

Arrhythmia Fact Sheet

Arrhythmia is an umbrella term to describe a number of conditions where the muscle contraction of the heart is too slow, too fast or irregular because of a disturbance in the heart's normal electrical activity.^{1,2} This can be due to a genetic disorder or acquired condition.² Arrhythmias can range in severity from a minor inconvenience or discomfort to a potentially fatal problem.² Atrial fibrillation is the most common form of sustained arrhythmia and can cause considerable disability and predispose a person to stroke.²

Normal heart beat

The normal heart beat is controlled by the heart's own pacemaker called the sinoatrial node located in the right atrium (one of the top chambers of the heart). The electricity from the sinoatrial node passes through the atria and reaches the ventricles via the atrioventricular node.^{1,3}

Slow heart beat

When a heart beat is slower than 60 beats per minute it is known as **bradycardia** and is a form of arrhythmia. It is caused by a slow rhythm set by the sinoatrial node or because the electricity gets caught up or blocked in the atrioventricular node.^{1,3}

Fast heart beat rhythm

The term **tachycardia** is used to describe a heart beat that exceeds 100 beats per minute. This can be caused by an abnormal rhythm originating from the atria or ventricles, or because of an electrical short circuit in the wiring system of the heart. This may be a normal sinus tachycardia which is a fast heart rate produced in response to exercise, stress and emotion. It may also be caused by an abnormal rapid rhythm originating from anywhere else in the heart

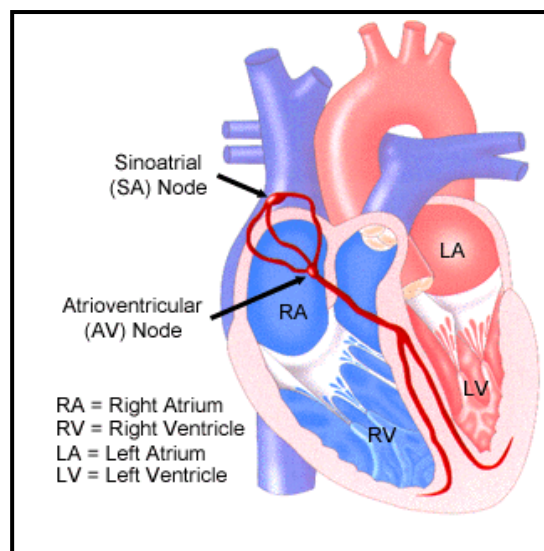


Figure 1: The heart showing the chambers of the heart and the electricity pathway¹

Types of arrhythmia

- **Atrial fibrillation** is the most common, serious, abnormal heart rhythm involving rapid and irregular activity in the chambers of the heart.¹
- Although it may affect young people, it becomes more common with increasing age, and typically affects older patients of 65 and over. It affects men and women equally³
- Atrial fibrillation is a common cause of stroke with an overall incidence of 5% per year in people with atrial fibrillation²
- It is the most common cause of hospital admissions for arrhythmias⁴

- **Ectopic beats** are heart beats which occur earlier than normal within the normal heart cycle¹ They can come from either the atria or ventricles.
- They can sometimes cause palpitations described as missed or extra beats¹
- Ectopic beats are not normally dangerous and don't damage the heart¹

- **Atrial flutter** occurs due to the atria beating very rapidly as electricity circulates around the atria and is commonly seen in middle aged and elderly patients¹
- It can occur in those with no other heart problem, but also is seen in patients with some form of structural heart disease or who suffer from atrial fibrillation¹

- **Atrial tachycardia** is a fairly uncommon arrhythmia but results in the heart beating far more rapidly than normal¹
- It is often seen in diseased hearts, although it also occurs in patients with otherwise normal hearts¹

- **Ventricular tachycardia** is a fast rhythm originating in the bottom chambers of the heart (the ventricles) which leads heart to beat so rapidly that it cannot fill and pump out enough blood adequately⁵
- Although it can occur in patients with an otherwise normal heart, it is commonly seen in patients who have suffered a previous heart attack, and in this setting may be life-threatening⁵

Incidence

Anyone can suffer from an arrhythmia at any age and over 700,000 people in the UK have an arrhythmia.² A further one million people have been affected by arrhythmia at some point in their lives.⁶

Atrial fibrillation, the most common arrhythmia, affects 1% of the population and an estimated 50,000 people in the London and the Greater London area.^{2,7}

Causes

Arrhythmias can be caused by an underlying condition such as heart disease, thyroid conditions or high blood pressure.⁸ Arrhythmias can also be triggered by stress, smoking, consuming excess alcohol, caffeine and there a number of drugs, which have side effects that can induce arrhythmia.⁸ Sometimes however, there is no known cause.

