

- **VENTRICULAR CONDITIONS**

### **Ventricular extrasystoles**

**The easiest form of ventricular arrhythmia is represented by ventricular extrasystoles and it involves the premature contraction of the ventricles, in discordance with the normal heart rhythm.**

In general, ventricular extrasystoles do not represent a cause for alarm and in most of the cases they do not require treatment. If the patient suffers from a cardiac disease or has a history of ventricular tachycardia, the ventricular extrasystoles can determine more severe types of arrhythmia.

#### **Causes**

In most of the cases, the ventricular extrasystoles are produced rapidly, without any previous signs, but they can also be caused by the consumption of caffeine, alcohol and illegal substances. Other factors that can cause this type of extrasystoles include certain medication (cough medicine, flu medicine, asthma medicine), physical or psychological stress, positive or negative emotions, state of anxiety.

The ventricular extrasystoles can be associated with the following conditions: cardiac structural diseases, cardiac ischemia, congenital arrhythmia, pulmonary disease, coronary artery disease, especially after a myocardial infarction and the case of dilated cardiomyopathies, valvular diseases and cardiac insufficiencies.

#### **Symptoms**

In most of the cases, when isolated, ventricular extrasystoles do not produce any symptoms. However, in other cases, it can feel as if the heart beats with high frequency and intensity or that it skips certain beats.

Among **the methods of diagnosis** we would like to mention the electrocardiogram, the Holter monitoring and the effort test.

#### **Treatment**

Most of patients who suffer from ventricular extrasystoles without any other associated cardiac diseases do not need any treatment. In rare cases, if the symptoms occur frequently and they bother the patient, the doctor can prescribe a treatment to improve the patient's condition. However, most of the time, ventricular extrasystoles are not dangerous.

If the ventricular extrasystoles are associated with certain cardiac conditions, medication becomes necessary and the patient should avoid the above mentioned risk factors.

The medication can include beta-blockers that prevent premature contractions. For patients suffering from ventricular tachycardia or premature contractions that prevent the heart from functioning normally and that cause severe symptoms, we also recommend calcium channel blockers or antiarrhythmic drugs.

For premature ventricular contractions that do not respond positively to a change of lifestyle or to medication, the doctor can recommend radiofrequency ablation. This procedure involves introducing a catheter through an artery, up to the heart, at the level of the right cardiac tissue that is responsible for the abnormal rhythm and eliminating it with high-frequency current.

**Ventricular tachycardia** involves an accelerated heart rhythm (over 100 heartbeats per minute) that originates in the inferior chambers of the heart (ventricles) and records more than three irregular consecutive heartbeats. This can be a consequence of a heart attack or it can be associated with certain cardiac conditions, such as cardiomyopathy, cardiac insufficiency, myocarditis or valvular disease. Ventricular tachycardia is not always associated with other cardiac conditions.

A scar tissue can form in the ventricular muscle at a certain time (days, weeks, month or even years) after suffering a heart attack. This can cause ventricular tachycardia. Other causes for this disease are: antiarrhythmic medicine, changes in the blood chemistry (e.g. low level of potassium), changes in the pH values, insufficient oxygenation.

“Twisting of the points” is a form of ventricular tachycardia, often caused by congenital malformations or certain medicine.

Ventricular tachycardia manifest itself through an increased heart rhythm that lasts for more than a few seconds, angina pectoris, syncope, dizziness, palpitations and difficulty breathing. The symptoms can begin and stop suddenly. However, ventricular tachycardia can also be asymptomatic.

From the possible methods of **testing and diagnosis**, we would like to mention the Holter monitoring, the electrocardiogram, the electrophysiologic studies and the blood tests.

**The treatment** will be determined based on the symptoms and the associated cardiac condition. In some cases treatment is not necessary. Emergency cases might require cardiopulmonary resuscitation (CPR), electrical fibrillation or cardioversion or antiarrhythmic drugs administered intravenously.

Oral administration of antiarrhythmic medicines can be prescribed as a long-term treatment. However, this type of medication can have severe side effects, which is why it is less frequently prescribed, especially since there are other courses of treatment.

Radiofrequency ablation is another method of treatment, through which the tissue that causes the irregular heart rhythm is eliminated. For chronic ventricular tachycardia we recommend the implantation of a cardiac defibrillator, which is programmed to detect abnormal heart rhythms and to send an electric shock to stop it.

### **Ventricular fibrillation**

Ventricular fibrillation is a severe arrhythmia that endangers the patient’s life.

#### **Causes**

The heart pumps blood to the lungs, brain and other organs. If the rhythm is interrupted, even for a few seconds, this can cause syncope or a heart attack. Fibrillation represents an uncontrolled spasm or tremor of the muscle fibres. When it takes place in the inferior chambers of the heart (ventricles) it is called ventricular fibrillation. During ventricular fibrillation, the heart stops pumping blood, thus causing sudden cardiac death. The conditions associated with ventricular fibrillation are: heart attacks, electrocution accidents, congenital heart conditions and heart muscle conditions – including cardiomyopathies, heart surgery, narrowed coronary arteries, and sudden cardiac death.

The most common cause of ventricular fibrillation is the heart attack. However, fibrillation can occur when the heart muscle is no longer oxygenated. Electrocution accidents, heart attacks, congenital malformations, cardiomyopathies, heart surgery, narrowed coronary arteries, sudden cardiac death and certain medication can cause ventricular fibrillation.

Usually, ventricular fibrillation is not associated with other cardiac diseases, but there are certain risk factors such as smoking, arterial hypertension and diabetes.

### **Symptoms**

Ventricular fibrillation episodes are sometimes associated with loss of consciousness due to the lack of brain and muscle oxygenation. Among the symptoms that precede the crisis, we can list chest pain, dizziness, nausea, accelerated heart rhythm and difficulty breathing.

### **Methods of diagnosis**

Cardiac monitoring will show an irregular heart rhythm. Additional tests will then be performed, in order to determine what caused the ventricular fibrillation.

### **Treatment**

Since ventricular fibrillation represents a medical emergency, it requires immediate treatment. In order to re-establish a normal heart rhythm, we apply electric shocks by means of an external cardiac defibrillator.

Patients with a high risk of ventricular fibrillation can opt for a cardiac defibrillator implantation. This device will detect irregular heart rhythms and will send an electric shock to correct the heart rhythm, thus preventing ventricular fibrillation. In some cases, medication can be prescribed to adjust the heart rhythm.