

SVT

WHAT IS SVT?

Supraventricular tachycardia (SVT) is an umbrella term for a category of many arrhythmias that in one way or another involve the top chambers of the heart (the "atria") or junction. In fact, the name "supraventricular" means "above the ventricles". The ventricles are the lower chambers of the heart. SVT is by far the most common type of significant arrhythmias in otherwise healthy/normal pediatric patients. And most importantly, SVT is usually less worrisome than ventricular tachycardia because it usually is not life threatening.

HOW DO WE FIGURE OUT IF THIS IS SVT?

Recording the heart rhythm during an episode of palpitations would be ideal, but capturing events with an EKG is admittedly not cost-effective for all patients, especially when the events are not frequent. Sometimes simply getting a better handle on the heart rate and logging the frequency and duration of episodes, which can inform us whether this is a clinically significant event and worth recording. There are various options, which fall into two broad categories:

1. Track and log heart rate
 1. manually count the pulse (which can be challenging for many families), or
 2. with technology (e.g. free phone apps, FitBit).
2. Track and log heart rate and rhythm
 1. with 24-48 hour Holter monitor, or
 2. with 30-day patient triggered event monitor, or
 3. with 30-day autotriggered event monitor, or
 4. with 14-day Zio patch monitor (not covered by all insurance), or
 5. with a personal commercial monitor (e.g. Kardia AliveCor, or latest generation of Apple Watch)

Talk with your physician about these options and share in the decision-making.

IN THE SHORT TERM, WHAT DO WE DO IF MY CHILD HAS ANOTHER EPISODE OF SVT?

In the event of SVT, rest assured that most kids tolerate SVT without any significant issues or medical instability.

- 1) If s/he is in a safe place and has few symptoms, s/he should capture the event with a monitor if you have one.
- 2) Then try vagal maneuvers. Examples of vagal maneuvers include:
 - a) For infants:
 - i) Rectal stimulation
 - ii) Holding them upside down, with head well supported
 - iii) Placing something very cold (such as a bag of ice or frozen vegetables) over the face, preferably covering the cheeks



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- b) For older children:
 - i) Attempt to blow up the thumb: putting your thumb in your mouth and blow hard, without letting any air actually escape.
 - ii) Hold breath and bear down ("Valsalva maneuver")
 - iii) Cough
 - iv) Carotid (neck) massage (one side at a time).
 - v) Headstand (supported by someone else)
 - vi) Attempt to pick up an unmovable object.
- 3) If SVT lasts longer than about 15-20 minutes and vagal maneuvers are not effective, s/he should seek medical care at the closest emergency room.
- 4) If s/he feels as if s/he might faint, or has chest pains or shortness of breath, s/he should go to the nearest ER.
- 5) If s/he passes out (faints), call 911 immediately for help.

LONG TERM, IS THERE A CURE OR A WAY TO PREVENT SVT?

Yes. If we confirm there is SVT, then there would be various options available, each having its own pros and cons. Chronic treatment of SVT is tailored to the individual, and mostly based on age and severity of symptoms. Treatment falls into 3 broad categories, each with advantages and disadvantages:

1. Vigilance. Observation without treatment. Not everyone requires medical treatment.
2. Medication. Treatment with daily antiarrhythmic medication to try to prevent most episodes of SVT from happening. For most SVTs, beta-blockers are the first line therapy, which have the best safety profile. On rare occasion, we also use "pill in the pocket" medication, which is taking a medication only in special circumstances.
3. Ablation. A specialized test call an electrophysiology (EP) study and catheter radiofrequency ablation (RFA) can cure SVT. It is quite safe and very effective for most SVTs.

Ablation is the definitive therapy for SVT. For children who are ≥ 15 kg (33 lb) and have frequent episodes of SVT or who become symptomatic during infrequent episodes, elective RFA is the preferred alternative to chronic antiarrhythmic therapy. Medical management is generally preferred for younger/smaller children.

CAN MY OLDER CHILD CONTINUE TO PLAY SPORTS AND GYM IN THE MEANTIME?

Usually, yes. Most children with SVT can safely play sports and participate in gym. If s/he has SVT during exercise, then s/he should take a break. Resting will decrease the chance that s/he would have any adverse events during episodes of SVT.

