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CMV IgG is Associated with Physical Function but not Muscle Density in People with HIV

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Background

As people with HIV (PWH) age, maintaining muscle is very important for physical function. Declining physical function has been shown to be related to decreased muscle mass and increased inflammation and immune activation. One possible cause of this increased inflammation and activation in PWH is cytomegalovirus (CMV) infection, which is very common among PWH. Studies in PWH have shown that CMV is associated with worse neurocognitive performance, such as worse memory, and smaller studies have shown that CMV is linked to worse physical function and more frailty.

Participants in this study were enrolled in the Mechanistic Substudy of REPRIEVE. The REPRIEVE Trial is a global clinical research study that showed that treatment with a statin (cholesterol-lowering medication) reduces heart disease events among PWH with low-to-moderate traditional CVD risk. U.S. REPRIEVE participants in the substudy underwent main REPRIEVE trial procedures, as well as CT scans of the blood vessels surrounding the heart (also capturing images of the muscle in the chest area) and blood tests measuring blood levels of inflammation markers.

Goals of the Study

This study aimed to determine the relationship of CMV with physical function and frailty in PWH and to study whether these associations are related to nadir CD4 (the lowest that a person's CD4 count has ever been) or inflammatory biomarkers. Additionally, we investigated the associations of CMV with muscle quality (density) and quantity (area) and whether these could be mediating the association between CMV and physical function.

➤ The participants:

- 717 participants (631 with CT muscle, 161 with physical function measurements)
- Median age: 51 years
- 131 (18%) female sex at birth

➤ The findings:

- About one in three participants who had a physical function measurement were found to have impaired physical function.
- Higher levels of CMV virus were associated with frailty and worse physical function. This association remained after considering participants' nadir CD4 counts and levels of inflammation.
- Levels of CMV virus were not related to muscle density or area, so it is not likely that CMV affects physical function through changes in muscle.

In Summary: Our study observed an association between higher CMV viral levels and impaired physical function and frailty. This finding supports the importance of studying the long-term health effects of CMV in PWH. Interventions to prevent or treat CMV could improve physical function in PWH as well as in people without HIV.

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