Heart Disease or Overdose? Untangling Causes of Death for People With HIV

A new study suggests that many deaths among HIV-positive people may be misclassified.

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A new analysis published in The New England Journal of Medicine shows San Franciscans living with HIV were twice as likely to die of sudden cardiac death than their peers without HIV. And one in three of those deaths were actually caused by drug overdoses.

These deaths were not the result of a simple blockage of blood vessels to the heart, a common cause of heart attacks. Instead, these were sudden, unexpected deaths arising from electrical malfunctions in the heart, often in people with no history of heart problems.

In this study, Zian Tseng, MD, a cardiac electrophysiologist at the University of California, San Francisco, and colleagues performed autopsies on out-of-hospital deaths of people with cardiac symptoms, including blood tests designed to ascertain the actual cause of death, rather than making an assumption based on symptoms. Previous results from this study showed that half of all deaths attributed to heart disease were the result of other causes.

Between 2011 and 2014, a total of 610 people with HIV ages 18 to 90 died unexpectedly of any cause in San Francisco. Of these deaths, 109 resulted from out-of-hospital cardiac arrest. Cause of death is usually determined by health care workers or paramedics at the scene of the death. The study provides no data on whether the people who died of cardiac arrest were on antiretroviral treatment or what other conditions they had. However, they were not in hospice care or considered to have end-stage disease, and they had no medical record of having recently received a serious diagnosis.

After reviewing medical records and conducting autopsies for all but one of the cases, Tseng and colleagues determined that 48 cases met the criteria for sudden cardiac death. But fewer than half of those (22 of 48) were the result of heart arrhythmia, or erratic heart beats. Arrhythmia is the cause of death most closely associated with conventional cardiac problems, like coronary artery disease or damaged or enlarged hearts.

Another 16 deaths (34%) among people with HIV were actually the result of drug overdose, toxicology tests showed. In comparison, 13% of presumed sudden cardiac deaths among HIV-negative people were found to be due to drug overdose.

What's more, people with HIV were more likely to have cardiac fibrosis—scarring of the heart tissue as the result of previous damage—than those who were HIV negative.

Overall, there were 53 sudden cardiac deaths per 100,000 person years among HIV-positive people compared with 24 among HIV-negative people—more than double the rate. And looking only at sudden death associated with arrhythmia, people with HIV were 87% more likely to have that as a cause of death.

"I would hypothesize that this fibrosis likely represents a systemic impact of chronic HIV infection," co-investigator Priscilla Hsue, MD, chief of cardiology at Zuckerberg San Francisco General Hospital, said in a press release. "Therapeutic strategies to reduce fibrosis will be an important area of investigation going forward."

Click here to read the study abstract or press release.

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