# HIV AND CARDIOVASCULAR DISEASE

## HIV AND CARDIOVASCULAR DISEASE

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

- 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) and
- heart failure.

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

## WHY SHOULD PEOPLE WITH HIV CARE ABOUT CVD?

Because HIV medications 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 the viral load (see fact sheet 125) 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.

The major causes of the complications of CVD (angina, heart attack and stroke) are tobacco use, high blood pressure, and diabetes. Physical inactivity and an unhealthy diet worsen cholesterol levels, blood pressure and diabetes. Increasing age, being male, and family history of CVD also increase the risk of CVD.

ART can increase blood fats (cholesterol and triglycerides, see fact sheet 123.) It can also help cause diabetes and insulin resistance. These are risk factors for heart disease. HIV infection decreases good cholesterol and increases triglycerides. HIV causes inflammation. This can also 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. A calculator is available on the Internet at http://hin.nhlbi.nih.gov/atpiii/calculator.asp

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. This D:A:D calculator is available at http://www.cphiv.dk/TOOLS/DADRiskEquations/tabid/437/Default.aspx

## HOW CAN YOU REDUCE THE RISK OF CVD?

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

The most important things you can do to reduce your CVD risk are to reduce the normal risk factors. Stopping smoking 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.

## WHAT ABOUT CHANGING MEDICATIONS?

Some people with HIV have changed their medications in order to lower their cholesterol. There is no evidence that this is effective.

A recent study showed that it is risky to stop taking anti-HIV medications. People who stopped taking medications had more health problems, including CVD, than people who continued their drugs.

***Reviewed February 24, 2014***

A Project of the International Association of Providers of AIDS Care and the New Mexico AIDS Education and Training Center. Partially funded by the National Library of Medicine. Fact Sheets can be downloaded from the Internet at http://www.aidsinfonet.org