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Effects of antiretrovirals on major adverse cardiovascular events in the REPRIEVE trial: a longitudinal cohort analysis

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Background

The risk of heart disease is increased approximately 2 times among people with HIV (PWH) as compared to people without HIV. Certain antiretroviral therapy (ART) medicines may be associated with complications, including heart disease. Understanding the associations between ART and heart disease events is an important step towards the goal of preventing heart disease and treating HIV.

Goals of the Study

The goal of this study was to investigate how participants' use of selected ART medications (grouped as never, former, and current use) at trial entry relates to the development of heart disease events among participants in The Randomized Trial to Prevent Vascular Events in HIV (REPRIEVE). The ART medications of interest in the study were abacavir (ABC), tenofovir disoproxil fumarate (TDF), thymidine analogs, and protease inhibitors (PI).

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 PWH.

➤ 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
 - 2,419 (31%) women and 5,350 (69%) men
 - ART exposure before enrolling in REPRIEVE:
 - 1,702 (22%) ABC ● 6,681 (86%) TDF ● 3,832 (49%) thymidine analogs ● 3,683 (47%) PIs

The Findings:

- At study entry, the majority of participants were taking TDF (61%), followed by PIs (26%) and ABC (13%).
- Risk of a heart disease event was 62% higher for individuals with current usage of ABC and 41% higher for those with former usage of ABC, after adjusting for other potential risk factors such as age and family history of heart disease
- Former use of TDF was associated with a higher risk of heart disease, but this appeared to be driven by many participants also having prior exposure to ABC.
- There was no association between the use of PIs or thymidine analogues and heart disease events.

In Summary: Among participants in the REPRIEVE cohort of PWH, former and current exposure to ABC was associated with an approximately 40-60% increase in the risk of heart disease events. Individuals with exposure to ABC are at higher risk of future heart disease, even with low-to-moderate estimated heart disease risk, and should be counseled. These observations should also help inform panels that write guidelines on creating recommendations to minimize the risk of heart disease events in PWH taking ART.

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