Patient

View this article online at: patient.info/heart-health/heart-failure-leaflet

Congestive heart failure

Heart failure does not mean that your heart has stopped or is going to stop at any minute. It means that your heart is not functioning as well as it should. Heart failure can be caused by many different conditions. Symptoms include fluid retention, breathlessness and tiredness. Medication can usually ease symptoms and can often improve the outlook.

What is heart failure?

In a normal healthy heart, during each heartbeat a set amount of blood enters the heart and is pumped out again. If you have heart failure, your heart cannot cope with pumping the full amount of blood in each heartbeat.

Heart failure is divided into types according to how suddenly it has come on. It is called **acute heart failure** if it has made you unwell quite suddenly. If the symptoms have been going on for some time, it is called **chronic heart failure**. As a general rule, you will often be admitted to hospital if you have acute heart failure, whereas if you have chronic heart failure you will probably have tests done as an outpatient. If you have chronic heart failure, it is possible to develop acute heart failure if matters suddenly become worse.

Heart failure is also divided into types depending on how much blood the heart manages to pump out in each heartbeat. The term ejection fraction means the amount (percentage or fraction) of the blood in the biggest chamber of the heart (the left ventricle) that is pumped out (ejected) with each heartbeat before it fills up again for the next beat.It is normal for some of the blood to be left behind with each beat but usually at least half the blood is pumped out with every beat.

Heart failure can be classified into three groups:

- If less than 40% of the blood is pumped out, this is called **heart failure with reduced ejection fraction**.
- If 41-49% of the blood is pumped out, this is called **heart failure with minimally reduced ejection fraction**.
- If more than 50% is pumped out, it is called **heart failure with preserved ejection fraction**.

Distinguishing between the three groups is important as it will affect the treatment which is used.

For further information about the heart itself, see the leaflet called Anatomy of the heart and blood vessels.

What are the symptoms of heart failure?

Symptoms of heart failure can vary. The most common symptoms are:

- Feeling breathless - this may occur when you exert yourself, when you lie flat, or even wake you when you are asleep.
- Retaining fluid - most commonly this shows as swollen ankles. It can also cause swelling of your legs, bottom or tummy.
- Feeling tired.

Other symptoms include:

- Having a cough.
- Feeling light-headed or dizzy or having fainting spells.
- Losing your appetite.
- Constipation.

Depending on the underlying cause for the heart failure, you may also have other symptoms. For example, chest pains if you have angina or the sensation of having a 'thumping heart' (palpitations) if you have a heart rhythm problem.

The severity of heart failure is often graded into four classes or stages:

- Class 1 (very mild) - ordinary physical activity does not cause breathlessness, extreme tiredness (fatigue), or palpitations. You may not have any symptoms at all. However, tests (perhaps done for other reasons) may have detected mild heart failure.
- Class 2 (mild) - you are comfortable at rest. However, ordinary physical activity such as walking causes some breathlessness, fatigue, or palpitations.
- Class 3 (moderate) - although comfortable at rest, slight physical activity such as dressing yourself causes breathlessness, fatigue, or palpitations.
- Class 4 (severe) - you are unable to carry out any physical activity without developing breathlessness, fatigue, or palpitations. Symptoms are often present even at rest. With any physical activity you have increased symptoms and discomfort.

How common is heart failure?

Heart failure becomes more common as people get older. In the UK, it is estimated that the number of people with heart failure is:

- One in 35 people aged 65-74 years.
- One in 15 people aged 75-84.
- Just over one in seven people aged 85 years or older.

What causes heart failure?

Heart failure is not an exact term. Heart failure is a general umbrella term and may develop as a complication of various conditions. Conditions that cause heart failure affect the heart's ability to function well as a pump.

Coronary heart disease (CHD) is the most common, or main, cause of heart failure. In particular, heart failure may develop after a heart attack (myocardial infarction). See the separate leaflets called Angina and Heart Attack (Myocardial Infarction) for more details.

Other conditions that may cause heart failure

These include:

- Diseases of the heart muscle (cardiomyopathy).
- High blood pressure (hypertension).
- Diseases of the heart valves.
- Some types of abnormal heart rhythms (arrhythmias).
- Medicines and other chemicals that may damage the heart muscle - for example, alcohol excess, cocaine and some types of chemotherapy.
- Various non-heart conditions that can affect the function of the heart - for example, severe anaemia, thyroid disease (hypothyroidism or hyperthyroidism) and Paget's disease of bone.
- Sometimes it can be caused by a lack of certain nutrients - for example, vitamins such as thiamine.

Sometimes the cause of heart failure is not known.

