

Robot Aids Treatment of Irregular Heartbeat at UC San Diego Medical Center

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Patients seeking treatment for atrial fibrillation, an irregular heart beat, may benefit from a new technology now available at UC San Diego Medical Center. Gregory Feld, MD, professor of medicine at UC San Diego's School of Medicine and director of the cardiac electrophysiology program, is utilizing the steady arm of a robotic system to help "short circuit" the abnormal electrical activity in the heart that causes atrial fibrillation.

More than 2.2 million Americans suffer from the "quivering" sensation of atrial fibrillation, a common condition in which the upper chambers or "atria" of the heart beat in a rapid, irregular manner, out of sync with the lower chambers. It is most often treated through an ablation process, performed under general anesthesia, which introduces a thin tube, or catheter, through a blood vessel in the leg and up into to the heart. Electrodes on the catheter then record the heart's electrical signals to locate the abnormality.

"The robotic system aids in the precision of the ablation treatment for atrial fibrillation to within one to two millimeters of accuracy," said Feld, a nationally recognized expert in the treatment of heart arrhythmias. "Combined with software that creates a three-dimensional map of the heart, this new technology offers greater stability, reduces exposure to x-rays, and shortens the overall procedure time - good news for patients and doctors."

The system, made by the Hansen Medical, is operated by a three-dimensional joystick, much like a computer game. "The range of motion is greater than with manual technology, allowing me to navigate hard-to-reach cardiac anatomy," said Feld who has performed these delicate procedures for more than 20 years.

Once the catheter is positioned using the robotic system, Feld transmits radiowaves through the tip of the catheter. The radio waves cauterize select areas of heart tissue, causing the irregular heart beat to stop and return to normal rhythm. Up to 85% percent of arrhythmias can be cured with this procedure, although some patients require more than one procedure to achieve such high cure rates. The system does not use a magnetic field so there are no restrictions with patients who have implanted medical devices.

"Patients with atrial fibrillation may experience heart rates in excess of 200 beats per minute," said Feld. He added that the likelihood of developing atrial fibrillation greatly increases with age. "Up to five percent of people over age 65 may be diagnosed with atrial fibrillation. By the time you're 80, there is a ten percent chance you will experience this condition."

Atrial fibrillation may cause symptoms such as heart palpitations, dizziness, sweating, chest pain, shortness of breath and, rarely, heart failure. In some cases, blood may pool in the heart and form a clot. If dislodged, the clot can travel to the brain causing a stroke.

Feld is a Fellow of the American College of Cardiology, Member of the American Heart Association, Fellow of the Heart Rhythm Society, and is currently Associate Editor of the Journal of the American College of Cardiology.

For patients seeking more information about the electrophysiology program at UC San Diego Medical Center, please call 800-926-UCSD.

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