# Ajmaline Provocation: Information for patients

This page explains the Ajmaline provocation test, including what is involved and what to expect when you come into hospital for the test.

An Ajmaline provocation test is carried out to diagnose Brugada syndrome.

## How the heart works:

The heart is a special kind of muscle which acts as a pump to keep blood moving around the body. The pumping action of the heart muscle is triggered by electrical impulses which pass through the walls of the heart, causing them to contract.

A specialised area of the heart called the sinoatrial (SA) node is the starting point for each electrical impulse through the heart. This electrical impulse spreads throughout the walls of the top chambers of the heart (the left and right atria), causing them to contract and squeeze blood downwards into the bottom chambers of the heart (the left and right ventricles). The impulse stops briefly at the atrioventricular node (AV node), before passing into the walls of the ventricles. As it moves through the ventricles, it causes them to contract and pump blood out of the heart.

Abnormalities in the electrical system can cause the heart to beat too rapidly (tachycardia), too slowly (bradycardia) or in an irregular fashion. This can affect the heart's ability to pump blood around the body and can cause cardiac symptoms such as palpitations (an awareness of the heart racing), collapse, blackouts (syncope), chest pain, shortness of breath and sudden death.

## Why has my doctor recommended that I have an Ajmaline provocation test?

Your doctor is concerned that you may have Brugada syndrome.

## What is Brugada syndrome?

Brugada syndrome is a rare disease affecting around 1 in 2000 people in the UK. Patients with Brugada syndrome are at an increased risk of developing fast heart rhythms. This might lead to palpitations, blackouts or, in some cases, sudden death. Brugada syndrome is due to abnormal electrical cells in the heart; these abnormalities can be investigated using the cardiac electrocardiogram (ECG).

Brugada syndrome is associated with a distinctive ECG pattern; this is called the type 1 pattern. The type 1 pattern can be hidden in the ECG and a normal ECG is not enough to rule out the possibility of Brugada syndrome.

Brugada syndrome is a genetic condition and so it can be passed on from parents to children. Genetic testing can be useful, but only around 20% of patients with Brugada syndrome will have an identifiable gene change. This means that genetic testing alone cannot be used to exclude the diagnosis.

## What is an Ajmaline provocation test?

Ajmaline provocation is undertaken to uncover the type 1 ECG pattern.

Ajmaline is introduced into the bloodstream through a drip in your arm, while an ECG is being closely monitored.

## Why is an unlicensed drug being used?

Ajmaline is a short-acting drug. Its effects only last for a few minutes which means that it has no real therapeutic benefit and is therefore not licensed in the UK. Its short action makes it an excellent drug to diagnose Brugada syndrome safely and quickly.

Flecainide, which is a licensed product, is used as an alternative to Ajmaline in some places. However, it is not as effective as Ajmaline, and as it takes longer to clear the body, it is not as safe or predictable.

## What will the Ajmaline provocation test involve?

Your doctor or nurse will administer the drug through a vein in your arm (over a period of 5-10 minutes) and your ECG will be recorded at the same time. The ECG will record how your heart reacts to the Ajmaline and will show if the test is *positive* or *negative*. Your pulse and blood pressure will be monitored throughout the test.

## What are the possible side effects from the Ajmaline provocation test?

The test is considered to be safe, but as with any procedure there are potential risks. Complications associated with the procedure are rare and can be treated. If we see evidence of a complication developing, we will immediately stop the drug infusion. It is very rare for any of the side effects to be life threatening.

If you feel any palpitations, dizziness, or uncomfortable symptoms during the duration of your procedure, it is important that you inform your nurse or doctor.

## Side effects you may experience include:

- Metallic taste
- Double vision
- A fast or slow heart rate
- Dizziness
- Tingling in your hands or feet
- Warmth or a flushing sensation

These side effects resolve once the procedure is complete.
Very rarely (less than 0.1% or 1 in 1000) the drug can cause your heart to go into a very fast and potentially dangerous rhythm (ventricular tachycardia or fibrillation). This would require treatment with a shock (defibrillation), which would be done under sedation where possible.

## On the day of your procedure:

When you arrive at the Cardiology Department, you will be taken to the clinic room and introduced to the staff that will be caring for you. The procedure will be explained to you and if you have any worries or questions, please do not be afraid to ask. Before the procedure you will have ECGs and observations recorded. It is important for you to tell your doctor or nurse if you have any

allergies or have had previous reaction to drugs or other tests. Please also inform them if you are unwell with flu or a cold on the day of the test.

A small cannula will be inserted into a vein in your arm to allow us to give you the drug during the procedure. You will also wear a hospital gown to make it easier to record the ECG. A nurse will stay with you throughout the test. There will be equipment by your bedside, which is used to monitor your heart rhythm and record your blood pressure. During the procedure, you will be awake and able to talk.

For the duration of the test, you will be connected to the ECG machine. The nurse will connect you to the infusion, which may sting a little. Once the infusion is running, your nurse will record the ECG at regular intervals. When the infusion is complete, you will be monitored for at least ten minutes.

Your blood pressure and pulse will continue to be checked and the cannula will be removed before you go home. Following discharge from hospital, you will be able to resume your normal daily activities, as the drug will pass out of your body within a few hours.

Your ECGs will be reviewed by the doctor and you will be given your results before you go home.

## During the test:

You will be monitored continuously throughout the procedure with series of ECGs and vital signs.

If we notice any abnormal rhythm, we will stop the drug immediately and respond accordingly.

## After the test:

You should be able to go home after the procedure and soon after the ECG returns to normal. You are allowed to drive to and from hospital for your procedure. Try to avoid heavy meals at night and alcohol on the day of procedure.

**Other useful information can be found at:**

Brugada Syndrome – Symptoms, Diagnosis and Treatments – British Heart Foundation - BHF

Brugada Syndrome - Arrhythmia Alliance - UK (heartrhythmalliance.org)

If you have any concerns, please contact us on the numbers given below or speak to your nurse on the day of procedure.

**Inherited Cardiac Conditions clinic – (ICC) telephone number: 01213714544/ 01213717884**

If you require this information in another format, such as a different language, large print, braille or audio version, please ask a member of staff or email patientexperience@uhb.nhs.uk