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Automatic Implantable Cardioverter-Defibrillators (AICD)

What is an automatic implantable cardioverter-defibrillator?

Automatic implantable cardioverter-defibrillators (AICDs) are devices used to control tachyarrhythmias (irregular heartbeat and rapid rate). The ICD is similar to a pacemaker in that it is designed to correct arrhythmias. But while a pacemaker is used primarily to correct slow heart rates, an ICD detects and corrects fast and slow heart rates. The device can deliver a strong electrical shock to the heart in order to restore a normal heartbeat. The device's power source is implanted in a pouch formed in the chest wall. Electrodes that sense the heart's rhythm are placed in the heart. The latest devices are small enough to be installed through the blood vessels, which eliminates the need for open chest surgery. AICDs can deliver a variety of different shocks, which can be determined by your doctor. AICDs typically last 3 to 5 years, and can deliver approximately 100 shocks. The power source can be replaced with minor surgery. Patients can typically feel when a shock is being delivered by the device. Patients should notify their doctor whenever they feel a shock has been delivered.

Who is at risk and might require an AICD?

AICDs are used in patients with arrhythmias (irregular heartbeats) that are considered life-threatening. These can include patients with ventricular fibrillation (rapid, ineffective contraction of the ventricles), ventricular tachycardia (excessively rapid heartbeat) that is poorly controlled by medication, or significant thickening of the heart muscle. These arrhythmias can result in loss of consciousness or death. Causes of the arrhythmia that can be corrected (like heart attack, myocardial ischemia or an electrolyte imbalance) must be ruled out before implanting an AICD.

Prior to implantation of an AICD, an electrophysiological study (EPS) may be performed. EPS studies involve placing electrodes into a vein and advancing them to the heart to determine the characteristics of heart arrhythmias. This test can help the doctor decide if drug treatment is appropriate, or if an AICD is required.

What are the benefits of an AICD?

Research currently available suggests that AICDs are effective in preventing sudden death in patients with life-threatening tachyarrhythmias. However, the effectiveness of AICDs has not been demonstrated yet in randomized clinical

trials. Some small studies have published favorable results. The data currently available suggests that quality of life improves, and most patients with an AICD avoid taking drugs.

What are the complications of an AICD?

The defibrillator unit can cause local discomfort. The unit can deliver unnecessary shocks sometimes.

What happens after AICD implantation?

Your hospital stay will usually be less than 4 days. As recovery progresses, daily activities can be resumed gradually. You should check with your doctor about the timing of your return to normal activities.

Please ask us any questions you might have.