

3 Presentation, symptoms and signs of heart failure



What will I learn?

In this section you will learn:

- Who is at risk of heart failure
- The symptoms of heart failure
- The signs of heart failure
- The importance of a correct diagnosis

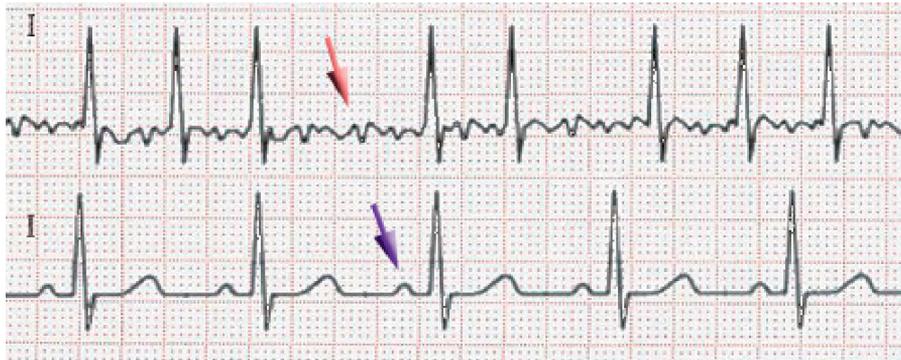
Heart failure presents with many symptoms and signs, which can make it difficult to recognise and easy to miss. To increase the chance of making the correct diagnosis you should take a thorough history, identifying risk factors as well as eliciting signs and symptoms, before considering whether to initiate further investigations or even referral.

What are the risk factors for heart failure?

People at highest risk of heart failure include:

- those with established coronary artery disease
- the older patient – the risk of heart failure increases with age
- those with a history of rheumatic fever or valve disease
- those with a history of hypertension, especially if it is poorly controlled, as this can lead to left ventricular hypertrophy (LVH) and increase the risk of left ventricular dysfunction
- those with a history of cardiomyopathy
- anyone with an abnormal heart rhythm, such as atrial fibrillation with underlying heart disease (Fig. 1)
- anyone with cardiovascular risk factors, e.g. diabetes mellitus, smoking, known elevated blood cholesterol levels
- anyone exposed to cardiotoxins such as alcohol, or chemotherapeutic drugs.

Figure 1. Electrocardiogram showing atrial fibrillation (top) compared with normal sinus rhythm. People with atrial fibrillation are at risk of heart failure.



These people are at particular risk of heart failure if they also present with signs or symptoms. Other causes of heart failure include all types of cardiomyopathy, chronic pulmonary disease (causing cor pulmonale), and untreated congenital heart conditions (such as patent ductus arteriosus, interatrial septal defect, coarctation of the aorta). Infections such as viral myocarditis, tuberculous pericarditis and HIV disease may also be responsible.

How do I recognise the symptoms of heart failure?

The cardinal symptoms of heart failure are:

- dyspnoea (shortness of breath) (Fig. 2)
- orthopnoea (breathless when lying flat)
- paroxysmal nocturnal dyspnoea (PND)
- peripheral oedema
- fatigue and reduced effort tolerance.

The symptoms of dyspnoea and oedema may be found in middle-aged, overweight women, less frequently in men, and also in patients with emphysema, but that does not mean that they have heart failure! To increase the likelihood of making the correct diagnosis you should look for other symptoms which include:

Figure 2. Dyspnoea, or shortness of breath, is the key symptom of heart failure.



- paroxysmal nocturnal dyspnoea – a choking sensation of breathlessness at night, which is only relieved by standing up, and settles after five to 10 minutes (as opposed to orthopnoea which is usually relieved by increasing the number of pillows or sleeping in a sitting position in severe cases)
- loss of appetite
- peripheral cyanosis as a consequence of vasoconstriction.

What are the signs of heart failure?

Symptoms are reported by the patient and are subjective. Signs are objective evidence of the presence of disease. Signs of heart failure can be difficult to elicit and may need practice to identify. They include:

- peripheral pitting oedema
- raised jugular venous pressure (JVP) due to fluid overload (Fig. 3)
- cardiomegaly
- third heart sound or gallop rhythm
- lung crackles/crepitations
- tender hepatomegaly
- ascites.

Figure 3. Fluid overload on the right side of the circulation can lead to raised jugular venous pressure in heart failure which can be assessed in the clinic. This picture shows an extended external jugular vein. In heart failure, we look for a distended internal jugular vein along the inner border of the sternocleidomastoid muscle.



How do I assess jugular venous pressure?

The patient should lie on the examination table with the head of the bed raised to 45 degrees. Get the patient to turn his head away from you and look for a pulsation in the jugular vein. Observe the upper level of the blood column in the jugular vein in this position. A level of > 3 cm above the angle of Louis is an elevated pressure.

Case study



George, a 65-year-old man, was admitted to hospital with progressive dyspnea, starting two months earlier and progressing to NYHA stage III on admission. Lately he had found it easier to sleep on three pillows (previously one pillow only). The day before admission, he woke up early in the morning severely dyspnoeic and he had to sit up for some relief. His abdomen and feet started to swell one week before admission and he was nauseous.

History

- Medical: hypertension for more than 20 years, for which he is on a diuretic (chlorothiazide). He experienced a severe pain in his chest five years ago, but did not seek medical attention for it.
- Social: he smoked 20 cigarettes per day for 40 years. He drinks a couple of beers nightly at least five to six nights per week.
- Family: nil to note.

Examination

- Vital signs: BP 170/105 mmHg, pulse 95/min, respiration rate 25/min, temperature 37°C.
- Cardiac: apex beat sixth intercostal space, anterior axillary line heaving, S1 normal, S2 normal, S4 present
- Lungs: shortness of breath when lying flat, no cyanosis, bilateral basal crepitations.
- Abdomen: ascites present; heparin 14 cm; mid-clavicular line tender and pulsating.
- Periphery: two + oedema of feet. Neck, increased jugular venous pressure.

Questions for discussion

1. What would your description of his clinical problem be?
2. a) What other conditions would you consider?
b) What test(s) would you do to exclude the differential diagnosis?
3. How would you treat this patient?
 - a) What would you do first? Which drug(s), if any, would you first prescribe?
 - b) Which other drugs would you prescribe?
 - c) Are there any precautions that you would take in treating this patient?
4. What would you do in your practice to reduce this condition in the community in which you function?

How do I assess for peripheral oedema?

Palpate the sacral area, lower legs and ankles for evidence of oedema. Pitting oedema is said to be present when the indentation from the examining fingers takes considerable time to return to normal and indicates that more than three litres of interstitial fluid is present (Fig. 4).

Figure 4. Pitting oedema.



Some useful resources are available online to teach you how to perform a physical examination. Obviously it is important to practice these and ensure competence before using them to complete your diagnosis. Sites such as www.blaufuss.org are invaluable when trying to understand the importance of physiological signs in heart failure and other conditions.

By accessing <http://www.conntutorials.com/video.html> (University of Connecticut) you can view free video consultations, which include a physical examination.



What you need to know

- The risk of heart failure is higher in the older patient and those with a history of hypertension, valve disease, coronary artery disease and arrhythmias.
- The cardinal symptoms of heart failure are dyspnoea, orthopnoea, PND, oedema and fatigue.
- The signs of congestive heart failure include pitting oedema, a raised JVP, lung crepitations, and a tender hepatomegaly.



Self-assessment questions

Take a minute to test your knowledge:

1. Why does hypertension predispose to heart failure?
2. Why is oedema one of the presenting symptoms of heart failure?
3. How do you look for a raised JVP?