UCSD uses heat energy to fix odd heart beat

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Gregory Feld, MD

(Medical Xpress) -- UC San Diego Sulpizio Cardiovascular Center is now offering patients with atrial fibrillation the breakthrough benefits of heat energy, or radio frequency waves, to irreversibly alter heart tissue that triggers an abnormal heart rhythm or arrhythmia. The THERMOCOOL SF Catheter is an FDA-approved outpatient procedure for an early-stage form of the condition called paroxysmal atrial fibrillation, when recurring symptoms are unresponsive to medicine. Patients typically experience rapid heartbeats that can lead to debilitating fatigue, dizziness, fainting or shortness of breath if left untreated.

“Atrial fibrillation has a devastating impact on more than 2.7 million Americans, yet for many patients unresponsive to medication, traditional treatment options are limited,” said Gregory Feld, MD, professor of medicine at University of California, San Diego and Director of the Cardiac Electrophysiology Program at UC San Diego Sulpizio Cardiovascular Center. “This catheter ablation technology is the latest treatment alternative for patients dealing with the disabling effects of cardiac arrhythmias, such as paroxysmal atrial fibrillation. This is a viable option for patients who do not benefit from their first medication.”

Atrial fibrillation causes the upper heart chambers to beat rapidly and uncontrollably, and is characterized by disorganized electrical activity in the heart. This results in an irregular pulse, and sometimes a “fluttering” feeling in the chest. An episode can last just seconds, or occur for minutes, hours or even days. Paroxysmal atrial fibrillation is an early-stage form of the condition, where episodes occur repeatedly but stop on their own, often in a few hours or less.

Performed by an electrophysiologist (EP), catheter ablation is a non-surgical procedure that addresses the underlying cause of arrhythmias. In real time, the clinician first pinpoints the source of irregular electrical activity using a 3-D mapping system, similar to a GPS device in your car. Guided by this map, the clinician directs a specialized catheter through the heart to the source of the abnormal electrical impulses. A small electrode in the tip of the catheter generates radio frequency waves that have enough heat to alter targeted areas of heart tissue. This process blocks the electrical impulses that can cause heart rhythm disorders.

Unlike traditional catheter technologies, the THERMOCOOL SF catheter uniformly delivers a cooling saline solution through the catheter, allowing for cooling of the entire catheter tip. Thus, the tip temperature does not rise significantly during ablation, which reduces the risk for

clotting, and enhances treatment safety.

This outpatient procedure takes approximately two-to-four hours, with some patients returning home the next day. The result is either a long-term reduction in the number of arrhythmias experienced and the severity of symptoms, or a permanent return to a more normal heart rhythm.

Atrial fibrillation is growing in prevelance. Up to 12 million Americans will have the condition by 2050. While not life-threatening, atrial fibrillation is a leading cause of stroke among people 65 years and older.

Provided by University of California - San Diego