DECISION AID

Ventricular tachycardia and its complications:
What is effective as prevention?

You have been diagnosed with ventricular tachycardia or you have an increased risk of ventricular tachycardia with complications. It causes attack-like episodes of a racing pulse, often with other symptoms like dizziness or unconsciousness. Ventricular tachycardia can have serious complications such as ventricular fibrillation: The heart muscle then contracts so quickly that it can hardly pump any blood into the body. That is a life-threatening condition and can lead to sudden cardiac death. A variety of procedures are an option to prevent that from happening:

- **Implantable cardioverter-defibrillator (ICD):** This device is implanted in the body beneath the skin or under the chest muscle. It can detect ventricular tachycardia or ventricular fibrillation and then send out one or more brief, controlled electric shocks. That can stop the abnormal heartbeat, and the heart can carry on beating in its normal rhythm.
- **Medication:** Long-term medication is taken to keep the heartbeat steady and to make sure that ventricular tachycardia doesn't develop.
- **Catheter ablation:** Ventricular tachycardia often develops in a certain part of the heart, such as on a scar from a heart attack. During ablation, that tissue is destroyed (ablated) so that it's no longer able to cause ventricular tachycardia.

These procedures are often combined. For instance, it may be a good idea to have both catheter ablation and an implantable cardioverter-defibrillator (ICD): The ablation aims to stop the abnormal heartbeat from developing in the first place. And if it does occur, the ICD can prevent life-threatening complications.

Which procedure is most suitable and whether just one is enough depends on a number of factors, like the cause of the abnormal heartbeat, as well as whether you have any underlying medical conditions or particular preferences. The aim of this decision aid is to help you choose a suitable treatment together with your doctor.

PLEASE NOTE:

Ventricular tachycardia usually develops because the heart has been damaged, perhaps due to coronary artery disease (CAD) or heart failure. Further treatment that is not addressed in this decision aid might then be necessary depending on the underlying disease. This decision aid doesn't list any measures that might be needed in an emergency, such as injected medication, what is known as electrical cardioversion, or defibrillators that can be worn as vests.

People with cardiovascular diseases should also make sure they lead a healthy life – in addition to their treatment.

THE MOST IMPORTANT PREVENTION MEASURES:

→ Implantable cardioverter-defibrillator (ICD)

→ Medication

→ Catheter ablation

You can read about the pros and cons of these treatments on the following pages.

PERSONAL DECISION

This decision aid probably won't include all of the information that you need. It is intended to help you prepare for your doctor's appointments, not to replace them. The treatment you ultimately choose to have will depend on

- what has caused or could cause the ventricular tachycardia,
- whether the cause can be treated, for example by stopping the use of the medications that caused the abnormal heartbeat,
- whether you have heart failure and how severe it is,
- whether you have an increased risk of complications due to other diseases or risk factors such as smoking or obesity,
- whether you don't tolerate certain medications,
- what things have already been tried out to prevent ventricular tachycardia and its complications.

Don't let anyone force you into choosing a particular treatment! Even if you are very worried about threatening heart problems, you can take the time you need to make a considered decision.

PROS AND CONS OF PREVENTIVE PROCEDURES FOR VENTRICULAR TACHYCARDIA AND ITS COMPLICATIONS

	ICD	Medication	Catheter ablation
What exactly happens?	You will have to stay at the hospital for 1 to 2 days. The device, which has a diameter of about 5 centimeters, is inserted beneath the skin and sewn up. You will have a local anesthetic to numb your chest area, and will typically also be given a short, mild general anesthetic.	Long-term medication is taken in tablet form. That is often a **beta blocker**. Other medications (**antiarrhythmics**) are sometimes used, for example amiodarone. Other medications such as **ACE inhibitors** are taken regularly as well if you have heart failure.	You will have to stay at the hospital for 1 to 2 days. A catheter is inserted through the groin and pushed up to the heart under local anesthetic. The heart tissue that is causing the ventricular tachycardia is then destroyed (ablated) while temporarily using a mild general anesthetic.
How effectively can ventricular tachycardia and its complications be prevented?	There is good evidence of the benefits of ICD in people who have an increased risk of ventricular tachycardia (perhaps because their heart has been weakened by a heart attack). The ventricular tachycardia itself is not actually prevented, but it is stopped quickly, meaning that complications are less common: Sudden cardiac death occurred within 2 to 3 years in • 8 out of 100 people who had *not* had an ICD fitted, and • 3 out of 100 people who *did* have an ICD.	It has been proven that beta blockers can prevent complications such as ventricular tachycardia and sudden cardiac death in people who have heart disease. There is not enough evidence from good-quality studies for the other medications. The research only suggests that amiodarone might have a preventive effect.	The benefits of the procedure were studied more thoroughly in people who already have an ICD following a heart attack. Those studies suggest that cardiac ablation can then prevent ventricular tachycardia and the associated bursts of electric current from the ICD than medication can. It is not entirely clear whether the procedure increase life expectancy.
What are the risks and possible side effects?	Complications from ICD develop in about 3 out of 100 people. They can be life-threatening in 1 out of 100 people. The most common complications are: • Infections • Poor wound healing • Bleeding if blood vessels or heart tissue are damaged • Lung injury • Leads slipping out of place • Wear and tear on the material insulating the leads • Device malfunctions that can cause things like unnecessary electric shocks The bursts of electric current that the device sends out as shocks can be painful and scary if you are aware of them.	Beta blockers are considered to be well tolerated, but they can have side effects such as slow pulse, low blood pressure or breathing problems. Other medications (antiarrhythmics) are considered to be less well tolerated and can themselves cause things like abnormal heartbeat. Other side effects can include circulation problems, headaches, nausea, and thyroid, eye and lung problems.	About 4 to 11 out of 100 people with pre-existing heart damage who received treatment experienced complications such as heart or blood vessel injuries, abnormal heartbeat, heart attack or stroke. Up to 3 out of 100 people die during or shortly after the procedure. The risk of complications is lower in people with an otherwise healthy heart – who don't have CAD or other heart diseases.

