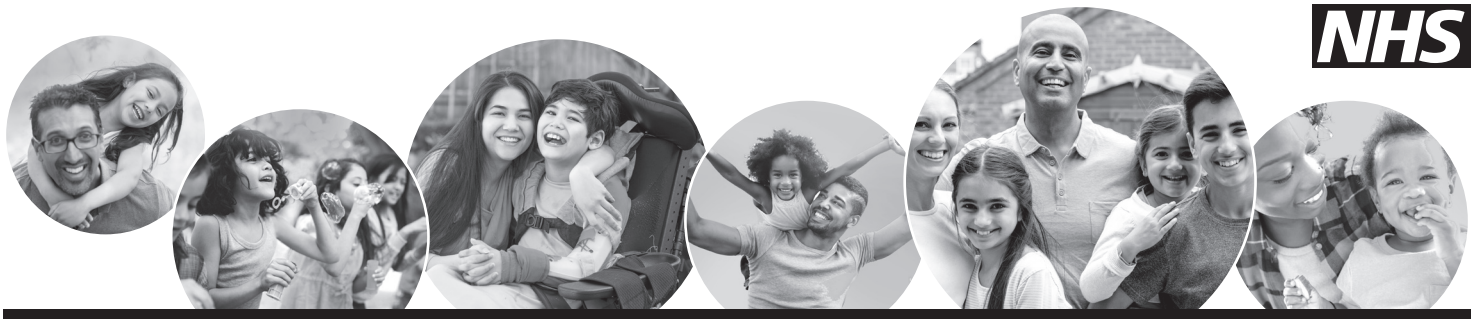


Great Ormond Street Hospital for Children NHS Foundation Trust: Information for Families

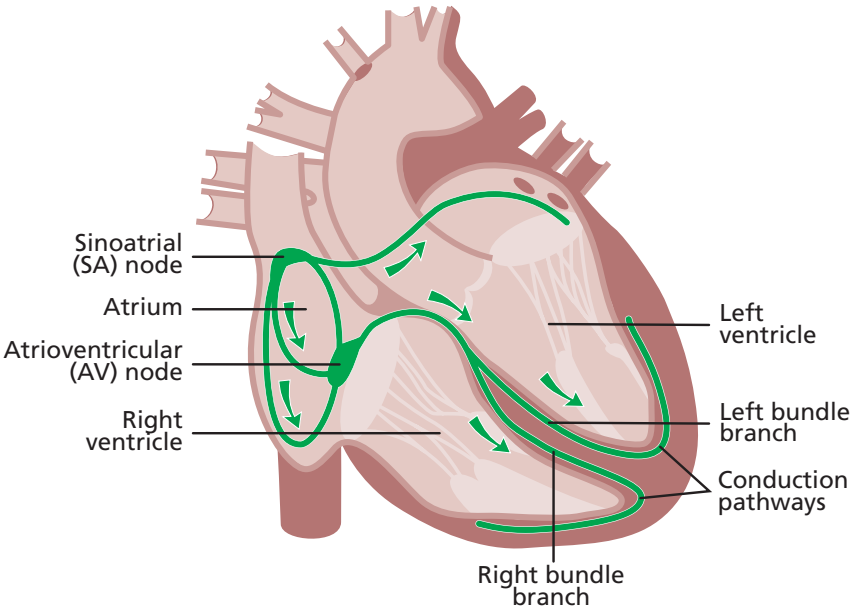
Neonatal supraventricular tachycardia

This information sheet from Great Ormond Street Hospital (GOSH) explains the causes, symptoms and treatment of neonatal supraventricular tachycardia and where to get help.

What is neonatal supraventricular tachycardia?

Neonatal supraventricular tachycardia (SVT) is a common type of arrhythmia in newborn babies. It causes episodes where the heart beats abnormally fast. Arrhythmias are abnormal heart rhythms, which can prevent the heart pumping efficiently. Babies with neonatal SVT may not have any symptoms and they may 'grow out' of the condition. Rarely if prolonged episodes occur, babies may go on to develop severe heart failure. The risk of life-threatening events are even more rare.

