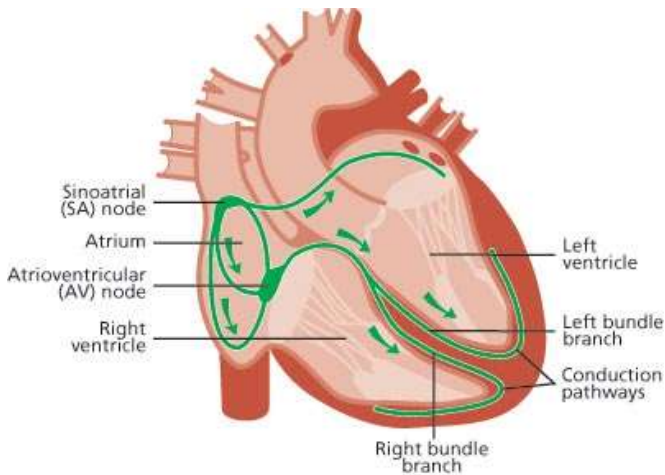


Wolff-Parkinson-White syndrome: information for families

Wolff-Parkinson-White syndrome is a congenital (present at birth) condition that affects the electrical system within the heart. This information sheet from Great Ormond Street Hospital (GOSH) describes Wolff-Parkinson-White (WPW) syndrome, what causes it and how it can be treated.

The heart has an electrical system that makes it pump. The normal electrical impulse starts in a specialised area of heart tissue in the right atrium called the SA Node. It then passes from the right atrium through to the ventricles via the AV node. As the impulse passes through the atrium it makes it pump blood into the ventricle. It has the same effect when it passes through the ventricle.



This electrical impulse travels through the heart each time it beats. It is something that happens naturally – you can't feel it.

In Wolff-Parkinson-White syndrome, there is an extra electrical connection. In a small proportion,

around 10 per cent, there may be more than one extra pathway.

What causes Wolff-Parkinson-White syndrome?

The extra electrical connection found in Wolff-Parkinson-White syndrome develops early in pregnancy, while the baby is developing in the womb. One theory is that additional muscle fibre strands develop between the atrium and ventricle, causing the extra connection. Wolff-Parkinson-White syndrome is the most common cause of abnormal heart rhythms (arrhythmia). It occurs more frequently in males than females and in the majority of cases happens 'out of the blue'. In a very small number of cases, it is passed on from parent to child.

What are the symptoms of Wolff-Parkinson-White syndrome?

The extra electrical connection causes episodes where the heart rate suddenly quickens to an abnormally fast rate, often around 200 beats per minute. The fast heart rate (supraventricular tachycardia or SVT) can cause chest pain, breathing difficulties and heart flutters.



The symptoms of SVT occur in episodes, which can last for a few seconds to a number of hours. Children may report feeling chest flutters or palpitations, a very fast pulse, breathlessness and dizziness. In babies or children who are not able to communicate they may seem breathless, pale, irritable or unsettled, and you may be able to feel their heart racing by placing a hand on their chest.

In the majority of cases, the heart rate corrects itself to return to a normal rhythm. The frequency and length of episodes varies from person to person. Fainting or 'blacking out' is rare and usually only occurs after a prolonged period of heart racing, lasting more than 30 minutes.

Wolff-Parkinson-White syndrome has an increased risk of heart racing later in life and a small risk of sudden death. Part of the evaluation from the Cardiology team will be to ensure that patients who maybe at increased risk are identified.

How is Wolff-Parkinson-White syndrome diagnosed?

Wolff-Parkinson-White syndrome can be picked up on an ECG if a person has presented with symptoms to their GP or A&E. In most cases, it is diagnosed after symptoms of heart racing but sometimes WPW is diagnosed by accident, if a person has an electrocardiogram (ECG) as part of a general check-up for instance.



(normal sinus rhythm)



(WPW)

The doctor or nurse practitioner will take a clinical history – that is, what symptoms occurred and how long they have been present. A family history will also be taken. Wolff-Parkinson-White syndrome is confirmed using an ECG, which shows abnormal rhythm during an episode.

