CONDITION

Supraventricular tachycardia

Supraventricular tachycardia is an abnormally fast heart rhythm that starts in the heart's upper chambers.

WHAT IT IS
Abnormally fast heart rhythm starting above the ventricles

BODY SYSTEM
Heart and circulation

MAIN SYMPTOMS
Racing heartbeat, palpitations, breathlessness, dizziness

WHAT CAUSES IT
Abnormal electrical circuits or impulses in the heart

HOW IT IS DIAGNOSED
ECG during symptoms, often with ambulatory rhythm monitoring

MAIN TREATMENT
Vagal manoeuvres, medicines, cardioversion, or catheter ablation

CAN IT BE CURED?
Sometimes - catheter ablation can remove the abnormal pathway

IS IT AN EMERGENCY?
Sometimes - with fainting, chest pain, or severe breathlessness

LONG-TERM OUTLOOK
Most people do well with appropriate treatment

Overview

Supraventricular tachycardia, or SVT, is a group of heart rhythm conditions that cause episodes of a very fast heartbeat. The abnormal rhythm begins above the heart's lower pumping chambers, called the ventricles.

The heart normally beats through organised electrical signals. In SVT, an electrical signal may repeatedly travel around a small circuit, or a group of cells may send signals too quickly. This makes the heart beat faster than the body needs.

The main types include atrioventricular nodal re-entry tachycardia, or AVNRT; atrioventricular re-entry tachycardia, or AVRT; and atrial tachycardia. These names describe where the electrical signal starts or the route it follows. Wolff-Parkinson-White syndrome is associated with an extra electrical connection and can cause AVRT.

Episodes often begin and end suddenly. They may last for seconds, minutes, or several hours. Some people have episodes only occasionally, while others have them more often.

SVT is usually not life-threatening when the heart is otherwise healthy. However, symptoms can be frightening, disruptive, or occasionally serious. Persistent or frequent episodes can place strain on the heart, and symptoms such as fainting or chest pain need prompt assessment.

Symptoms

The most noticeable symptom is often a heartbeat that suddenly becomes very fast. You may feel pounding, fluttering, or rapid regular beats in your chest, throat, or neck. This sensation is called a palpitation.

Other symptoms can include:

Symptoms can start while you are resting, exercising, or going about normal activities. Some people notice a trigger, but many episodes occur without an obvious reason.

Babies and young children cannot always describe palpitations. Possible signs include poor feeding, unusual sleepiness, sweating, rapid breathing, or looking pale. These signs have many possible causes, so a child with them needs medical assessment rather than assumptions about SVT.

SVT can feel similar to anxiety or a panic attack. Anxiety can also occur because a suddenly racing heart is unsettling. Symptoms alone cannot reliably show which is happening; recording the heart rhythm during an episode is important.

- Dizziness or light-headedness
- Shortness of breath
- Chest discomfort
- Weakness, tiredness, or sweating
- A need to urinate after an episode
- Near-fainting or fainting

Causes and risk factors

Many episodes result from a re-entry circuit. This happens when an electrical signal travels repeatedly around a loop within the heart instead of stopping after each heartbeat.

In AVNRT, the circuit is in or near the atrioventricular node, an electrical relay point between the upper and lower chambers. In AVRT, the signal uses an extra electrical pathway between the chambers. This extra pathway is usually present from birth, although symptoms may not appear until later. Atrial tachycardia begins when cells in an upper chamber produce unusually rapid signals.

Having an extra pathway does not necessarily mean that relatives will have the same condition. Most SVT is not passed down in a simple inherited pattern.

SVT can occur in people without structural heart disease. It may also be associated with previous heart surgery, congenital heart conditions, or other heart problems. Hormonal and circulation changes during pregnancy can make episodes more noticeable in some people.

Possible triggers include lack of sleep, emotional stress, alcohol, caffeine, nicotine, stimulant drugs, dehydration, and some cold or asthma medicines. A trigger does not necessarily cause the underlying electrical problem. Many people cannot identify one.

