

Three landmark heart studies shed light on sudden cardiac arrest

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3D Model of the heart by Dr. Matthew Bramlet. Credit: NIH

Today, at the American Heart Association Scientific Sessions, the research group led by Sumeet Chugh, MD, professor of Medicine and associate director of the Smidt Heart Institute, presented three critical

research studies aimed at better understanding sudden cardiac arrest.

"These research studies provide clues into some of the toughest questions in [cardiac care](#)," said Chugh, the Pauline and Harold Price Chair in Cardiac Electrophysiology Research. "These findings help us move closer to understanding who is at highest risk of sudden cardiac arrest."

The three studies presented today all establish connections between sudden cardiac arrest and specific health conditions:

- **An Association Between Multiple Sclerosis and Sudden Cardiac Death**—Investigators found [patients](#) with multiple sclerosis have a five-fold higher incidence of sudden cardiac arrest over the general U.S. population. This observational study evaluated clinical characteristics of individuals who suffered cardiac arrest in the community. While the reasons for this finding need to be investigated, the brain has established links with [heart](#) function and could be influencing electrical function of the heart.
- **Enhancement of Sudden Death Risk Prediction in Patients With Left Ventricular Hypertrophy**—Patients with [left ventricular hypertrophy](#) (LVH) also have a higher risk of sudden cardiac arrest, but until now, researchers have been unable to identify which patients are at highest risk. Using a novel electrocardiography risk score, Chugh and his research team can better identify patients with intermediate or high-risk LVH. They plan to test their findings in a larger group of patients.
- **Does Left Ventricular Hypertrophy Explain the Increased Sudden Death Risk in Obesity?** —Obesity is a known risk factor of sudden cardiac arrest, as is LVH. This research study aimed to find if a correlation exists between obesity and LVH, or if they are independent of one another. Chugh's research suggests that both are independent predictors of sudden cardiac arrest and

each have their own deadly properties. Next steps are to understand if being both obese and having LVH doubles the risk of sudden cardiac arrest.

All of the above data comes from the [Oregon Sudden Unexpected Death Study](#), a comprehensive, 16-hospital, multiyear assessment of [cardiac deaths](#) in the 1 million population of the Portland, Oregon, metropolitan area. Led by Chugh, the project—now ongoing for more than 15 years—provides researchers with unique, community-based information to help determine the causes of sudden cardiac arrest.

Although "sudden cardiac arrest" and "heart attack" often are used interchangeably, the terms are not synonymous. Unlike heart attacks (myocardial infarctions), 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 instantaneous [death](#). Sudden cardiac arrest accounts for approximately 300,000 deaths each year in the U.S.

Provided by Cedars-Sinai Medical Center

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