The heart has an electrical system that makes it pump. Normally, an 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 – it cannot be felt.

What causes neonatal supraventricular tachycardia?

Doctors think that the commonest reason for neonatal supraventricular tachycardia (SVT) may be caused by an additional electrical pathway within the heart. The additional pathway was formed as the baby was developing in the womb but did not happen as a result of anything that happened or did not happen during pregnancy. The additional pathway makes the heart 'short circuit' and pump blood around the body less effectively. Other forms of SVT include atrial tachycardia, atrial flutter and re-entry near the AV node.

What are the signs and symptoms of neonatal supraventricular tachycardia?

Neonatal supraventricular tachycardia (SVT) can develop before birth (prenatal), while the baby is developing in the womb. If it occurs prenatally, there can be an abnormal build-up of fluid in the baby's body, which can become life-threatening if not diagnosed and treated promptly.

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After birth, the symptoms of neonatal SVT occur in episodes, which can last for a few seconds to a number of hours. Many babies will not show any specific symptoms but will seem generally unwell. They may look pale, feed poorly or vomit and may not be as alert as usual. If the episodes continue into childhood, symptoms can include heart flutters, shortness of breath, dizziness and chest pain.

How is neonatal supraventricular tachycardia diagnosed?

The doctor will take a clinical history – that is, what symptoms have occurred and how long they have been present – and carry out a physical examination. It can be helpful to keep a symptom diary of when the episodes occur and what activities happened beforehand.

They will usually order an electrocardiogram (ECG), which shows the heart rhythm. Sometimes it is difficult to record an episode when it is actually happening, so the doctor may suggest having an ECG over a 24-hour period. An echocardiogram will also be suggested to look at blood flow through the heart.

How is neonatal supraventricular tachycardia treated?

Most episodes of neonatal supraventricular tachycardia (SVT) only last for a few minutes and do not need urgent treatment. Some babies are affected by episodes that last longer so you may be given regular medication to reduce or stop the chance of prolonged periods of SVT. This is often a beta blocker medicine to keep your child's heart rate regular. Other medicines such as flecanide, digoxin and amiodarone can also be used. It is important you are able to check your child's heart rate by taking their pulse – we will teach you how to do this as well. We will also teach you 'vagal manoeuvres' – these work on the vagal nerve which regulates heartbeat.

If an episode lasts for a prolonged period, over 20 minutes, treatment may be needed in hospital, often this involves injection of a medicine called adenosine or exposing the baby to ice. If the episode lasts several hours, this can involve admission to an intensive care unit to receive additional help with breathing, medicines to control blood pressure or using defibrillators to 'shock' the heart back into a normal rhythm.

What happens next?

Many babies 'grow out' of neonatal supraventricular tachycardia (SVT) as the additional pathway seems to disappear by the age of a year. For the majority, they will not have any further episodes of SVT but some will need regular monitoring and follow up throughout childhood and adolescence.

In a small proportion, the symptoms of SVT come back again around the age of five to eight years of age. This usually needs treatment with ablation of the additional pathway. The doctor will use either radio frequency ablation or 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 burns the area causing the abnormal rhythms and is effective in around 95 per cent of cases. An alternative method, cryoablation, is used where RF ablation is not suitable. Cryoablation freezes the affected area and 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.

Further information and support

There are various organisations that can offer support and advice to anyone affected by neonatal supraventricular tachycardia including:

- Arrhythmia Alliance – call their helpline on 01789 867501 or visit their website at www.heartrhythmcharity.org.uk
- Children's Heart Federation – call their information line on 0808 808 5000 or visit their website at www.chfed.org.uk
- British Heart Federation – their helpline is on 0300 330 3311 or you could visit their website at www.bhf.org.uk

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