

Risk factors exposed for sudden cardiac death in post-menopausal women with coronary artery disease

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A new study from the Perelman School of Medicine at the University of Pennsylvania indicates that post-menopausal women with coronary artery disease and other risk factors are at an increased risk for sudden cardiac death (SCD).

"Until now, there has been very little data about SCD risk in women with existing [cardiovascular conditions](#). Our research has revealed an important subset of women who are at an increased risk for SCD," said Rajat Deo, MD, assistant professor of Medicine, Cardiovascular Division, at the Perelman School of Medicine, and the study's lead author. "We have identified a series of clinical [risk factors](#) that may eventually help clinicians better counsel women on how to manage their overall health to avoid SCD."

Over 250,000 people in the U.S. die each year from SCD, an unexpected death due to cardiac causes occurring in a short time period (generally within 1 hour of symptom onset). Most SCD cases occur in the general population or among individuals without advanced cardiovascular disease, so it is often very difficult to predict who is at-risk.

In the current study, researchers from the Perelman School of Medicine and University of California, San Francisco, analyzed data from the Heart and Estrogen/Progestin Replacement Study (HERS), which originally evaluated the effects of hormone replacement therapy on

cardiovascular events among 2,763 [postmenopausal women](#) with [coronary artery disease](#) (CAD). The new analysis revealed that [sudden cardiac death](#) made up 54 percent of the cardiac-related deaths in these patients and over a quarter of all deaths in the entire study.

"Coronary [artery disease](#) is common among both men and women in the United States. The finding that SCD comprised the majority of cardiovascular deaths and over a quarter of all deaths in this group of women with CAD is remarkable and higher than we would have expected," said Dr. Deo. "In addition, most of these women would not have been identified as high risk using current methods for SCD risk stratification."

Currently, the only established predictor for SCD is to evaluate the heart's pumping capacity in the left ventricle by measuring what's called the "ejection fraction." This refers to the percentage of blood that's pumped out of the left ventricle with each heartbeat. However, recent studies have shown that less than one-third of people who experience SCD would have been identified by this clinical test.

Dr. Deo and colleagues also analyzed a series of baseline characteristics in the HERS cohort to evaluate potential risk factors for SCD. They determined that previous heart attack, heart failure, atrial fibrillation, physical inactivity, diabetes, and reduced kidney function were all closely associated with the SCD deaths in the HERS cohort. Women with at least three of the risk factors were at a ten-fold greater risk of SCD than women with none of the risk factors.

"Our findings show that a simple assessment of clinical risk factors has a better predictive value for SCD than currently available clinical measurements alone," said Dr. Deo. "Using the two methods together provided the most complete picture of SCD in the patients we studied."

The researchers conclude that taken together, the results of their current research may help clinicians better counsel their patients on the modifiable risk factors, such as controlling diabetes and participating in regular exercise. They suggest that future research is needed in a larger cohort of patients to validate the use of the risk factors and help understand how they can best be used in clinical practice.

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Provided by University of Pennsylvania School of Medicine

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