



Oxford University Hospitals
NHS Foundation Trust

Adenosine challenge

Information for patients



Your doctor has recommended that you have an adenosine challenge. The purpose of this test is to see if you have an accessory pathway called 'Wolff-Parkinson-White (WPW) syndrome'.

What is an accessory pathway?

This is an extra electrical connection between the top chambers (atria) and bottom chambers (ventricles) of the heart. This extra electrical connection may allow electrical signals to bypass the normal route in your heart and form a short circuit. This can result in your heart beating abnormally fast for periods of time, which is called supra-ventricular tachycardia (SVT).

This is not usually dangerous, but can cause unpleasant symptoms, such as a racing heart (palpitations), dizziness, chest pain, shortness of breath or, rarely, may cause you to collapse.

Although the extra connection is present from birth (congenital), symptoms may not develop until later in life. In some cases, WPW syndrome may be life-threatening, particularly if it occurs alongside a type of irregular heartbeat called atrial fibrillation. However, this is rare and treatment can completely remove this risk.

How is an accessory pathway diagnosed?

Adenosine is the drug used in this test. It belongs to a group of medicines called anti-arrhythmics. Adenosine blocks electrical signals through the atrio-ventricular (AV) node. This means signals cannot travel from the top to the bottom chambers of the heart for a few seconds, until the drug effects wear off. If an accessory pathway (extra connection) is present, the electrical signals can still travel down to the ventricles, and this will show up on the ECG.

You may not get any symptoms, but might still have the extra connection, which can be detected on an electrocardiogram (ECG) and is called pre-excitation. Only people with this extra pathway and the symptoms of palpitations have WPW syndrome.

Your doctor has advised that you have an adenosine challenge, either because you have had supra-ventricular tachycardia (SVT) episodes, or because small abnormalities have been detected on your ECG results. These changes may mean you have an extra pathway, which may be confirmed during the adenosine challenge.

What happens during the adenosine challenge?

When you arrive at the Cardiac Day Case Unit you will be introduced to your nurse. They will explain what will happen and answer any questions you may have.

Before having adenosine, please let your doctor or nurse know if:

- you are allergic to adenosine solution
- you have asthma or any other severe breathing problem
- you have very low blood pressure
- you have heart failure
- you have been told you have Long QT Syndrome
- you are taking a medicine called dipyridamole (used to thin the blood). Your doctor may either ask you to stop taking this 24 hours before you are given adenosine, or may decide to give you a lower dose or not to give you adenosine at all.
- you are taking aminophylline or theophylline (medicines used to help with breathing)
- you have taken caffeine or had drinks or food containing caffeine (tea, coffee, cola and also chocolate). This is sometimes also found in headache medication, such as paracetamol extra/plus.
- you are pregnant or think you could be pregnant, or are breastfeeding.

Before the test you will have an ECG recorded. A doctor will also see you to discuss the procedure with you, and then ask you to sign a consent form. This is to confirm you understand the procedure and risks and are happy to go ahead. If you have any worries or questions, please ask before signing the consent form.

Before the procedure starts, you will be given a hospital gown to wear and the doctor or nurse will insert a small needle (cannula) into a vein in your hand or arm, through which you will be given the adenosine during the challenge.

Adenosine is given as a rapid injection through your cannula, whilst continuous ECG's are recorded to monitor the effect on your heart rhythm and rate. Your blood pressure will also be closely monitored. You may need more than one injection of adenosine, to allow us to collect the measurements needed. The whole test is likely to last no more than 30 minutes, but this will depend on the response to each injection.

When the test is over, you will be given a drink and something to eat and the cannula will be removed.

Do I need to fast before this test?

No, you can continue to eat and drink as you would usually.

Benefits

Checking for a diagnosis of an accessory pathway or WPW syndrome is important, as it may mean you need other tests and treatment to prevent the potential problems associated with the syndrome. However, if the test doesn't show signs that you have an extra connection, then it is unlikely that you have an accessory pathway or WPW syndrome.

Side effects and risks

The adenosine challenge is safe. However, as with any procedure, there are potential risks that may occur either during or after the procedure.

Like all medicines, adenosine can cause unpleasant side effects, but it is important to stress that the length of time adenosine stays in your blood is very short, so any symptoms caused by the drug usually go within seconds or minutes after the injection is finished.

Very common side effects occurring in more than 1 in 10 people include:

- slowing of the heart rate (bradycardia)
- shortness of breath
- reddening of the skin with a feeling of heat (flushing)
- chest pain or pressure on the chest.

Common side effects affecting more than 1 in 100 people include:

- headache
- dizziness
- feeling nervous
- nausea.

Complications associated with this procedure due to low blood pressure (hypotension) or a slow heart rate (bradycardia) are rare, can be treated, and are very rarely life threatening.

Your doctor will only recommend that you have an adenosine challenge if they feel the benefits clearly outweigh the risks.

Alternatives

The alternatives to the adenosine challenge may include an invasive test, called an Electrophysiology Study (EPS). This involves passing wires up to the heart through the veins at the top of the leg, using X-rays to guide them to the correct place.

The EPS procedure is carried out whilst you are under sedation. Local anaesthetic is injected into the area in the groin where the wires will be put in, to numb the area.

As an EPS is more invasive and has more associated risks, the adenosine challenge is usually recommended as a first step in the diagnosis and management of your heart condition.

After the adenosine challenge

You will be able to go home later the same day, once your heart rate and blood pressure are back to normal and as long as you are feeling well. You are allowed to drive yourself to and from the hospital.

The ECG results will often need to be reviewed after the test by a specialist doctor known as an Electrophysiologist. The doctor giving you the drug may not be able to tell you the result of the test immediately. However, you will normally be told the result of the test the same day, before you leave the hospital. An electronic letter will also be sent to your GP with the results of the test.

How to contact us

If you have any other questions or need any further information please contact us.

Cardiac Angiography Suite

Tel: **01865 572 616**

(Monday to Friday, 7.30am to 9.00pm)

Arrhythmia Nurses

Tel: **01865 228 994**

(Monday to Friday, 8.00am to 5.00pm)

You can also contact the secretary of the Consultant who referred you for the test (please see your appointment letters for contact details).

Further information

More information about adenosine challenge can be found on the following website:

Arrhythmia Alliance

Website: www.heartrhythmalliance.org/aa/uk

Please note:

The department where your procedure will take place regularly has professional observers. The majority of these observers are healthcare professionals, qualified or in training, and occasionally specialist company representatives. If you do not wish observers to be present during your test, please tell a doctor or nurse.

If you have a specific requirement, need an interpreter, a document in Easy Read, another language, large print, Braille or audio version, please call **01865 221 473** or email **PALS@ouh.nhs.uk**

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