The cause will often have an effect on the type of heart failure - for example, reduced or preserved ejection fraction - the treatment, and whether or not it can be cured.

How is heart failure diagnosed?

When a doctor examines you, they may find signs that occur with heart failure - for example:

- An enlarged heart.
- A faster than normal pulse.
- Signs of fluid retention - such as swollen ankles, an enlarged liver or crackles in the lungs when the chest is examined.

However, these signs and the symptoms mentioned above can be due to various conditions other than heart failure. If heart failure is suspected, tests are usually done to confirm the diagnosis. A blood test is usually done to measure a chemical called B-type natriuretic peptide (BNP) or N-terminal pro-B-type natriuretic peptide (NT-proBNP).

BNP is a hormone that helps to keep blood volume at a steady level. These substances are increased in heart failure, and the higher they are, the more severe the heart failure is likely to be. However, they can be high in other conditions also. You will usually also have a 'heart tracing' (electrocardiogram, or ECG).

If your doctor suspects that you may have heart failure then you are likely to be referred to a specialist heart failure clinic at a hospital. If you are very unwell - if you have acute heart failure - you would be sent to hospital straightaway. Otherwise you are usually referred to be seen by a specialist within two or six weeks, depending on how high your BNP level is.

The specialist heart failure team will arrange an ultrasound scan of the heart (echocardiogram). This painless test can usually confirm the presence of heart failure and can often diagnose the cause of the heart failure. It also will measure the ejection fraction explained above, to determine which type of heart failure you have. Other tests such as a chest X-ray, a urine test or other blood tests may also be advised to rule out other causes of the symptoms.

Heart failure treatment

Diet

Weight should be within a healthy range (BMI 18.5 to 25). If you are overweight, try to lose weight to reduce the extra burden on your heart. If you are underweight, your specialist or GP may refer you to a dietician for advice about nutritional supplements.

Do not smoke

The chemicals in tobacco cause blood vessels to narrow, which can make heart failure worse. Smoking can also make CHD worse. You may benefit from being referred to a local stop smoking clinic if you are finding it hard to stop smoking.

Exercise

For most people with heart failure, regular low-intensity exercise is advised. Exercise cannot reverse heart failure, but the fitter the heart, the better it will pump. The level of exercise to aim for will vary from person to person. Before you start to increase your exercise, get advice from your specialist, as some people with heart valve problems or more severe heart failure may not be able to do some forms of exercise. You may also be referred for a specialised heart failure rehabilitation programme which may include exercise.

Immunisation

You should have an annual influenza jab and be immunised against the pneumococcal germ (bacterium).

Weigh yourself regularly

If you have moderate-to-severe heart failure. Your specialist will advise if you need to do this and if so, how often you should weigh yourself. If you retain fluid rapidly, your weight goes up rapidly too. So, if your weight goes up by more than 2 kg (about 4 lb) over 1-3 days, you should contact a doctor. You may need an increase in your medication.

Limit your alcohol intake

You should not exceed the recommended amount of alcohol, as more than the recommended upper limits can be harmful.

Medicine

The following medications are commonly used to treat heart failure. They will be tailored to the individual person, depending on the type, cause and severity of the heart failure.

- Angiotensin-converting enzyme (ACE) inhibitors.
- Angiotensin receptor blockers (ARBs) - such as valsartan or losartan.
- Beta-blockers.
- 'Water tablets' (diuretics).
- Mineralocorticoid/aldosterone receptor antagonists (MRAs), eg spironolactone and eplerenone, like diuretics, also prevent the build-up of fluid.
- Other medicines used by specialists for treating heart failure include Ivabradine, and sacubitril with valsartan.

Other medications are also used for some cases. For example, aspirin may be advised for people who have had a heart attack in the past. Anticoagulants may be advised for those who have had a clot in the past. Digoxin may be useful in some specific situations. Your specialist will be able to give you more information if you need additional medications.

The National Institute for Health and Care Excellence (NICE) has recommended a new option for some people with heart failure if muscle of their left ventricle (the biggest for the four chambers in the heart) is not pumping as well as normal.

Dapagliflozin has been used for some years to treat high blood sugar in people with type 2 diabetes. However, it has been found that dapagliflozin, and other closely related medicines, can also significantly improve heart failure in some people.

For this reason, NICE has recommended that it can be prescribed under advice from a specialist if you still have symptoms despite taking several of the treatments above.

NICE has also recommended empagliflozin - another medicine in the same class as dapagliflozin - for some people with heart failure. Empagliflozin should also be used on advice from a specialist, and in addition to several of the other treatments above. See Further Reading and References below.

> It is important that you take the tablets that have been prescribed for you. You should discuss with your doctor if you stop taking any of your tablets.

