

BACKGROUND

Facts About Sudden Cardiac Arrest

What It Is – and What It Isn't

Sudden cardiac arrest (SCA) is a sudden, abrupt loss of heart function. Most sudden cardiac arrest episodes are caused by the rapid and/or chaotic activity of the heart known as ventricular tachycardia (VT) or ventricular fibrillation (VF). These are diseases of the heart's electrical conduction system that should not be confused with a heart attack (myocardial infarction), which is caused by a blocked blood vessel leading to loss of blood supply to a portion of the heart muscle. However, some people may experience SCA during a heart attack.

Incidence of Sudden Cardiac Arrest

Sudden cardiac arrest is a major health problem. According to the American Heart Association, approximately 400,000-450,000 people die each year in the United States as a result of sudden cardiac arrest. It is estimated that 95 percent of these victims die before reaching the hospital.

What Makes Someone Susceptible to Sudden Cardiac Arrest?

People with heart disease are at varying risks for dying suddenly. Anyone with heart disease should discuss the risk of sudden cardiac arrest with a physician. There are ways to markedly decrease that risk in many individuals.

Dealing With Sudden Cardiac Arrest

Cardiac arrest is reversible in most victims if it's treated within minutes. With the development of hospital coronary care units in the 1960s, it was found that electrical devices that shocked the heart could turn an abnormally rapid rhythm into a normal one. Later, it also became clear that cardiac arrest could be reversed outside the hospital if specially trained emergency rescue teams reached the person quickly. Chances of survival are reduced by 7-10 percent with every passing minute. However, even after survival the prognosis continued to be dismal. The first-year recurrence rate was 20-40 percent.

In the mid-1980s, the implantable cardioverter-defibrillator (ICD) was designed and quickly called "an emergency room in the chest." It monitored the heart's electrical

conduction system and administered electrical shocks directly to the heart to stop ventricular fibrillation.

Today, ICDs do much more. A modern ICD is much smaller and is implanted in the upper chest. It continuously monitors the electrical conduction system of the heart, watching for dangerous patterns and delivering electrical impulses when needed that may range from a tiny pulse like a cardiac pacemaker's to a full, life-saving shock that can return the heart to normal rhythm. Dangerous patterns may indicate ventricular fibrillation, ventricular tachycardia or less problematic supraventricular tachycardias that arise in the upper chambers of the heart. ICDs now also collect information for the physician to use in diagnosis and programming the device to the exact needs of the patient. For patients with ICDs, the first-year recurrence rate of sudden cardiac arrest has been reduced to 1 to 2 percent.

The Medtronic InSync ICD device is designed to combine ICD functions with cardiac resynchronization capabilities intended to improve the heart's pumping action. It is designed to provide ongoing, automatic therapy for patients who have two specific, concurrent heart conditions, including those who are in danger of ventricular tachycardia or ventricular fibrillation – potentially lethal rhythm disturbances in which the heart quivers rapidly and pumps little or no blood. This can lead to sudden cardiac arrest. In addition, these patients have heart failure, in which the heart does not pump enough blood to adequately meet the body's needs. Often the muscle is weak and the heart is working inefficiently.