

2020

# Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT)

## Inherited Heart Disease (IHD) Clinic



[www.nshealth.ca](http://www.nshealth.ca)

## **How does the heart work?**

The heart is a hollow organ made up of muscle. It has 4 chambers: 2 at the top (atria) and 2 at the bottom (ventricles). Blood flows from outside the heart into the top chambers, is pumped to the bottom chambers, and is then pumped back out to the body.

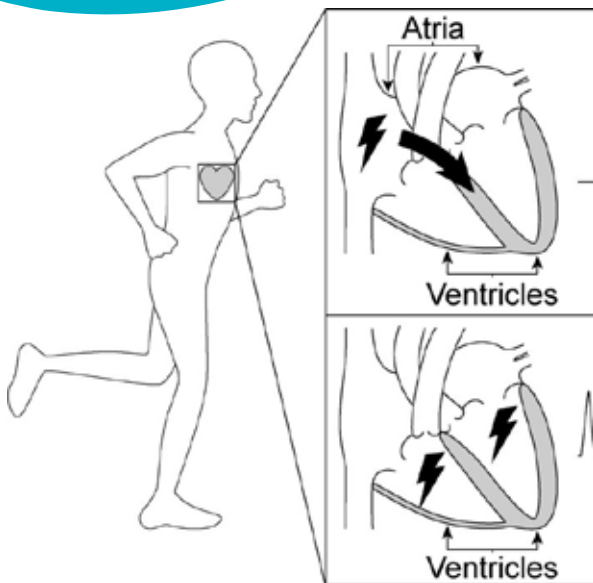
In a normal heartbeat, an electrical signal starts in the upper chamber and travels through the heart muscle to the bottom chambers. As the signal travels through the muscle cells, it causes them to beat. This makes the heart pump blood from one chamber to another and out to the rest of the body.

Heart cells have special channels that work like doors. They control the movement of electrolytes into and out of the cells. These channels must open and close to let electrical signals flow through the heart cells.

When you exercise or have a strong emotional reaction (e.g., fear), your body releases adrenaline. Adrenaline acts on the heart cell channels. This causes more electrical signals to be made in the top chambers, which makes the heart beat faster.

## **What is Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT)?**

In CPVT, the channels don't have a normal response to adrenaline. This causes extra heartbeats to start in the bottom chambers of the heart. This can make the heart beat fast. It might beat so fast that it does not pump blood out to the body. This can cause collapse and, if the rhythm does not stop, sudden death.



## What causes CPVT?

CPVT can be caused by:

- › a change in your DNA (genes) that creates the fault in the heart cell channels. CPVT can be hereditary (be passed from parents to their children).

Sometimes the cause of CPVT is not known.

## What are the symptoms of CPVT?

Symptoms may include:

- › fainting
- › blackouts
- › seizures
- › palpitations (feeling like your heart is jumping, racing, or fluttering)

**It is important to tell your health care provider if you had a relative who died suddenly at a young age. This could have been caused by CPVT.**

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## Normal heart rhythm



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## CPVT



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## **How is CPVT diagnosed?**


A number of tests are used to diagnose CPVT. Your health care provider may arrange for you to have some of these:

**Electrocardiogram (ECG):** A recording of your heart rhythm for 10 to 20 seconds.

**Exercise stress test:** A recording of your heart rhythm and blood pressure while you exercise on a treadmill.

**Holter monitor:** A recording of your heart rhythm for 24 hours (1 day).

*Your cardiologist (heart doctor) may also suggest other tests. They will talk with you about this, if needed.*



## Genetic testing and family screening

If your cardiologist suspects that a change in your DNA could have caused your CPVT, they may ask if you would like to talk with a genetic counsellor about genetic testing. Your cardiologist may also want to invite other members of your family to be tested for CPVT. They may ask you to help by passing letters on to your family.

## How is CPVT treated?

There is no cure for CPVT, but there are treatments available to try and prevent dangerous heart rhythms.

Treatments include:

- › medications called beta-blockers
- › other medications to control your heart rhythm
- › a special pacemaker called an internal cardioverter defibrillator (ICD) (to identify and treat fast heart rhythms)

Sometimes, heart surgery may be needed to lower the amount of adrenaline going to the heart.

## If you have CPVT:

Your health care provider will talk with you about what activities are safe for you and what activities and environments you should avoid.

- **AVOID** strenuous (hard) exercise, as this can cause a blackout.
- **DO NOT** take part in competitive sports.
- **NEVER** swim alone. Swimming can cause a blackout and may lead to drowning.

- **AVOID** recreational drug use, especially stimulants. This includes energy drinks.
- **TELL** your family members that you have CPVT. It runs in families, so they may need to be checked for this problem.
- **Make sure your family and friends are aware of your condition**, and that they know what to do if you have any symptoms.

### **For more info, visit**

The Canadian Sudden Arrhythmia Death Syndromes (SADS) Foundation (includes booklet called “Cardiac Channelopathies” with info on CPVT that you can download)

› [www.sads.ca](http://www.sads.ca)

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The information in this pamphlet is to be updated every 3 years or as needed.