Medical Xpress

Are people with HIV/AIDS more prone to sudden cardiac death?

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What is the connection, if any, between sudden cardiac death and people with HIV/AIDS? And can that knowledge help prolong their lives?

In a comprehensive, 10-year UCSF study, researchers found patients with HIV/AIDS suffered sudden cardiac death at a rate four times higher than the general population.

"As part of my ongoing research in 2010, we were looking at every instance of sudden death in San Francisco," said first author Zian H. Tseng, MD, an electrophysiologist and an associate professor of medicine in the UCSF Division of Cardiology. "I noticed that many of these cases involved individuals with HIV infection who were dying suddenly. I wondered if there was some sort of connection there."

He posed this question to Priscilla Hsue, MD, a UCSF associate professor of medicine and the director of the HIV Cardiology Clinic at San Francisco General Hospital and Trauma Center (SFGH), who is one of a few cardiologists in the country who specializes in HIV. To her knowledge, no one had ever explored the link between HIV and sudden death, and that is when they began collaborating on this research.

In a paper scheduled to be published May 15 in the *Journal of the American College of Cardiology*, Tseng, Hsue and other researchers conducted a retrospective study of 2,860 HIV patients from April 2000 to August 2009 at SFGH's Ward 86, the first HIV/AIDS-specialized clinic, to comprehensively characterize all deaths. They studied medical

records, death certificates, paramedic reports, and interviews with family members, doctors, and other clinicians.

Sudden Cardiac Death and HIV/AIDS

During that period, eight percent died during an average of 3.7 years of follow up. Cardiac-related deaths accounted for 15 percent of overall mortality. Of that group, 86 percent died of sudden cardiac death.

"To put that in context, we're able to compare the rate of sudden death in this population with the overall San Francisco population," Tseng said. "So adjusted for age, race, demographics, and other variables, the rate of sudden death in the HIV population is more than four times higher than the general population."

"The fact that the vast majority of cardiac deaths were sudden is surprising and implies that we as clinicians need to be aware of this potential health issue among patients with HIV," Hsue added. "Our findings also highlight many things that we still don't know about HIV and sudden death. Did these individuals die of unrecognized coronary artery disease? What can we be doing as clinicians to identify patients at risk and to intervene beforehand?"

Categorizing Sudden Cardiac Death

By 2003, sudden cardiac death made up the largest number of non-AIDS deaths among HIV-positive patients in San Francisco. These deaths were largely among individuals with evidence of well-controlled HIV disease.

Researchers used well-published criteria for retrospectively identifying death as either HIV-related or sudden death-related. If there was any doubt, they classified sudden death as an HIV death.

"In other words, for someone with a CD4 (T-cell) count less than 50 who died suddenly, we classified that as an HIV death, rather than a sudden death because of the profound immunodeficiency," Tseng said.

More than 17,000 people with AIDS died in 2009 worldwide, and more than 619,000 people have died since the epidemic began. Still, the number of people living with HIV continues to rise. More than 1.2 million people in the United States are HIV-positive, according to the U.S. Department of Health & Human Services.

"Now that HIV-infected individuals are living longer with the benefit of antiretroviral therapy, non-AIDS conditions are becoming increasingly important and at the top of this list is cardiovascular disease," Hsue said.

Researchers believe HIV changes the electrophysiology of the heart in a way so pronounced that it causes conduction abnormalities. And many HIV medications can throw off the heart's electrical cycle by prolonging the QT interval, which increases the risk of sudden death. These and other variables could be contributing factors.

"Acknowledging the limitations of a retrospective analysis, what's exciting about this study is that it opens up many related questions we can ask in future studies, such as which high-risk patients might benefit from defibrillator implantation?" Tseng said.

Tseng is in the middle of a prospective citywide study on sudden cardiac death, including studying HIV patients and monitoring their progress.

Provided by University of California, San Francisco

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