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Statin Effects on Pericoronary Adipose Tissue Density in People With HIV: Insights From the REPRIEVE Trial

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Background

In the REPRIEVE study, pitavastatin reduced the risk of major adverse cardiovascular events (like heart attack and stroke) and reduced fatty build up (noncalcified coronary artery plaque, NCP) in the blood vessels that supply the heart among PWH with low-to-moderate heart disease risk. The effects of pitavastatin on pericoronary adipose tissue (PCAT, fat surrounding the arteries that supply blood to the heart) and its relationship with the progression of plaque in the blood vessels and outcomes in people with HIV (PWH) remain poorly understood.

Goals of the Study

The goal of the study was to see if pitavastatin effects PCAT, evaluate changes in PCAT density over time, and find any associations between PCAT changes, plaque in the arteries supplying blood to the heart, and patient outcomes.

REPRIEVE enrolled PWH between ages 40-75 with low-to-moderate traditional heart disease risk, randomized these participants to a cholesterol-lowering medication called pitavastatin or to placebo (a pill that contains no medication). Participants were followed for, on average 5 years, for 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 PWH. U.S. REPRIEVE participants in the Mechanistic Substudy underwent computed tomography (CT) scans of the blood vessels surrounding the heart and blood tests measuring levels of plaque and PCAT.

➤ The participants:

- 753 REPRIEVE participants with complete baseline CT scans including PCAT measurement, 642 participants underwent follow-up CT scans 2 years after enrollment
 - Low-to-moderate traditional heart disease risk
 - Median age at enrollment: 51 years
 - 117 (16%) women and 599 (84%) men

The Findings:

- Baseline PCAT density was -87.7 ± 10.5 HU, increasing by 4.5 HU over 2 years.
- Pitavastatin prevented this increase in participants with high coronary artery disease burden.
- Greater PCAT density was associated with higher noncalcified plaque volume (soft plaque, composed of more fat) and reduced calcified plaque progression (hard plaque).
- Over a median of 6.3 years, 4.2% of patients died. PCAT density levels at study entry was independently associated with all-cause death, but not MACE.

In Summary: Among PWH with low-to-moderate heart disease risk in the REPRIEVE Mechanistic Substudy, PCAT density increases over time, but pitavastatin mitigates this in those with high coronary artery disease burden. PCAT density is associated with vulnerable plaque and all-cause death, supporting its potential as an imaging biomarker in PWH.

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