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Effect of Pitavastatin on Epigenetic Aging Biomarkers in People with HIV: Pilot Substudy of the REPRIEVE Trial

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Background

People with HIV (PWH) have a higher risk of heart disease and tend to age faster on a biological level. The REPRIEVE study showed that the cholesterol-lowering drug pitavastatin helped lower the risk of major heart disease events, like heart attack or stroke, in PWH who were already on HIV treatment with low-to-moderate heart disease risk. However, it's still unclear if taking statins like pitavastatin can slow down the aging process at the biological level.

Goals of the Study

The goal of the study was to see if pitavastatin could slow down biological markers of aging in a subset of people with HIV enrolled in the REPRIEVE Mechanistic Substudy. This subset of participants underwent epigenetics testing, which can estimate a person's biological age (e.g. the age of the cells that make up your body) for comparison with a person's chronological age (your age based on your date of birth). When a person's biological age is older than their chronological age, this is called biological age acceleration.

REPRIEVE enrolled PWH between ages 40-75 with low-to-moderate traditional heart disease risk, randomized these participants to 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. Participants in the REPRIEVE Mechanistic Substudy underwent computed tomography (CT) scans of the blood vessels surrounding the heart and blood tests measuring levels of inflammation markers and proteins.

➤ The participants:

- 99 REPRIEVE Epigenetics Substudy participants (65 taking pitavastatin, 34 taking placebo), all enrolled from the US
 - Low-to-moderate traditional heart disease risk
 - Median age at enrollment: 57 years
 - 19 (19%) women and 80 (81%) men

The Findings:

- All study participants demonstrated biological age acceleration
- The average biological age acceleration was 7.08 years at entry into the study
- Increases in biological age acceleration were most prominent among males, current smokers, and those with higher heart disease risk among others
- The biological pace of aging as measured by DunedinPace, a blood test that measures markers of genetic aging, was unchanged in those with pitavastatin treatment but was increasing in those with placebo

In Summary: Among a subset of US PWH with low-to-moderate heart disease risk in the REPRIEVE Mechanistic Substudy, biological age acceleration was seen at entry into the study. The biological pace of aging increased over 24 months in the placebo group as compared to the group receiving statin treatment. These findings suggest that pitavastatin may prevent an increase in the pace of biological aging in PWH and support further research into statin medication as a potential treatment to prevent accelerated aging.

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