The Heart Rhythm Charity

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Wolff-Parkinson-White Syndrome (WPW)

The heart has its own electrical conduction system. The conduction system sends signals through the heart to make it beat in a regular rhythm. Sometimes an extra pathway exists, which can cause the heart rhythm to change. The heart may beat too quickly (tachycardia), too slowly (bradycardia) or irregularly which may affect the heart's ability to pump blood around the body.

What is Wolff-Parkinson-White Syndrome?

Wolff-Parkinson-White Syndrome (WPW) is the finding of an extra pathway on the resting ECG, (Ventricular Pre-excitation), and also rapid Atrio Ventricular Re-entry Tachycardia (AVRT). Patients may be at risk of developing a fast heart rhythm that may result in a blackout, or 'very rarely' sudden cardiac death.

In WPW an extra electrical pathway (known as an accessory pathway) exists that directly connects the atria (the top chambers of the heart) to the ventricles (the bottom chambers of the heart). If the electrical impulses travel along the accessory pathway, they bypass the atrioventricular (AV) node, sometimes this pathway is known as a "bypass tract", however, this has nothing to do with "bypass surgery". The AV node is responsible for slowing the electrical impulses down, so unlike in the normal conduction pathway the electrical impulses in a patient with WPW are not slowed down. This allows the electrical impulses to arrive at the ventricles earlier than the 'normal' electrical pulse. This is the principle of "ventricular pre-excitation" referred to above.

If your doctor suspects you have a concealed form of WPW he will advise you to have an adenosine challenge to confirm your diagnosis.

What is an Adenosine challenge?

Adenosine is a naturally occurring substance found in all of us. The adenosine briefly blocks normal conduction through the AV node, which slows your heart rate and unmasks ECG changes in patients who have a concealed form of WPW.

Your doctor will administer the drug through a vein in your arm and record your ECG. The ECG will record how your heart reacts to the adenosine which allows the doctor to collect detailed information about the cause of your potential arrhythmia.

Risks of the procedure

The adenosine challenge is a well-established and safe clinical test, but as with any procedure there are potential risks. Complications associated with the procedure are very rare, can be treated and are rarely life threatening. If you are asthmatic please tell your doctor as an injection of adenosine may bring on an asthma attack.

It is common to experience a metallic taste in you mouth during the procedure, and visual disturbance such as double vision may also occur. These side affects usually resolve once the procedure is complete. The adenosine causes your heart to go into a very slow rhythm and if it does not recover quickly you may require external pacing to regulate your heart rhythm. The external pacemaker consists of pads placed on your chest which will send electrical energy to restore the normal rate and rhythm of the heart, until your own heart rate recovers.

It is important that for the duration of the procedure, if you feel any palpitations, dizziness, or uncomfortable symptoms you should inform your nurse or doctor.

For further information contact Arrhythmia Alliance

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Arrhythmia Alliance

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Before the procedure

You may be asked to have nothing to eat or drink for a period of time before the test. On arrival you will be introduced to the nurse and the doctor who will be looking after you. The procedure will be explained to you, and if you have any worries or questions please do not be afraid to ask. It is important for you to tell your nurse or doctor if you have any allergies or have had a previous reaction to drugs or other tests.

A small needle will be inserted into a vein in your hand or arm to allow the doctor to give you the adenosine during the procedure. You will also wear a hospital gown to make it easier to record the ECG.

During the challenge

Your doctor and 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 challenge you will be connected to the ECG machine. The doctor will inject the adenosine into a needle in your arm – this is given as a bolus dose, which means the doctor pushes the drug quickly into your bloodstream, this may sting a little.

After the procedure

Following the procedure your pulse and blood pressure will be checked and the small needle in your hand will be removed. Your doctor will discuss the results with your consultant.

What treatment options are available to me?

If the test result is negative, your doctor will consider your individual risk, and advise you if further tests are needed to be performed. It is likely that you will be able to go home a few hours after the test. However it is advisable that you do not drive, and that you have someone with you for the rest of the day after the test.

If the test is positive, and you are at risk of a fast heart rhythm developing, your doctor may suggest you have an electrophysiology study and radiofrequency ablation. A radiofrequency ablation is a curative procedure that will destroy the extra pathway that causes your arrhythmia using heat energy. Your consultant will discuss the risks and benefits of radiofrequency ablation with you should you appear to need one. If the test result is positive you may be advised to remain in hospital until after these further tests.

Following your discharge from hospital you will be able to return to your normal daily activities, including returning to work.

What about my family and relatives?

There is very little evidence of any genetic or familial form of WPW. It is thought to be a small heart muscle fibre which is stranded slightly out of place during development in the womb. If there is any major concern about a relative, then a simple 12-Lead ECG test can be used to screen them for WPW.

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