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Risk Factors for Clonal Hematopoiesis of Indeterminate Potential in People with HIV: a report from the REPRIEVE Trial

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Background

Clonal Hematopoiesis of Indeterminate Potential (CHIP) has recently been found to be a risk factor for blood cancers and coronary artery disease, a disease that affects the blood vessels that supply the heart with oxygen. CHIP is the accumulation of mutations in the stem cells that eventually become white blood cells. Some people can develop these mutations as they age. People with HIV (PWH) may be more likely to have CHIP, particularly at older ages, compared to people without HIV. CHIP may also predict heart disease among PWH without traditional heart diease risk factors, like smoking. It is important to study CHIP in PWH to understand its long-term health effects.

The Randomized Trial to Prevent Vascular Events in HIV (REPRIEVE) is a global clinical research trial designed to address the increased risk of heart disease experienced by PWH. The trial showed that treatment with pitavastatin (a cholesterol-lowering medication) reduces heart disease events among PWH with low-to-moderate traditional heart disease risk. Study participants at research sites in the ACTG network who consented to have genetic analyses done were included in this study.

Goals of the Study

This study aimed to determine how common CHIP is in the REPRIEVE Trial cohort and to determine the association of CHIP with social and demographic, clinical, and HIV-specific risk factors.

- **The participants:**
  - 4,486 REPRIEVE participants
    - Average age: 50 years
    - 1650 (37%) were female sex
    - 2089 (47%) were Black or African American
- **The findings:**
  - One in twenty REPRIEVE participants had CHIP, and among participants who were 60 years of age or older, one in ten had CHIP.
  - Participants who had CHIP tended to be of older age, have a history of or currently smoke cigarettes, and have a low nadir CD4 (the lowest that a person's CD4 count has ever been) at time of HIV diagnosis. There were no associations of CHIP with antiretroviral therapy (ART) drug treatment groups.
  - CHIP was most common in North America, and in North America was less common among participants who were Hispanic/Latino ethnicity.

In Summary: CHIP is relatively common among PWH in REPRIEVE and is related to some demographic and HIV characteristics. Further study of CHIP in this population can help us understand reasons why PWH have a higher risk of certain cancers and heart disease.

REPRIEVE Trial Website: reprievetrial.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