Devices for heart failure

Various devices are implanted in a small number of people with heart failure. Examples include implantable cardioverter defibrillators (ICDs) and pacemakers.

ICDs work by detecting any abnormal heart rhythms that may occur. If your heart rhythm is too slow, the device can give your heart extra support by working as a normal pacemaker. If your heart beats too fast, the ICD can give you a burst of extra beats at a slightly faster rate which should return your heart back to a normal rhythm, or it can give you a shock (defibrillation) to restore a regular heartbeat.

Pacemakers work differently. In some cases, there is some damage to the specialised heart cells that carry the signals needed for your heart to squeeze (contract) properly. This can then cause the signals to travel out of synch which leads to your heart pumping less forcefully and less efficiently. The pacemakers work to control these signals so the heart can then beat more effectively. This is also known as cardiac resynchronisation therapy.

These different devices have dramatically altered the treatment of heart failure in selected cases and have improved both the outlook and quality of life. However, these devices are only suitable for certain people with heart failure. Your doctor will be able to discuss with you in more detail if you are suitable for one of these devices.

NICE has issued new guidance about a device called a pulmonary artery pressure sensor. This tiny device can be inserted under local anaesthetic, using a tube passed up through a vein, usually in your groin.

This device gives information about the pressure in your pulmonary artery, which carries blood from the right side of your heart to your lungs. This information is transmitted to a sensor and can be sent to your medical team. It can help improve your medical care by picking up early changes which can be treated.

NICE has recommended that this procedure is safe and effective enough to be offered to people with heart failure who need careful monitoring.

Other treatments

As mentioned above, heart failure usually develops as a complication of various conditions. Other treatments for the underlying condition may be advised in certain cases. For example:

- Treatment to lower blood pressure if you have high blood pressure (hypertension).
- Treatments to slow down the progression of CHD if this is the cause of the heart failure. For example, lowering a high cholesterol level.
- Surgery to replace or fix a heart valve may be done if a damaged heart valve is the cause of the heart failure.
- A heart transplant is an option in some cases.

What is the outlook?

It is difficult to give an outlook (prognosis) for an individual. It depends on the cause of the heart failure, whether you have other medical conditions, and how severe it is. A large UK-based study between 2000 and 2017 found that:

- Eight out of 10 people with heart failure survived at least one year.
- One in two surived at least five years.
- One in four survived at least 10 years.

The outlook tends to be worse for people with:

- Increased age.
- More severe heart failure.
- Other medical conditions as well - such as atrial fibrillation, chronic kidney disease, chronic obstructive pulmonary disease, depression, or diabetes mellitus.
- Obesity.
- Severe weight loss and muscle wasting (cachexia).
- Smoking.
- Heart failure caused by coronary heart disease, especially a history of a heart attack.

End-stage heart failure

If symptoms become very severe, and are not responding well to treatment, this is known as 'end-stage heart failure'. In this situation, palliative care - often at home - from a team of different health professionals may be helpful. The priority in this situation is keeping the person comfortable, and alleviating symptoms as much as possible. A person diagnosed with end-stage heart failure is likely to die over the following six to 12 months.

Over recent years, various new treatments have been introduced which have led to a much improved outlook for people with heart failure. Studies are ongoing to establish which treatment options improve outlook the most.

Further reading

- Implantable cardioverter defibrillators and cardiac resynchronisation therapy for arrhythmias and heart failure; NICE Technology Appraisal Guidance, June 2014
- Diagnosing and managing acute heart failure in adults; NICE Clinical Guidelines (Oct 2014 - updated Nov 2021)
- Chronic heart failure in adults - diagnosis and management; NICE Guidance (Sept 2018)
- Dapagliflozin for treating chronic heart failure with reduced ejection fraction; NICE Technology appraisal guidance, 24th February 2021
- Percutaneous implantation of pulmonary artery pressure sensors for monitoring treatment of chronic heart failure; NICE Interventional procedures guidance, November 2021
- Empagliflozin for treating chronic heart failure with reduced ejection fraction; NICE Technology appraisal guidance, March 2022
- 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure; Developed by the Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC) With the special contribution of the Heart Failure Association (HFA) of the ESC
- Chronic heart failure in adults; NICE Quality standard, January 2023
- Heart failure - chronic; NICE CKS, August 2024 (UK access only)

Last updated by: Dr Colin Tidy, MRCGP 23/02/2023	
Peer reviewed by: Dr Hayley Willacy, FRCGP 23/02/2023	**Next review date:** 07/02/2028

View this article online at: patient.info/heart-health/heart-failure-leaflet

Discuss Congestive heart failure and find more trusted resources at Patient.