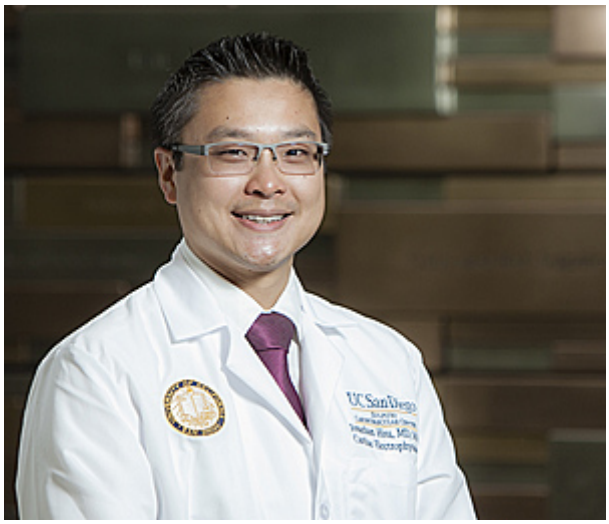
UC San Diego Health

New Heart Monitoring Device Size of Paper Clip

By Michelle Brubaker | April 07, 2014

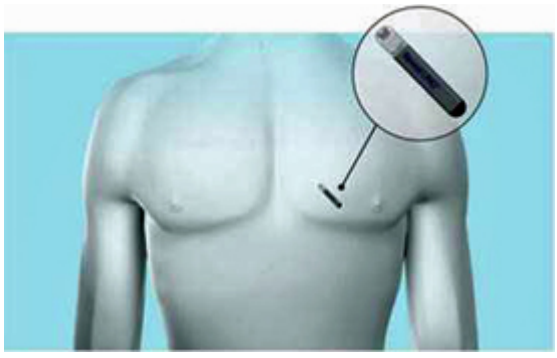
UC San Diego Health is the first University of California hospital to implant a micro-sized cardiac monitoring device that will help diagnose the hardest-to-detect cardiac arrhythmias.

The Medtronic Reveal LINQ device is approximately one-third the size of an AAA battery, making it more than 80 percent smaller than other implantable heart monitoring devices.



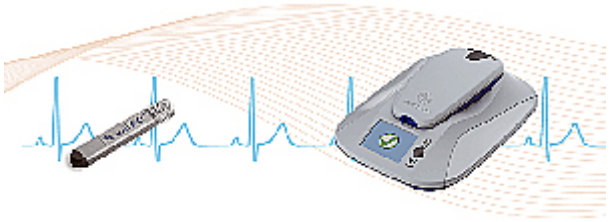
"Although small, this device is part of a powerful system that allows physicians to wirelessly monitor a patient's heart for up to three years, perhaps longer, " said Jonathan Hsu, MD, with the UC San Diego Sulpizio Cardiovascular Center. "It's like having a mobile electrocardiogram (EKG) everywhere you go that can record abnormal heart rhythms as they occur for later review."

The device is implanted just under the skin in the upper chest area using a small incision, taking less than five minutes from start to finish and eliminating the need for sedative medication. Current cardiac monitoring devices may take up to 15 minutes or longer to implant. Patients with a heart arrhythmia, palpitations or those with numerous fainting episodes for unknown reasons are candidates for the device.



Cardiac arrhythmias are disruptions in the rate or rhythm of the heart's electrical system and can affect how the heart contracts and pumps blood. The most common type of heart arrhythmia is called AFib (atrial fibrillation) and affects about 2.7 million Americans. The condition can cause blood clots to form in the heart, which can then migrate to the brain, blocking a blood vessel and causing a stroke. The new implantable loop recorder has the potential to diagnose more patients with AFib who may not know they have the condition.

"AFib can be a serious and even fatal condition, so it is important to detect it and manage all risk factors for stroke," said Hsu.



An external wand is waved over the area the device is implanted to determine if there was a heart rhythm abnormality during a symptomatic event. The system also includes a bedside monitor for at-home service with wireless capabilities not currently available with standard heart monitoring devices.

Hsu recently implanted the device for the first time in a patient who experienced several fainting episodes. After close monitoring, the technology showed that the cause of the patient's episodes did not appear related to a heart arrhythmia.

"Finding out his heart was not a cause of passing out is information just as valuable as discovering it was a contributing factor," said Hsu. "Even though the patient is not showing signs of a heart condition at this time, the device is already implanted and will detect a heart issue should one occur in the future."

Due to its size, Hsu says it is very difficult for patients to feel the device under their skin, which is a frequent complaint with current heart monitoring devices and is sometimes a barrier for patients who may need such a device. The LINQ cardiac monitoring system is also magnetic resonance imaging (MRI) conditional, allowing patients with the implanted device to undergo an MRI procedure if needed.

Hsu adds that, with more research and technological advancements, he believes heart monitoring devices could eventually be used for more arrhythmia indications and may even be implanted at the patient's bedside instead of an operating room.

"It's exciting to be part of this innovative technology and to see the benefits both to the patient and cardiologist," said Hsu.

UC San Diego Health's renowned electrophysiology program performs one of the largest volumes of device implantations, ablations and laser lead extractions in the nation. More information about cardiac arrhythmia treatment at UC San Diego Sulpizio Cardiovascular Center.

Related Specialties

Cardiovascular Medicine
