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Risks for Sudden Cardiac and Undetermined Cause of Death Among People with HIV in the REPRIEVE Primary Cardiovascular Prevention Trial

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Background

People with HIV (PWH) are more than twice as likely to experience a sudden death due to a heart problem (sudden cardiac death, SCD) compared to those without HIV. However, the reasons behind this increased risk are not well understood, limiting the effectiveness of strategies to prevent SCD.

Goals of the Study

The goal of the study was to identify risk factors associated with SCD and deaths with an unknown cause (undetermined deaths, UDD) among REPRIEVE participants. Participants did not have known heart disease at entry into the REPRIEVE study and underwent an electrocardiogram (ECG), a test that measures the electrical signals of the heart and can identify signs of a heart problem. We wanted to explore whether traditional heart disease risk factors (reflected in higher heart disease risk scores), HIV-specific risk factors, and ECG findings could distinguish between SCD and UDD.

REPRIEVE enrolled PWH between ages 40-75 with low-to-moderate traditional heart disease risk, randomized these participants to a statin medication called pitavastatin or to placebo (a pill that contains no medication), and followed these participants for, on average, 5 years, to see if they developed heart disease events like a heart attack or stroke. Main findings from REPRIEVE were that [statin therapy reduced heart disease events among PWH by 36%](#), prompting guideline changes recommending statin use in adults with HIV.

➤ The participants:

- 7,769 REPRIEVE participants (3,888 taking pitavastatin, 3,881 taking placebo)
 - Low-to-moderate traditional heart disease risk
 - Median age at enrollment: 50 years
 - Median follow up time: 5.6 years
 - 2,419 (31%) women and 5,350 (69%) men
 - 25 participants experienced SCD and 53 participants experienced UDD

The Findings:

- Participants with SCD had higher heart disease risk scores at study entry when compared to those with UDD or neither outcome.
- Major ECG abnormalities (e.g. a serious, abnormal heart rhythm) at study entry significantly increased the risk for SCD.
- Substance use and detectable HIV viral load were associated with increased risk of UDD, but not SCD.
- QTc prolongation on the ECG was significantly associated with UDD. QTc prolongation occurs when the heart takes longer than normal to recharge between heartbeats.
- Major ECG abnormalities were uncommon, which suggests that routine ECG screening for SCD risk may not be necessary in all PWH.

In Summary: Among participants in the REPRIEVE cohort of PWH, although SCD was uncommon, risk factors for SCD included having a higher heart disease risk score and major ECG abnormalities which could be signs of underlying structural heart disease. In contrast, UDDs were associated with behavioral and HIV-specific factors. These findings suggest targeted, rather than routine, screening strategies may be most effective for reducing the risk of SCD in this population.

REPRIEVE Trial Website: reprivetrial.org

The findings shared in this summary are from the REPRIEVE population at a specific point in time. These findings are descriptive and not intended to change clinical care. If you have questions about what you've read, please talk to members of the REPRIEVE study team at your local site or a health care provider