Sometimes it is difficult to record an episode when it is actually happening, so the doctor or nurse practitioner may suggest an exercise test to bring on an episode. Otherwise, they may suggest having an ECG over a 24-hour period or longer or having an implantable loop recorder.

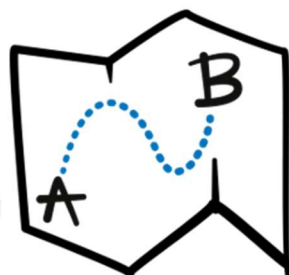
The cardiology team may suggest an electrophysiology (EP) study to investigate the nature of the pathway and consider treatment if it could help symptoms of SVT or if the pathway is felt to increase the risk of issues later in life.

How is Wolff-Parkinson-White syndrome treated?

For people with symptoms that are affecting their day to day life, or who have significant episodes, medication can be offered. These may be a beta blocker or other medications to help stabilise the pathway and reduce it's ability to cause the fast heart rates.

The most effective treatment for Wolff-Parkinson-White syndrome is cardiac ablation during an electrophysiology (EP) study. The doctor will use either heating therapy (radio frequency ablation) or freezing therapy (cryoablation) on the affected area, which should stop the abnormal signals.

Ablation works by using a targeted beam of energy to destroy the tissues causing the abnormal signals. Radio frequency (RF) ablation is effective in around 90 per cent of cases. An alternative method, cryoablation, is used where RF ablation is not suitable. Cryoablation is effective in about 80 per cent of cases, but is safer to use in certain areas of your heart. This procedure is carried out at low risk and as a day case or with an overnight stay.



In some people, the symptoms happen so rarely or to such a mild degree that treatment is not based on symptom relief, but offered to understand the nature of the pathway and its ability to cause issues in later life.

use a medication. As a last resort, a shock can be given as a life-saving option.

Managing episodes of supraventricular tachycardia at home

It's important that you are able to recognise the potential signs and symptoms of SVT and we will teach you how to do this. If appropriate, we will also teach you and your child 'vagal manoeuvres' which can include blowing in a straw or a balloon. These work on the vagal nerve which regulates the heartbeat.

Most episodes of supraventricular tachycardia (SVT) only last for a few minutes and do not need urgent treatment. Some episodes may last longer and children may be affected by these. If an episode is prolonged or the person experiences any of the red flag symptoms, they should be taken to the nearest Accident and Emergency (A&E) department immediately.

The doctors will try some 'tricks' to try to slow the heart – such as blowing into a syringe, if these are not successful or the SVT is causing other concerns such as low blood pressure, they may

Red flags

- Changes in behaviour, lethargy, irritation
- Dizziness or feeling faint (pre-syncope)
- Collapse (syncope)
- Changes in circulation: colour change such as dusky or pale skin, clamminess or cool hands and feet
- Breathlessness or breathing difficulties
- Symptoms of heart racing for longer than 10 minutes, unless discussed with your cardiology team

What is the outlook for children and young people with Wolff-Parkinson-White syndrome?

Ablation is successful in the vast majority of cases, so there are no further heart racing episodes or increased risk of sudden death or fainting episodes.

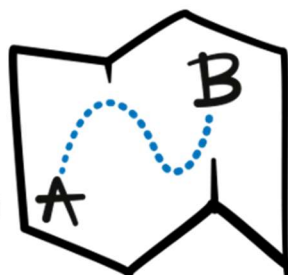
Further information and support

You can get in touch with the Arrhythmia Service on 020 7405 9200 extension 5298, email them on gosh-ecg.tr.gosh@nhs.net or contact them via MyGOSH once you have registered. More information about MyGOSH is at www.gosh.nhs.uk/your-hospital-visit/mygosh



There are various organisations in the UK that support people with heart problems.

- The biggest is the British Heart Federation – their helpline is on 0300 330 3311 or you could visit their website at www.bhf.org.uk
- SADS UK can also offer help and support – call them on 01277 811 215 or visit their website at www.sadsuk.org.



- You could also contact Cardiac Risk in the Young (CRY) on 01737 363 222 or visit their website at www.c-r-y.org.uk.
- Arrhythmia Alliance offers support to anyone affected by abnormal heart rhythms. Call them on 01789 450 787 or visit their website at www.heartrhythmcharity.org.uk