Symptoms

- The most common symptom of arrhythmia is **palpitations** where the heart suddenly beats very hard and can be accompanied by a feeling of apprehension, breathlessness, chest discomfort, or dizziness¹
- Persistent episodes of **dizzy spells or blackouts** may be an indicator of abnormally fast or slow heart rhythms, disorders of the heart muscle or valve function¹
- **Shortness of breath** caused by a lack of oxygen can be a consequence of a fast or slow heart rhythm¹

Diagnosis

There are several tests available to diagnose arrhythmias and the test used depends on the type and severity of symptoms that a patient is showing. It is usually very important to try and document the rhythm at the time of the patient's symptoms.

Initially, a prompt recording and archiving of a 12 lead electrocardiogram (ECG) is taken, even if symptoms have subsided, to monitor the heart rhythm for any patients with arrhythmia or a suspected arrhythmia²

A 24-hour (or longer) electrocardiogram (ECG) is used to monitor the heart rhythm and allows analysis of the electrical activity in the heart to determine what type of arrhythmia a patient is suffering from. This test is of less value in a patient who has infrequent symptoms. In this case a multi-day ECG recorder, or an event recorder may be of more value.¹

An ultrasound scan of the heart, called an echocardiogram, is often performed to check how the main pumping chamber of the heart is working, and to look at the heart valves.¹

24-hour blood pressure tests are also used to monitor and assess a patient's blood pressure control.¹

More detailed investigations may include angiograms to check the blood supply and blood tests to rule out an overactive thyroid which can cause an arrhythmia.¹

In some instances, electrophysiology tests are carried out to determine which part of the heart is responsible for the abnormal rhythm. This is carried out using thin wires that are inserted into the blood vessels in the groin under local anaesthetic and threaded up into the heart, with the aid of X-ray. These wires are used to stimulate the heart and record any abnormal electrical activity that may result.¹

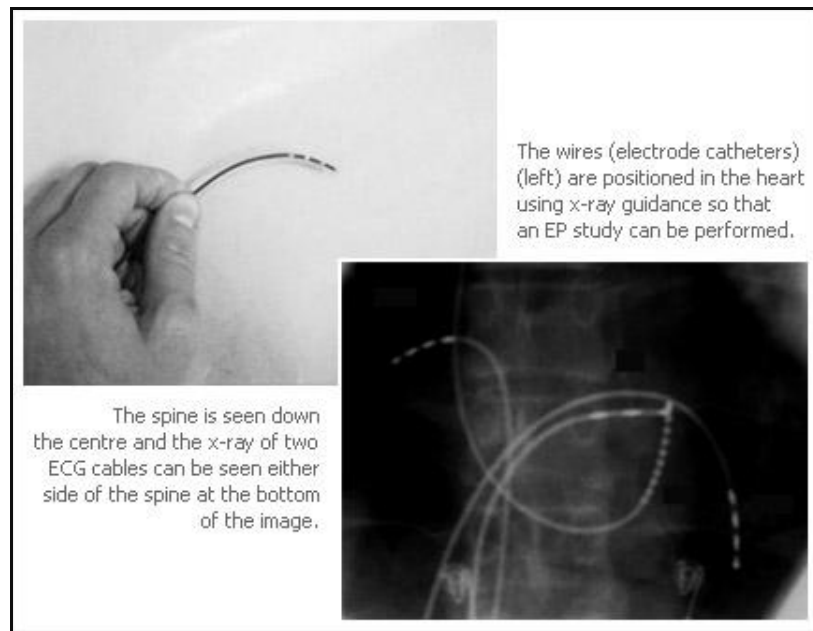


Figure 2: Image of the electrophysiology study¹

References

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