogram and to see a specialist at the heart failure clinic.

Establish the diagnosis

Blood tests

- B-type natriuretic peptide (BNP) or N-terminal pro-B-type natriuretic peptide (NT pro-BNP), as per NICE guidance to assess likelihood of heart failure:
 - BNP >400 pg/mL or NT pro-BNP >2000 pg/mL suggests strong probability of heart failure. Specialist referral within two weeks is recommended (box 1).
 - BNP 100–400 pg/mL or NT pro-BNP 400–2000 pg/mL suggests moderate probability of heart failure and requires specialist referral within six weeks.

Box 1: Indications for urgent specialist assessment within two weeks

Any one of:

- Previous myocardial infarction on electrocardiogram or medical history
- Inability to perform simple daily activities because of severe breathlessness or breathlessness at rest (NYHA class 4*)
- Valvular heart disease
- B-type natriuretic peptide >400 pg/mL or N-terminal pro-B-type natriuretic peptide >2000 pg/mL
- Baseline blood creatinine concentration >250 µmol/L

*New York Heart Association classification of severity of heart failure symptoms: class 1=no symptoms, 2=mild limitation of physical activity, 3=marked limitation of physical activity, 4=symptoms at rest.

- BNP <100 pg/mL or NT pro-BNP <400 pg/mL suggests an alternative cause (see differential diagnoses above).

- Full blood count and thyroid status to exclude anaemia or thyroid disease which may precipitate heart failure.
- Renal and liver function tests alongside a urinary dipstick to exclude renal or liver failure as a cause of oedema.
- Lipid profile and fasting glucose or HbA_{1c} to assess cardiovascular risk.

Other tests

- Arrange an electrocardiogram—Evidence of previous myocardial infarction requires a specialist referral within two weeks (box 1). A normal electrocardiogram and BNP make a diagnosis of heart failure unlikely.
- Refer for echocardiography and specialist heart failure clinic within six weeks unless BNP <100 pg/mL or NT pro-BNP <400 pg/mL suggests an alternative diagnosis.
- Consider chest radiography and lung function tests, especially if there is a history of smoking.

Make a management plan**Drug treatment**

- Diuretics (such as furosemide 20 mg once daily) can be started immediately. They can be titrated up or down according to the degree of oedema. Diuretics improve symptoms but not mortality.
- Angiotensin converting enzyme (ACE) inhibitors
 - ACE inhibitors and β blockers improve prognosis and symptoms in heart failure due to left ventricular systolic dysfunction (diagnosed by echocardiography), but evidence for their use in heart failure with preserved ejection fraction is currently inadequate.
 - ACE inhibitors may be started at follow-up once the diagnosis is established and you have results of baseline renal function tests. Prioritise ACE inhibitors (initially low dose, such as ramipril 1.25 mg daily) over β blockers. Repeat renal function tests within 1-2 weeks.
- β blockers (such as bisoprolol 1.25 mg daily) can be started (usually by the specialist) in addition to ACE inhibitors as long as no severe asthma or chronic obstructive pulmonary disease, pulmonary oedema, or bradycardia. "Start low, go slow."
 - If patients are already taking a β blocker for hypertension, this should be switched to one licensed for heart failure (such as bisoprolol).

- Review or stop medications that could worsen heart failure (such as non-steroidal anti-inflammatory drugs).

Further monitoring (may be by the heart failure team depending on local arrangements)

- At each review (for example, every 2-4 weeks) assess clinical status (such as exercise tolerance and oedema), heart rate and blood pressure (ensure patient is not hypotensive or feeling faint). Only increase one drug at a time.
- Uptitrate ACE inhibitor (for example, double the dose every 2-4 weeks) until target dose is achieved (such as ramipril 5 mg twice daily or highest tolerated dose). Arrange renal function tests within 1-2 weeks of each dose increment to check that blood creatinine levels and estimated glomerular filtration rate are stable and there is no hyperkalaemia.
- Uptitrate β blocker (for example, double the dose every four weeks) until target dose is achieved (such as bisoprolol 5 mg twice daily or highest tolerated dose). Check no significant bradycardia or lethargy.
- Patients should be encouraged to monitor their weight and to inform you if they gain ≥2 kg over three days.

Treatment of comorbidities

- Optimise treatment for hypertension, coronary heart disease, diabetes, and atrial fibrillation.

Long term health promotion and rehabilitation

- Where appropriate advise on smoking cessation, exercise and weight loss, and avoidance of excessive salt or alcohol intake.
- Recommend referral to local community heart failure clinic and exercise based rehabilitation programme. Heart failure nurses can optimise treatment and provide psychosocial support.

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Useful reading

For patients

British Heart Foundation. Heart failure. www.bhf.org.uk/heart-health/conditions/heart-failure.aspx

For health professionals

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National Institute for Health and Care Excellence. NICE Pathways: Chronic heart failure overview. <http://pathways.nice.org.uk/pathways/chronic-heart-failure>