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Pericoronary Adipose Tissue Density, Inflammation, and Subclinical Coronary Artery Disease among people with HIV in the REPRIEVE cohort

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Background

People with HIV (PWH) experience an increased rate of heart disease than the general population. Researchers do not fully understand why this risk is higher, but they believe it could be related to both traditional heart disease risk factors, like smoking, and HIV-related factors, like inflammation (the body's response to infection). One method to understand inflammation and its effect on the blood vessels is by using CT scans of the blood vessels surrounding the heart to measure the density of pericoronary adipose tissue (PCAT). PCAT is fatty tissue around the coronary arteries, the vessels that supply blood to the heart.

Participants in this study were enrolled in the REPRIEVE Trial substudy. The REPRIEVE Trial is a global clinical research study which showed that treatment with a statin medication (cholesterol-lowering medication) helps prevent heart disease among PWH. U.S. REPRIEVE participants in the substudy underwent all REPRIEVE trial procedures, as well as CT scans of the blood vessels surrounding the heart and blood tests to measure blood levels of inflammation markers.

Goals of the Study

This study aimed to determine whether PCAT density was related to coronary plaque. We measured PCAT density in participants in the REPRIEVE substudy, then related PCAT density to measures of coronary plaque (fatty build-up in the coronary arteries), traditional heart disease risk factors, and inflammation. We also compared PCAT density in REPRIEVE participants with participants in the Framingham Heart Study (FHS), who were not known to have HIV.

➤ The participants:

- 727 REPRIEVE participants (464 matched in pairs with FHS participants)
 - Average age: 51
 - 119 (16%) female
 - 339 (47%) non-white
- Current smoker: 24%
- Body mass index: 27 kg/m²

➤ The findings:

- PCAT density was strongly related to coronary artery plaque in PWH, and this association was independent of traditional heart disease risk factors, body composition, and blood markers of immune activation.
- REPRIEVE participants had higher PCAT density than FHS participants even after controlling for other factors.

In Summary: Among PWH in the U.S., PCAT density was relatively high and was associated with coronary artery plaque. Future studies should consider PWH have increased PCAT density, whether PCAT density predicts a faster progression of coronary plaque over time, and the effect of statin therapy on PCAT density.

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