Low-Level Viral Replication Tied to Worse Health in People With HIV

A recent Swedish study defined a low-level detectable viral load as between 50 and 999.

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People with HIV who have a low-level detectable viral load—specifically between 50 and 999—have a higher risk of death and serious non-AIDS health outcomes, such as cardiovascular disease, high blood pressure, chronic kidney disease, advanced liver disease and non–AIDS-related cancer.

Olof Elvstam, PhD, of Lund University in Malmö, Sweden, and colleagues conducted a study of 6,956 Swedish people living with HIV who were identified through the Swedish InfCare HIV register.

As described in Clinical Infectious Diseases, the study authors looked specifically at people who had started antiretroviral (ARV) treatment from 1996 onward; follow-up data through 2017 was included.

People were included in the cohort if they were at least 15 years old when starting ARV treatment and had at least two viral load test results available that were taken six or more months after they started treatment.

The investigators defined undetectable virus, or viral suppression, as a viral load below 50; a low-level detectable viral load, or low-level virus, as a viral load between 50 and 999; and unsuppressed HIV as a viral load of 1,000 or higher.

Serious non-AIDS health events included cardiovascular disease, deep vein thrombosis, high blood pressure, chronic kidney disease, decompensated cirrhosis of the liver (the more advanced form of the severe liver disease) and non–AIDS-defining cancers.

Sixty-three percent of the cohort members were men. The median age upon starting ARVs was 37 years old. The study cohort members were followed for a median of 5.7 years.

During the follow-up period, 953 (14%) of the cohort members had low-level detectable virus, including 521 people who at some point had a viral load between 50 and 199 and 508 people who at some point had a viral load between 200 and 999. At the end of the study's follow-up, 60% were

categorized as having viral suppression, 9% as having low-level viral replication and 31% as having unsuppressed virus.

Of the 5,169 people who ever had viral suppression, 1,808 (35%) had at least one isolated viral load between 50 to 999 (known as a viral blip).

The median interval between viral load tests was 120 days. The cohort members had a median of 15 viral load test results.

With the count starting six months after the cohort members started ARVs, they had a median cumulative time of 2.2 years with a detectable viral load between 50 and 999 and a median of 2.5 years with a viral load between 200 and 999.

During 49,986 cumulative years of follow-up, 459 of the cohort members died. HIV/AIDS was the most frequently reported cause of death, in 31% of cases, followed by cardiovascular disease and non-AIDS cancers.

After adjusting the data to account for various differences between the cohort members, the study authors found that compared with having viral suppression, having low-level detectable virus was associated with a 2.2-fold increased risk of death.

Breaking down the low-level detectable virus range into two segments, the investigators found that compared with having undetectable virus, having a viral load of 50 to 199 was associated with a 2.2-fold increased risk of death and having a viral load of 200 to 999 was associated with a 2.1-fold increased risk of death. However, only the finding for having a viral load of 50 to 199 was statistically significant, meaning it was not likely driven by chance; the finding for having a viral load of 200 to 999 was not statistically significant.

Compared with having undetectable HIV, having low-level virus was not associated with an increased risk of AIDS or serious non-AIDS adverse health events. However, having a viral load between 200 and 999 was associated with a 2.0-fold increased risk of such negative health outcomes.

“These findings add to mounting evidence that [low-level detectable virus] is associated with worse clinical outcomes,” the study authors concluded.

To read the study abstract, click here.
