

Life threatening arrhythmias: detection and intervention prevent sudden cardiac death

Cardiac arrhythmias are extremely common, and most are harmless. This disruption of the normal functioning of the electrical conduction system of the heart can cause the patient discomfort, adversely affecting their quality of life. Some arrhythmias, however, can compromise cardiac function and are life-threatening medical emergencies that can lead to sudden cardiac death.

“Because of this risk, it is crucial for physicians to recognize the symptoms of a potentially serious arrhythmia and refer the patient to a cardiologist for further testing and/or medical intervention,” alerts Neala Hunter, MD, a cardiologist board-certified in electrophysiology.

Detecting a serious arrhythmia

Patients with this increasingly common heart condition can present with symptoms that mimic anxiety, making the differential between these two etiologies difficult. Patients experiencing an arrhythmia accompanied by frequent heart palpitations, lightheadedness, fainting or near-fainting spells, fatigue, chest pain, or shortness of breath may have a serious arrhythmia requiring further medical intervention.

Serious arrhythmias require therapeutic intervention

Treatment options pursued depend on the health risk posed by the arrhythmia. Common arrhythmias

may be corrected by simple lifestyle modifications, such as reducing caffeine intake, or with medications. More serious, life-threatening arrhythmias may be treated with ablation, implantable devices or surgery, such as Mini-Maze.

Ablative techniques for treating arrhythmia

Ablation can correct an arrhythmia by pinpointing the area of the heart that’s causing the abnormality. The American College of Cardiology recommends ablation as an alternative first line measure to pharmacological agents. This minimally invasive, non-surgical technique has a 90% success rate at Hoag, where electrophysiologists perform a high volume of these procedures annually.

Patients experiencing arrhythmias accompanied by the following symptoms may require immediate medical attention:

- > frequent heart palpitations
- > lightheadedness
- > fainting
- > chest pain
- > shortness of breath

During ablation, electrophysiology mapping is used to detect the source of the abnormal heart rhythm. Catheters with electrodes at the tips are advanced to a variety of locations within the heart. The electrophysiologist then uses the electrodes to stimulate the heart and induce an arrhythmia in order to determine the area of tissue causing the irregular heartbeat. Once located,

radiofrequency energy is delivered to destroy the abnormal tissue, thereby correcting the arrhythmia.

“Most patients are able to take advantage of this non-surgical option,” comments Dr. Hunter, who performs a high volume of ablative procedures at Hoag. “The results of this highly successful technique are life-changing, since it eradicates the arrhythmia, thereby eliminating the symptoms.”

Implantable devices

Serious arrhythmias may also be treated with an AICD (automatic implantable cardiac-defibrillator). The device continually monitors heart rhythm and when it detects an arrhythmia, it administers a shock to the heart to restore a normal function. “The AICD works 24-hours a day, seven days a week continually assessing and correcting heart rhythm,” Dr. Hunter adds. “We frequently implant these highly sophisticated devices in patients who are at high risk, and the results can be life saving.”

24-hour patient care via home-remote-monitoring

Located in Hoag Heart and Vascular Institute, the Arrhythmia Center operates 24/7, remotely monitoring patients with implantable devices and those outfitted with event monitors to detect suspected arrhythmias. When a patient’s Holter monitor or AICD detects a heart rhythm abnormality, Hoag’s specialized nursing staff intervenes and advises patients with potentially

lethal arrhythmias to seek immediate medical treatment.

Additionally, Hoag Anticoagulation Clinic serves an important role as a liaison between patients and physicians to help manage and monitor a patient's care throughout the duration of their treatment.

Case study

Mother died of sudden cardiac death as a result of Long QT Syndrome. Structural abnormalities in the potassium channels of the heart inhibit proper transmission of electrical impulses throughout the heart, which predispose affected persons to an accelerated rhythm. Long QT is usually inherited, yet if detected early, may be prevented. Three daughters tested for Long QT, two of which inherited the disease. Both women received implantable defibrillators in August of 2005, preventing a potentially life threatening arrhythmia.

To Refer a Patient

To refer a patient or for more information on arrhythmia treatment at Hoag Hospital please call 949/764-5741.



Hoag Memorial Hospital Presbyterian
 One Hoag Drive
 PO BOX 6100
 Newport Beach CA 92658-6100
 949/764-HOAG (4624)
www.hoaghospital.org