

# 'Smart' pacemaker can help slow heart keep up, avoid damage

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A new generation pacemaker that paces only when rhythm disturbances occur can reduce the risk of permanent abnormal heart rhythms in people with a slow heart rate, according to late-breaking research presented at the American Heart Association's Scientific Sessions 2013.

Standard [pacemakers](#) pace continually to regulate the [heart's](#) rhythm and can help prevent or delay the onset of permanent heart damage or rhythm disturbances in people with bradycardia, a condition in which the heart beats fewer than 60 beats per minute (normal heart rate is 60-100 beats per minute).

A common complication of bradycardia is irregular or rapid beating in the heart's upper chambers.

Researchers assessed new pacing strategies to avoid the side effects of continual electrical stimulation from standard pacemakers, such as the heart's main pumping chamber weakening and rhythm abnormalities converting to permanent atrial fibrillation.

Atrial fibrillation is an irregular heartbeat that causes the heart to quiver like a bowl of jello.

The Atrial Antitachycardia Pacing And Managed Ventricular Pacing Reduce The Endpoint Composed By Death, Cardiovascular Hospitalizations And Permanent Atrial Fibrillation Compared To Conventional Dual Chamber Pacing In Bradycardia Patients

(MINERVA) study included 1,166 [patients](#) in medical centers in Europe, the Middle East and Asia who received single chamber or dual antitachycardia devices with smart pace-making technology or dual chamber pacemakers without it. All patients had a history of atrial fibrillation and/or atrial tachycardia and had recently received a pacemaker for bradycardia.

Researchers found:

- The incidence of permanent atrial tachyarrhythmia or atrial fibrillation was 3.8 percent in the dual chamber smart pacemaker group versus 9.2 percent in dual chamber patients without smart algorithms.
- Over the next two years, 15.2 percent of those with smart pacemakers were hospitalized and 4.6 percent died, compared to 16.8 percent hospitalizations and 5.6 percent deaths for those without smart pacemakers.
- Patients with smart pacemakers reported better quality of life and less fatigue.

"This is the first study to demonstrate that this suite of algorithms can significantly reduce the progression of atrial tachyarrhythmias or [atrial fibrillation](#) into permanent disturbances and the associated risk of death and hospitalizations," said Giuseppe Boriani, M.D., Ph.D., a professor at the Institute of Cardiology, University of Bologna, Italy. "If applied to all patients requiring pacemakers, the benefits could help many thousands of patients in every country.

**More information:** Read the full study: [sbhci.org.br/wp-content/upload ... /2013/11/MINERVA.pdf](http://sbhci.org.br/wp-content/upload.../2013/11/MINERVA.pdf)

Provided by American Heart Association

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