# HIV and Cardiovascular Disease

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### *WHAT IS CARDIOVASCULAR DISEASE?*

Cardiovascular disease (CVD) includes a group of problems related to the heart (cardio) and blood vessels (vascular). CVD includes all of the following conditions:

- Coronary heart disease (heart attacks)
- Angina (Chest pain from lack of blood to the heart)
- Cerebrovascular disease (problems with blood vessels in the brain, including stroke)
- High blood pressure (hypertension)
- Peripheral artery disease (blocked blood vessels in the legs)
- Rheumatic heart disease (a complication of a throat infection)
- Congenital heart disease (due to a birth defect)
- Heart failure

Worldwide, CVD is the cause of about 30% of all deaths.

### *WHY SHOULD PEOPLE WITH HIV CARE ABOUT CVD?*

Because HIV antiretroviral medications (ARVs) are so effective, people with HIV are living longer. Some studies show that CVD is the cause of 20% of deaths of people with HIV.

People with HIV have higher rates of CVD than the general population. HIV infection by itself increases some CVD risk factors. It might also increase CVD in ways we don't yet understand. Some drugs used in antiretroviral therapy (ART) can increase CVD risk. However, HIV infection causes inflammation and ART reduces that inflammation. This reduces CVD risk. Stopping ART and letting viral load rise increases CVD risk.

### *WHAT CAUSES CVD?*

Angina is caused by a blockage that creates a shortage of blood to the heart. Heart attacks and strokes are caused when a blockage becomes so severe that the heart or the brain is damaged. The most common cause is a build-up of fatty deposits on the inner walls of the blood vessels. They become narrower and less flexible. This is known as atherosclerosis (or hardening of the arteries). It can cause angina.

The blood vessels are then more likely to become blocked by blood clots. When this happens, the blocked vessels cannot supply blood to the heart and brain, which then are damaged due to lack of blood supply.

Major risk factors for CVD (angina, heart attack, and stroke) include tobacco use, high blood pressure, and diabetes. Physical inactivity and an unhealthy diet worsen cholesterol levels, blood pressure, and diabetes. Increasing age, being assigned male at birth (AMAB), and family history of CVD also increase the risk of CVD.

ART can increase blood fats (cholesterol and triglycerides). It can also increase the risk for diabetes and insulin resistance. These are risk factors for CVD. HIV infection decreases good cholesterol, increases triglycerides, and causes inflammation. These can all contribute to CVD.

Overall, the rate of CVD among people with HIV is quite low. However, because HIV and its treatment can increase the risk of CVD in several ways, people with HIV should evaluate their CVD risk. If it is high, they may need to take special measures to reduce it.

### *HOW DO WE MEASURE CVD RISK?*

The most familiar way to assess CVD risk is the Framingham Risk Assessment. Try this free Framingham risk calculator.

The Framingham calculation is not adjusted for HIV. However, it seems to be fairly accurate for people with HIV. Another risk calculator was based on people with HIV. The D:A:D CVD prediction tool/algorithm estimates the risk of an individual developing CVD within the next 5 and 10 years. Try this free D:A:D risk calculator.

### *HOW CAN YOU REDUCE THE RISK OF CVD?*

A very large study found that people using protease inhibitors (PIs) had slightly higher CVD risk than those using non-nucleoside reverse transcriptase inhibitors (NNRTIs). The same study found a slightly increased risk for patients using abacavir (Ziagen). This risk disappeared 6 months after people stopped these drugs.

The most important things you can do to reduce your CVD risk are to reduce the normal risk factors. Smoking cessation has the greatest impact. Brushing your teeth regularly reduces the risk of general inflammation. Also, changing eating and exercise habits might reduce levels of cholesterol, triglycerides, and glucose (sugar). However, lifestyle interventions have only shown limited results.

### *THE BOTTOM LINE*

Cardiovascular disease (CVD) includes a group of problems related to the heart (cardio) and blood vessels (vascular). People with HIV have higher rates of CVD than the general population.

Major risk factors for CVD include tobacco use, high blood pressure, diabetes, physical inactivity, unhealthy diet, increasing age, being assigned male at birth (AMAB), and family history of CVD.

People with HIV who are at risk for or who have CVD should not stop taking antiretroviral medications (ARVs) as this will lead to more health problems.

### *MORE INFORMATION*

American Heart Association: As HIV patients live longer, heart disease might be their next challenge

POZ: HIV and Your Heart

POZ: Why Is HIV Tied to Higher Sudden Cardiac Death Risk?

CATIE: HIV and cardiovascular disease

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