An overactive thyroid, anaemia, infection, or abnormal blood levels of salts such as potassium can cause or worsen a fast heartbeat. These conditions may resemble SVT or make an existing rhythm problem easier to trigger.

Diagnosis

An electrocardiogram, or ECG, records the heart's electrical activity through sticky pads placed on the skin. An ECG taken during symptoms can confirm that the rhythm is SVT and may help identify its type.

An ECG between episodes may be normal. It can sometimes show an extra electrical pathway or another clue, but a normal result does not rule out SVT.

If episodes come and go, you may be offered ambulatory monitoring. This means wearing a portable ECG recorder during everyday life. A Holter monitor usually records continuously for a limited period. A patch or event monitor can record for longer. Very infrequent but concerning symptoms may sometimes be investigated with a small monitor placed under the skin.

It helps to note when symptoms started, how long they lasted, what you were doing, and whether the heartbeat began or ended suddenly. A smartwatch or personal ECG device may capture useful information, but its result should be interpreted alongside a medical ECG and your symptoms.

Blood tests may check for thyroid problems, anaemia, or abnormal electrolyte levels. An echocardiogram, which is an ultrasound scan of the heart, may be used to look at its structure and pumping function. These tests assess possible contributors and complications; they do

not usually confirm SVT by themselves.

An electrophysiology study may be performed when catheter ablation is being considered. Thin tubes called catheters are guided through blood vessels into the heart. They record electrical signals and help locate the abnormal circuit.

Treatment and management

Treatment depends on the type of SVT, how often it happens, how long episodes last, how severe the symptoms are, and whether there are other heart conditions.

Some stable episodes can be stopped with a vagal manoeuvre. This is a physical action that briefly affects the vagus nerve, which helps control heart rate. A commonly used method involves bearing down in a controlled way, similar to trying to breathe out against resistance. A healthcare professional can explain whether this is suitable and how to do it safely. Do not perform carotid sinus massage on yourself.

If an episode continues, clinicians may give medicine through a vein. Adenosine is commonly used for certain regular SVTs because it briefly blocks electrical conduction through the atrioventricular node. Its effects are short-lived, but it can cause temporary flushing, breathlessness, or chest pressure. It is given with heart monitoring because it is not appropriate for every fast rhythm.

Synchronized cardioversion uses a controlled electrical shock to restore the usual rhythm. It may be needed promptly if SVT is causing low blood pressure, reduced consciousness, chest pain from poor blood flow, or other signs that the circulation is unstable. It may also be considered when other measures do not work.

For recurrent episodes, medicines such as beta blockers or certain calcium-channel blockers may reduce how often SVT occurs. Other rhythm-control medicines are used in selected situations. The choice requires careful review of the exact rhythm, other conditions, and possible side effects.

Catheter ablation can offer long-term control and may cure some forms of SVT. During the procedure, the abnormal pathway or small area causing the rhythm is identified and treated with heat or freezing. It is often considered for frequent, prolonged, or troublesome episodes, or when a person prefers it to long-term medicine.

Ablation is generally effective, but it is an invasive procedure. Risks can include bleeding, blood-vessel injury, damage to the heart's normal electrical system, blood clots, or recurrence of SVT. The likelihood of success and the specific risks differ by the location and type of rhythm.

Complications

Most short SVT episodes do not damage a healthy heart. Complications are more likely when episodes are very fast, last a long time, happen frequently, or occur alongside significant heart disease.

Possible complications include:

Weakening caused by a prolonged fast rhythm is called tachycardia-induced cardiomyopathy. Heart function can often improve once the rhythm is controlled, although recovery is not identical for everyone.

Serious outcomes are uncommon in typical SVT with an otherwise healthy heart. Some rhythms involving an extra pathway need specialist assessment because they may carry different risks, particularly if another rhythm such as atrial fibrillation occurs.

- Fainting and injury from a fall
- Low blood pressure during an episode
- Reduced blood flow to the heart, causing chest pain
- Heart failure symptoms in susceptible people
- Weakening of the heart muscle after persistent rapid rhythms

Prevention

The electrical circuit or extra pathway responsible for SVT usually cannot be prevented. This is especially true when the pathway has been present since birth.