PROS AND CONS OF PREVENTIVE PROCEDURES FOR VENTRICULAR TACHYCARDIA AND ITS COMPLICATIONS

	ICD	Medication	Catheter ablation
Who is this procedure suitable for?	An ICD is recommended if you have an increased risk of ventricular tachycardia and sudden cardiac death due to a heart disease: For instance, the risk is increased if your heart remains weakened after a heart attack. Getting an ICD can also be a good idea if you have heart failure for other reasons or if you are waiting for a heart transplant. People who have had ventricular tachycardia in the past or have had to be resuscitated following sudden cardiac death will generally also be given an ICD. The requirements for ICD implant are: • that the cause of the abnormal heartbeat can't be treated, • you are also taking the necessary medication, such as ACE inhibitors for heart failure, and • your life expectancy is more than one year (with good quality of life).	Beta blockers are an option for people with increased risk of ventricular tachycardia, especially for people who have had a heart attack. Other antiarrhythmic drugs such as amiodarone can be taken if beta blockers aren't tolerated or don't offer enough protection.	Ablation is recommended if the heart is damaged, for instance by heart attack scarring, and ventricular tachycardia repeatedly occurs despite the use medication, which can frequently trigger bursts of electric current from the ICD. Ablation can sometimes be an alternative to ICD, such as if coronary artery disease (CAD) causes ventricular tachycardia but the heart still beats strongly enough and circulation is stable. But cardiac ablation is suitable in other situations as well, such as cardiac conduction system problems in the ventricles, and some congenital heart defects. If there are no problems with the heart aside from the abnormal heartbeat, the procedure can even be an alternative to taking long-term medication. But it must be possible to identify the part of the heart that is causing the abnormal heartbeat, and it needs to be accessible with a catheter.

HELP WITH YOUR DECISION

You may still be unsure about which treatment is suitable for you. You can write down your thoughts and questions on the following two pages.

Which treatment would I consider?		What do I like about it?	What don't I like about it?
Implantable cardioverter-defibrillator (ICD)	○		
Medication	○		
Catheter ablation	○		
Other, less common treatments that have been recommended by a doctor – such as surgery	○		
Combination of several treatments	○		
No treatment	○		

IF YOU STILL AREN'T SURE: WHAT ELSE DO YOU NEED IN ORDER TO MAKE A DECISION?

It can be hard to choose a treatment with all the different pros and cons to consider. Many of the options are still possible even if you decide for a different one at first. If it doesn't help, you can try one of the alternatives.

If you need more help:

- You will find links to further information on the next page.
- You can talk to your doctor again.
- Get a second medical opinion. You will find information about this option on the next page, too.
- You can discuss the options with family and friends.
- Or you can contact a patient information center or a support group.

YOU WILL FIND IN-DEPTH INFORMATION ABOUT THE FOLLOWING TOPICS ON THE INTERNET:

	Ventricular tachycardia: www.informedhealth.org/ventricular-tachycardia.html
	Detailed information on second medical opinions: www.informedhealth.org/SecondOpinion
	Tips for a healthy lifestyle: www.informedhealth.org/heart-health

PREPARING FOR THE DOCTOR'S APPOINTMENT

What remains unanswered? What are you most concerned about? Write down any questions or thoughts you may have, and take this decision aid with you to the appointment. You can ask the doctor about anything you would like to know or discuss anything you are worried about.

You will find a list of questions – and can choose those that are most important to you – here:

www.informedhealth.org/questions

PUBLISHING DETAILS

This decision aid was developed by the Institute for Quality and Efficiency in Health Care (IQWiG, Germany). You will find information about our work and the sources used here:

www.informedhealth.org/our-approach

Last updated: 07/2023