

# Wolff-Parkinson-white

## What is it?

Wolff-Parkinson-White syndrome (WPW) is a congenital heart condition (a defect you are born with) where extra electrical pathways known as 'Bundle of Kent' interfere with the heart's normal electrical network which is responsible for the heart muscles contracting in a correct rhythm.

With WPW, the pathways allow for the electrical pulse sent from the SA node (electrical generator of the heart) to bypass the AV node, a delay mechanism in the middle of the heart which briefly stops the signal to allow time for the

lower chambers of the heart (the ventricles) to fill up with blood. In a normal heart the SV node can create this delay, letting the ventricles fill and then command them to contract, pushing the blood around the body.

However, in a WPW heart the extra pathway let's the signal bypass the SV node and ventricles contract prematurely, meaning less blood gets pumped.

Due to the WPW pathways being bipolar in nature, they can allow the electrical pulse to go back and forth unnaturally in a loop, causing a fast heart rate known as Supraventricular Tachicardia (SVT) that can prove to be life threatening if the loop doesn't stop.

# What are the symptoms?

Common symptoms of Wolff-Parkinson-white are:

- Fast heart rate, even when resting. Comes about suddenly.
- Fast heart rate that doesn't stop within 15 minutes and requires medical assistance.
- Chest pain
- Heart palpitations
- Feeling faint
- Losing consciousness
- Shortness of breath
- Fingertips/toes turning a blue-purple colour
- Feeling tired/weak with exercise
- Abnormal feeling pulse
- Lack of sleep
- Suddenly waking up

during the night in panic

- Fear and anxiety
- Pale complexion

You may also feel that your pulse is odd; fast in pace, missing beats and then going back to normal. This can also be a sign of the SVT symptom caused by a WPW pathway.

If you have one or more of these symptoms it is recommended that you report them to your GP who can arrange for tests such as an ECG to record your hearts electrical functions and diagnose if you have an underlying heart condition.

**Should I be worried if I**

## **have WPW?**

Many have the condition and don't know it as they don't present symptoms (asymptomatic), however this doesn't mean that the condition isn't there. WPW can be very unpredictable; it's the type of condition where you can go through life with no problems and then it will suddenly cause symptoms and dangerous heart rates without warning. Which is why it's important to spot it early on so it can be monitored and action taken to manage it.

## **Dangers of the condition**

Because Wolff-Parkinson-White can cause dangerously fast heart rates that sustain themselves,

cardiac arrest is a very real possibility for people during a flare up. While normal healthy hearts beat at around 70-90bpm, hearts suffering with WPW can have dangerously fast heart rates up to 300bpm during a flare-up. Because the heart muscles are not designed to sustain this bpm range, it causes the heart muscles great stress and will eventually result in cardiac arrest if the sufferers heart rate isn't returned to a normal range quickly. Sometimes these WPW loops can resolve themselves or be stopped with the maneuver, but many situations will require emergency treatment as soon as possible to repace

the heart.

If you have a fast heart rate caused by a WPW flare up that is not stopping and/or you have sudden chest pain, call 999 immediately for emergency medical assistance.

## **Emergency treatment of WPW**

If the dangerous heart rate fails to terminate by itself within, medical intervention is usually required. There are two main methods that is used in A+E to treat this:

- Drugs
- Cardioversion

Drugs used to be seen as the first line of controlling a non-terminating WPW flare

up, but in recent years this has become discouraged as research has found the medication to have adverse effects and in cases can make the situation worse.

The safest and most effective emergency treatment is cardioversion. In Cardioversion, the patient is lightly sedated until they lose consciousness, conducting pads are placed onto the chest area and the heart is shocked into the correct heart rhythm. This method is quick and relatively painless due to the sedation.

## **Treatment of Wolff-Parkinson-White**



There are currently two main treatments of WPW; a drug that can suppress the effects of the excess pathways and Catheter ablation surgery which is more commonly adopted.

The drug method is good at suppressing some cases of WPW, however the medication requires it to be taken every day and it's not 100% effective in blocking all signals from going through these extra pathways so there is still the chance that you can have a flare up, it's just that the likelihood is reduced. It's effectiveness also depends on placement of the pathway in the heart, it's conductivity and how many

pathways there are.

Catheter Ablation surgery is the most widely accepted and effective way of treating WPW. In the surgery, tiny probes are sent through the veins up into the heart where they then locate the problematic excess pathways and destroy them using concentrated radio frequency. If successful, the patient is left WPW free.

However, it may take multiple surgeries depending on pathway location and how many pathways need to be destroyed.

The surgery is usually quite fast (around 2 hours) and patients can go home the next day.

# Life with WPW

## WPW Attack Triggers

While WPW can flare up on its own, there are know triggers that can influence the condition.

- Caffeinated products such as chocolate, coffee, tea, cola and energy drinks.
- Exercise
- Stress/Anxiety/extreme excitement
- Drugs
- Smoking

Anything that can cause an elevation of heart rate such as stimulants can increase likelihood of a flare up.

Because of this it is

encouraged to limit or cut out caffeine, emotional stress and drugs from your lifestyle until the condition is under control. A healthy controlled diet and lifestyle is recommended.

## **Out and About**

You should be able to live life fairly normally with the condition (especially if it's asymptomatic), however it may be wise to purchase a medical ID bracelet that lists you have WPW (plus any additional medical conditions) as a precaution. This is so that if you are found unconscious, medical staff can be alerted to the fact you have WPW and factor that in when assessing how to treat you.

It makes the responders job more straightforward and lets you get treated faster. It may also be helpful to have a clear photograph of your last ECG reading saved to your phone for future reference. It may prove useful when explaining to medical staff.

If you are feeling weak or unwell, don't be afraid of going into a shop or a place to sit down. Make the staff aware of your condition and that you are feeling unwell. That way they know what's going on so if worst happens, they're prepared to get you help. It may also helpful to locate the nearest Automatic Emergency Difibulator (AED) in the area,

just as a precaution.

Temperature extremes can put stress on the heart, avoid exercising in hot and cold environments so your heart doesn't have to work harder to regulate body temperature.

When traveling abroad, please consider the points listed above and take note of emergency numbers and healthcare in the country you are visiting.

## **Driving and WPW**

In the UK it is required that you alert the DVLA that you have Wolff Parkinson White as there is the possibility that you can become unconscious while behind

the wheel.

For more information please consult the DVLA website:

## **Pregnancy and WPW**

A fair amount of women get diagnosed during pregnancy due to the stress and hormonal changes causing the WPW symptoms to surface.