Implanted monitor accurately detects heart rhythm disturbances

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(PhysOrg.com) -- Doctors soon may be able to more accurately monitor heart rhythm disturbances and gauge the severity of atrial fibrillation (AF) with a new algorithm used in the Reveal XT leadless implantable heart monitor, according to research reported in *Circulation: Arrhythmia and Electrophysiology*, a journal of the American Heart Association.

“Patients with atrial fibrillation may be at significant risk for severe cardiovascular events due to the presence of the arrhythmia,” said the study’s lead author, Gerhard Hindricks, M.D., Ph.D., who is also a professor at the Heart Center of the University of Leipzig in Germany. Detecting AF — and adequately treating it — is crucial, Hindricks said, because patients often don’t have symptoms.

Some 2.2 million Americans have AF, in which the heart’s two upper chambers - the atria - quiver instead of beating effectively. Blood isn’t completely pumped out of them, so it may pool and clot, raising the risk of stroke. Roughly one in seven strokes occur in people with AF, according to American Heart Association statistics.

In the study, 247 patients suspected of having sporadic irregular heart rhythms were implanted with the Reveal XT monitor and outfitted with a Holter monitor. This allowed researchers to compare heartbeats recorded by each monitor for the 46-hour study period. The Reveal XT monitor, which is the size of a camera’s memory stick, was inserted just under a patient’s skin using local anesthesia. A Holter monitor is commonly used to detect AF. It has wires attached to the chest and is

worn on the waist much like a music player.

The study enrolled patients from 24 medical centers, mainly in Europe and Canada. Patients had an average age of 57, and 67 percent were men. About 10 percent had a history of stroke or transient ischemic attack.

The researchers found that the new computation method with the Reveal monitor was highly sensitive, correctly detecting AF in 96.1 percent of all patients with AF.

“Even with repetitive, seven-day Holter monitoring, atrial fibrillation may not be detected in a significant number of patients,” said Hindricks. He expects the new device to be used as a way to assess treatment of patients. “Only continuous long-term rhythm monitoring will be able to precisely define the rhythm outcome or efficacy of such treatment,” he said.

Hindricks added that further studies are needed to determine the longer-term accuracy of the Reveal monitor. “The device has a limited data storage capacity (49.5 minutes of data), and this may be a limitation during longer follow-up periods - especially since the presence of false positive episodes may exceed the storage capacity in some patients. Thus, long-term performance and validation studies are needed to find the optimal way of handling the device.”

Provided by American Heart Association