

## Ventricular Fibrillation (VF)

### What is Ventricular Fibrillation?

Ventricular fibrillation (VF) is a life-threatening cardiac arrhythmia, which, left untreated results in death. The normal coordinated contraction of the lower chambers of the heart (the ventricles) is replaced by disorganised, quivering, failing ventricles, ineffective at pumping blood out of the heart to the rest of the body. VF is the most commonly identified arrhythmia in cardiac arrest patients, and usually ends in death within minutes unless prompt corrective measures are implemented.

VF is associated with coronary artery disease (CAD), a myocardial infarction (MI) (commonly known as a heart attack), and other inherited conditions that can predispose to arrhythmias (irregular heart rhythm disorders) such as long/short QT syndrome, catecholaminergic polymorphic ventricular tachycardia (CPVT), brugada syndrome, arrhythmogenic right ventricular cardiomyopathy (ARVC), wolff parkinson white syndrome (WPW), and hypertrophic cardiomyopathy (HOCM).

Ventricular fibrillation is often the first external sign of CAD, and is responsible for about 50% of deaths from CAD. VF often occurs within the first hour after the onset of a heart attack (MI) or acute coronary syndrome (ACS).

The chances of survival from VF depend on bystander cardiopulmonary resuscitation (CPR), and timing of defibrillation and advance life support. Survival is highly time dependent – the likelihood of success declines at a rate of 2-10% per minute. Only about 9% of patients who suffer an out-of-hospital cardiac arrest survive to discharge.

Early defibrillation often makes the difference between long-term disability and functional recovery. The placement of automated external defibrillators (AEDs) and training of the public in their use has the potential to improve outcomes from sudden cardiac arrest.

### Treatment options

Treatment of successfully resuscitated patients includes antiarrhythmic medication including beta blockers and amiodarone, percutaneous coronary intervention (PCI), and implantable cardioverter defibrillators (ICDs). An ICD is a small device implanted under your skin near your collarbone with leads that run in your veins to your heart or a slighter larger device that is placed on the side of your chest wall without leads in veins.

The ICD continuously monitors your heart rate and rhythms, and sends electrical signals to pace the heart if it is beating too fast (anti-tachycardia pacing or ATP) or too slow (bradycardia pacing). An ICD is more effective than drugs for preventing future VF-induced cardiac arrests. If your VF was caused by a heart attack or coronary angioplasty a stent placement may be recommended to open blocked coronary arteries and reduce the risk of future episodes of VF. Arrhythmia Alliance has detailed information on each of these management options, please contact us on info@heartrhythmalliance.org for more information.

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