

## Type of Exercise-Induced Arrhythmia on Exercise Test and Risk for Death

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The full report is titled “Association of Electrocardiographic Morphology of Exercise-Induced Ventricular Arrhythmia with Mortality in Patients Referred for Exercise Testing.” It is in the 7 October 2008 issue of *Annals of Internal Medicine* (volume 149, pages 451-460). The authors are R.E. Eckart, M.E. Field, T.W. Hruczkowski, D.E. Forman, S. Dorbala, M.F. Di Carli, C.E. Albert, W.H. Maisel, L.M. Epstein, and W.G. Stevenson.

### What is the problem and what is known about it so far?

An exercise treadmill test or “stress test” examines the heart’s electrical activity while the patient is exercising. Exercise-induced ventricular arrhythmias (EIVAs) are abnormal heartbeats that are triggered by exercise. Some studies show that patients with EIVA during exercise testing are at higher risk for bad outcomes, such as death, than are patients without EIVA. However, not all studies have shown this relationship between EIVA and bad outcomes. Exercise-induced ventricular arrhythmia can occur with a type of electrical abnormality called *right bundle-branch block* (RBBB), with left bundle-branch block (LBBB), or with both types of abnormality.

### Why did the researchers do this particular study?

To see whether patient outcome was related to type of EIVA.

### Who was studied?

Patients who had an exercise treadmill test at Brigham and Women’s Hospital, Boston, Massachusetts, between January 2001 and March 2006.

### How was the study done?

The researchers determined the type of EIVA (RBBB, LBBB, or both) in 585 patients with EIVA. They then compared how many deaths occurred from the time of testing until the end of the study (about 2 years on average) in these 585 patients and in 2340 patients of similar age and sex and with similar risk factors for heart disease but no EIVA.

### What did the researchers find?

Death was more common in patients with EIVA (about 5 of every 100 patients died) than in patients without EIVA (fewer than 2 of every 100 patients died). However, when the researchers separated out patients with different types of EIVA, only patients with RBBB EIVA were more likely to die (about 7 of 100 died) than patients without EIVA. Patients with LBBB EIVA had similar risk for death as that in patients with no EIVA.

### What were the limitations of the study?

Information on other factors that contribute to bad outcomes was limited.

### What are the implications of the study?

Not all EIVA is associated with bad outcomes. Patients with LBBB EIVA have outcomes similar to those of patients without EIVA.

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