

Women suffering sudden cardiac arrest have lower prevalence of structural heart disease than men

November 17 2009

A woman who suffers sudden cardiac arrest is significantly less likely than a man to exhibit the decrease in the heart's pumping ability that is widely recognized as a precursor, says a new study in the Nov. 24 *Journal of the American College of Cardiology*.

The lack of left ventricular dysfunction could mean that fewer women meet current medical guidelines for implantable cardiac defibrillators that can prevent sudden [cardiac arrest](#), says the study's lead researcher.

"If 100 men have a sudden death [heart attack](#), 40 of them will show a critical decrease in their heart's pumping function prior to their heart attack," said Sumeet S. Chugh, M.D., associate director of the Cedars-Sinai Heart Institute and holder of The Pauline and Harold Price Chair in Cardiac Electrophysiology Research. "But only 20 women of 100 will have that critically reduced pumping ability. We are able to predict sudden cardiac death in men much better than women, and for a condition that has a 95 percent chance of instantaneous death, prediction is everything."

The study also found that among sudden cardiac arrest victims, far fewer women than men had an established diagnosis of coronary artery disease. The reasons remain to be clarified, but coronary artery disease is the condition most commonly associated with sudden cardiac arrest, and symptoms of heart disease often prompt patients to see their doctors and

initiate testing and therapy. The authors suggest, therefore, that the lower prevalence of recognized coronary artery disease may be another barrier impeding women from discovering their risk of sudden cardiac arrest and taking preventive steps.

"Men and women have been treated identically for the prevention of sudden cardiac death," Chugh said. "We cannot continue to do that. We need to find novel ways of predicting sudden cardiac death in women because the predictors used so far are more applicable to men."

Unlike heart attacks (myocardial infarction), which are typically caused by clogged coronary arteries reducing blood flow to the heart muscle, sudden cardiac arrest is the result of defective electrical activity of the heart. Patients may have little or no warning, and the disorder usually causes nearly instantaneous death.

Chugh leads the Oregon Sudden Unexpected Death Study, a comprehensive, 16-hospital, multi-year assessment of cardiac deaths in the 1 million population Portland, Ore. metropolitan area. Funded in part by the National Heart Lung and Blood Institute, the study's goal is to shed light on the risk factors, triggers and genetic defects associated with sudden cardiac death.

The new findings are based on 1,568 cases of sudden cardiac arrest identified from 2002 to 2007, with 1,012 male and 556 female subjects. Medical records were available on 1,258 cases (80 percent of the men and 81 percent of the women). Among the findings:

- Women were older at the time of the event (average age: 71) than men (average age: 65).
- Women were slightly more likely than men (25 percent to 21

percent) to be successfully revived (return of spontaneous circulation) when resuscitation efforts could be attempted.

- There were no significant differences related to gender for a variety of health issues, including obesity, blood cholesterol and triglycerides, and history of heart attack (myocardial infarction) and heart failure (left ventricular hypertrophy).
- 40 percent of women had previously documented coronary artery disease, compared to about 50 percent of men.
- 21 percent of women had severe left ventricular dysfunction, compared to 36 percent of men.
- In analyses that controlled all variables to make more precise comparisons, women were half as likely as men to have severe left ventricular dysfunction and a third as likely to have previously diagnosed [coronary artery disease](#).

For patients at known risk for sudden cardiac arrest or other heart rhythm abnormalities, an implantable cardioverter-defibrillator (ICD) may be placed in the chest or abdomen to detect faulty electrical impulses and provide a shock to return normal rhythm.

The left ventricle's pumping ability is the major determinant of sudden cardiac arrest risk, and current guidelines call for patients to receive a device if left ventricular ejection fraction is measured at 35 percent or less. Previous studies have found that only 25 percent to 30 percent of sudden cardiac arrest events occur in patients with severely reduced left ventricular function.

"Under existing guidelines, we may be missing the opportunity to provide preventive intervention for 70 percent to 75 percent of people

who will experience sudden cardiac arrest," said Chugh. "Our new findings suggest this number could be even higher for women."

Source: Cedars-Sinai Medical Center

Citation: Women suffering sudden cardiac arrest have lower prevalence of structural heart disease than men (2009, November 17) retrieved 25 April 2024 from <https://medicalxpress.com/news/2009-11-women-sudden-cardiac-prevalence-heart.html>

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