Avoiding a personal trigger may reduce episodes, but it does not remove the underlying circuit. Keeping a symptom diary can help you see whether episodes repeatedly follow alcohol, large amounts of caffeine, poor sleep, dehydration, or stimulant use. There is no need to avoid every possible trigger if it has no clear effect on you.

Review non-prescription cold remedies, supplements, energy products, and stimulant medicines with a pharmacist or clinician if they appear to provoke palpitations. Do not stop prescribed medicine without medical advice.

For some people, catheter ablation prevents future episodes by removing the tissue involved in the abnormal electrical circuit. No procedure can guarantee that SVT will never return.

Living with it and what to expect

SVT may remain occasional for years, become more frequent, or stop causing symptoms for long periods. It is difficult to predict the pattern from a single episode. The rhythm does not always worsen over time.

Many people continue working, exercising, travelling, and carrying out usual activities. If exercise regularly triggers symptoms, or if you have fainted, seek advice before returning to strenuous activity. Driving rules after fainting or poorly controlled arrhythmia differ by location and type of licence.

A practical plan can make episodes less disruptive. This may include knowing which symptoms need emergency help, learning an appropriate vagal manoeuvre, and recording how long episodes last. If you have prescribed medicine for SVT, take it only as directed.

Routine follow-up may be useful if episodes become more frequent, last longer, change in character, or interfere with sleep, work, exercise, or pregnancy plans. Follow-up can also review monitor results and discuss whether medicine or ablation fits your priorities.

SVT can occur during pregnancy, and some people notice more episodes. Anyone who is pregnant or planning pregnancy should have medicines and treatment options reviewed because the safest approach may differ during pregnancy.

When to get medical help

Arrange a routine appointment if you have repeated brief palpitations, even if you feel well between episodes. Assessment is also appropriate if a known SVT is becoming more frequent, lasting longer, or affecting daily life.

Seek urgent medical advice for a first sustained episode of a very fast heartbeat, an episode that does not stop as expected, or symptoms that are clearly different from your usual SVT. Follow any action plan you have already been given.

Call emergency services if a rapid heartbeat occurs with:

Do not drive yourself for emergency care. If another person becomes unresponsive and is not breathing normally, call emergency services and begin cardiopulmonary resuscitation if you are able.

- Fainting or near-fainting
- Chest pain or heavy pressure
- Severe difficulty breathing

- Confusion or reduced alertness
- Marked weakness, cold clammy skin, or signs of collapse

Common questions

Is supraventricular tachycardia dangerous?

SVT is usually not dangerous in a person with an otherwise healthy heart. Risk is higher when the rhythm continues for a long time, causes fainting or low blood pressure, or occurs with significant heart disease. An ECG-based diagnosis helps clarify the risk.

How can I stop an SVT episode at home?

If a clinician has confirmed SVT and taught you a suitable vagal manoeuvre, follow that plan. Do not try carotid massage or take extra medicine unless specifically instructed. Seek help if the episode continues or you develop emergency symptoms.

Can caffeine cause SVT?

Caffeine may trigger palpitations or SVT in some people, but it does not affect everyone in the same way. It is reasonable to reduce it if you notice a consistent link. Caffeine does not usually create the underlying electrical pathway.

Can SVT be cured permanently?

Sometimes. Catheter ablation can remove the pathway or small area responsible for many common types of SVT. Success and recurrence rates depend on the exact rhythm and its location. Medicines may control episodes but generally do not remove the circuit.

Can I exercise if I have SVT?

Many people with well-controlled SVT can exercise normally. Get medical advice before strenuous exercise if activity triggers episodes, your diagnosis is uncertain, or you have experienced chest pain, fainting, or significant breathlessness.

Is it SVT or a panic attack?

Both can cause a racing heart, breathlessness, sweating, and fear. SVT often starts and stops abruptly, but symptoms cannot confirm the difference. An ECG recorded during an episode is the most useful way to identify the rhythm.

Sources

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