

Heart electrical conduction abnormality believed not to be serious may pose cardiovascular risks

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New research indicates that a finding on a routine electrocardiogram that signals a disorder of the electrical conducting system in one part of the heart and previously believed to be benign is associated with an increased risk for atrial fibrillation, the implantation of a pacemaker or death, according to a study in the June 24 issue of *JAMA*.

Prolongation of the electrocardiographic PR interval, also known as first-degree atrioventricular block (AVB) when the PR interval exceeds 200 milliseconds, represents delayed conduction of electrical impulses from the atria to the ventricles. It is frequently encountered in clinical practice. For patients who are not hospitalized, first-degree AVB typically occurs in the absence of cardiovascular disease. "The clinical significance of first-degree AVB in this setting is unclear. Several prior studies suggest that first-degree AVB has a benign prognosis, although these studies were based on young, healthy men in the military," the authors write.

Susan Cheng, M.D., of the Framingham [Heart](#) Study, Framingham, Mass., and colleagues examined the prognosis associated with first-degree AVB. The study included 7,575 individuals (average age, 47 years; 54 percent women) from the community-based Framingham Heart Study who underwent electrocardiography between 1968-1974, with follow-up through 2007. During the follow-up period, 481 participants developed [atrial fibrillation](#) (AF), 124 required implantation

of a pacemaker, and 1,739 died.

The researchers found that individuals with first-degree AVB had an increased risk of future AF (approximately 2-fold), pacemaker implantation (approximately 3-fold) and moderately (1.4-fold) increased risk of all-cause death, compared with individuals without first-degree AVB. After adjustment for conventional risk factors, the PR interval was a significant predictor of all 3 outcomes. Each 20-millisecond increment in the PR interval was associated with an increased risk for AF, pacemaker implantation, and all-cause death.

"The validity of these findings is supported by the large, community-based sample, the routine surveillance of all participants for cardiovascular outcomes, and the long period of follow-up," the authors write. "These results suggest that the natural history of first-degree AVB is not as benign as previously believed. Additional studies are needed to determine appropriate follow-up for individuals found to have prolongation of the PR interval on a routine [electrocardiogram](#)."

More information: *JAMA*. 2009;301[24]:2571-2577.

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