

# Heart attack risk increased among people with HIV and hepatitis C as they aged

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Electron micrographs of hepatitis C virus purified from cell culture. Scale bar is 50 nanometers. Credit: Center for the Study of Hepatitis C, The Rockefeller University.

As people with HIV age, their risk of heart attack increases far more if they also have untreated hepatitis C virus, even if their HIV is treated, according to new research published today in the *Journal of the American Heart Association*.

Since the introduction of antiretroviral therapies to treat HIV in the late 1990s, the lifespan of people with HIV has increased dramatically. However, even with treatment, studies have found the [heart](#) disease risk among people with HIV is at least 50% higher than people without HIV. This new study evaluated if people with HIV who also have [hepatitis C](#)—a viral liver infection—have a higher risk of heart attack.

"HIV and hepatitis C coinfection occurs because they share a transmission route—both viruses may be transmitted through blood-to-blood contact," said Keri N. Althoff, Ph.D., M.P.H., senior author of the study and an associate professor in the department of epidemiology at the Johns Hopkins Bloomberg School of Public Health in Baltimore. "Due in part to the inflammation from the chronic immune activation of two viral infections, we hypothesized that people with HIV and hepatitis C would have a higher risk of heart attack as they aged compared to those with HIV alone."

Researchers analyzed [health information](#) for 23,361 people with HIV (17% female, 49% non-Hispanic white) in the North American AIDS Cohort Collaboration on Research and Design (NA-ACCORD) between 2000 and 2017 and who had initiated antiretroviral treatment for HIV. All were between 40 to 79 years of age when they enrolled in the NA-ACCORD study (median age of 45 years). One in 5 study participants (4,677) were also positive for hepatitis C. During a median follow-up of about 4 years, the researchers compared the occurrence of a heart attack between the HIV-only and the HIV-hepatitis C co-infected groups as a whole, and by each decade of age.

The analysis found:

- With each decade of increasing age, heart attacks increased 30% in people with HIV alone and 85% in those who were also positive for hepatitis C.

- The risk of heart attack increased in participants who also had traditional [heart disease risk](#) factors such as [high blood pressure](#) (more than 3 times), smoking (90%) and Type 2 diabetes (46%).
- The risk of heart attack was also higher (40%) in participants with certain HIV-related factors such as low levels of CD4 [immune cells](#) (200cells/mm<sup>3</sup>, signaling greater immune dysfunction) and 45% in those who took protease inhibitors (one type of antiretroviral therapy linked to metabolic conditions).

"People who are living with HIV or hepatitis C should ask their doctor about treatment options for the viruses and other ways to reduce their [cardiovascular disease risk](#)," said lead study author Raynell Lang, M.D., M.Sc., an assistant professor in the department of medicine and community health sciences at the University of Calgary in Alberta, Canada.

"Several mechanisms may be involved in the increased heart attack risk among co-infected patients. One contributing factor may be the inflammation associated with having two chronic viral infections," Lang said. "There also may be differences in risk factors for cardiovascular disease and non-medical factors that influence health among people with HIV and hepatitis C that plays a role in the increased risk."

According to a June 2019 American Heart Association scientific statement, [Characteristics, Prevention, and Management of Cardiovascular Disease in People Living With HIV](#), approximately 75% of people living with HIV are over the age of 45. "Even with effective HIV viral suppression, inflammation and immune dysregulation appear to increase the risk for heart attack, stroke and heart failure." The statement called for more research on [cardiovascular disease](#) prevention, causes and treatment in people with HIV.

"Our findings suggest that HIV and hepatitis C co-infections need more

research, which may inform future treatment guidelines and standards of care," Althoff said.

The study is limited by not having information on additional factors associated with heart attack risk such as diet, exercise or family history of chronic health conditions. Results from this study of people with HIV receiving care in North America may not be generalizable to people with HIV elsewhere. In addition, the study period included time prior to the availability of more advanced hepatitis C treatments.

"Because effective and well-tolerated hepatitis C therapy was not available during several years of our study period, we were unable to evaluate the association of treated hepatitis C infection on cardiovascular risk among people with HIV. This will be an important question to answer in future studies," Lang said.

**More information:** Evaluating the Cardiovascular Risk in an Aging Population of People With HIV: The Impact of Hepatitis C Virus Coinfection, *Journal of the American Heart Association* (2022). [DOI: 10.1161/JAHA.122.026473](https://doi.org/10.1161/JAHA.122.026473)

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