

# HAART and your heart

Are you at risk for  
cardiac disease?

by Dr. Marek Smieja



**The availability of antiretrovirals (ARVs) and highly active anti-retroviral therapy (HAART) means that many people living with HIV will likely have a fairly normal life expectancy. It also means that people will face the health problems related to aging, some of which, like heart disease, can be made worse by the ARVs that are prolonging life.**

**Marek Smieja** is an infectious disease physician and HIV consultant at McMaster University in Hamilton. He's leading a multi-centre Canadian study examining the effects of HIV treatment on cardiovascular risk.

Heart disease is a general term used to describe a number of diseases that affect different parts of the heart and circulatory system. Two types, pericarditis and myocarditis, which affect the sac around the heart and heart muscle, respectively, were once very common in people dying of AIDS. ARVs have largely prevented these in countries where they're available. ARVs do not prevent endocarditis, a serious infection of the heart valve, which is very prevalent among injecting drug users. Coronary heart disease is the most common type of heart disease in Canada, and leads to half of all deaths in men and a third of all deaths in women. The risk of coronary heart disease increases after starting ARV treatment.

## Coronary heart disease

In coronary heart disease, cholesterol and calcium accumulate in blood vessel walls, causing what's

known as atherosclerosis or hardening of the arteries. This leads to progressive stiffening and narrowing of the pipes in which blood moves around the body. This process starts in childhood, but the effects — like heart attacks — don't occur until many decades later. Risk factors (like smoking) accelerate the process. The table on page 11 provides a full list of cardiac risk factors.

The risk of having a heart attack increases after starting ARV treatment, but these risks are small compared to the risks of HIV disease progression without ARVs.

## Risk factors

The important modifiable risk factors — the ones you can change — are smoking, high cholesterol, diabetes and high blood pressure. Bad eating habits, lack of exercise and abdominal obesity can increase these risk factors. Stress (and possibly dental disease) are now recognized as important risk factors of heart attacks as well.

Some risk factors for coronary heart disease are non-modifiable — meaning you can't change them. They include being older, being male and having a family history of premature heart disease (a male parent or sibling with a heart attack before age 55

or 65 for female relatives.) If your family history includes premature heart disease, your chance of a heart attack is almost doubled.

## Smoking

Yes, smoking is bad for you. Not that you didn't already know, but some stats might help you understand why. In people under the age of 50, smoking causes half of all heart attacks, and cocaine may contribute to a quarter. On average, a smoker loses 10 years of his or her life, and a heavy smoker (someone who smokes 40+ cigarettes a day) is up to nine times more likely to have a heart attack than a non-smoker. People with HIV are much more likely to be smokers than the average Canadian — 40-75% of people living with HIV are smokers, compared to 21% of Canadian adults — and smoking causes 2/3 of all heart attacks among people with HIV (compared to 1/3 of heart attacks worldwide).

## Cholesterol

High cholesterol levels lead to atherosclerosis, and Canadians generally have higher than optimal cholesterol levels. To predict individual risk, doctors measure total, LDL ('bad') and HDL ('good') cholesterol levels. Low HDL levels (which are very common among people living with HIV, whether they're on ARVs or not), mean higher risk.

## Antiretroviral therapy and risk factors

All three main classes of ARVs increase some cardiac risk factors. Nucleoside reverse transcriptase inhibitors (NRTIs), including AZT (present in Retrovir®, Trizivir™ and Combivir®) and especially stavudine (d4T or Zerit™), increase cholesterol and triglycerides. But abacavir (Ziagen®) and tenofovir (Viread®) are less likely to do so. Non-nucleoside reverse transcriptase inhibitors (NNRTIs) increase HDL (the good cholesterol), but efavirenz (Sustiva®) may also elevate LDL cholesterol. Protease inhibitors (PIs) — except atazanavir (Reyataz™) without ritonavir (Norvir®) —

may increase cholesterol, triglycerides, glucose and abdominal obesity.

The best way to minimize lipid (cholesterol and triglyceride) increases is a HAART regimen that includes a lipid-neutral ARV combo (one that doesn't increase lipids), or switching ARVs if lipid abnormalities develop. But for most people, the risk of heart disease is very small compared to the risk of HIV disease progression. You may not want to change a drug regimen that's working for you, and it may be better to add in cholesterol-lowering drugs.

## Calculated risk

You can calculate your heart disease risk with three pieces of medical information: your systolic blood pressure (the top number of your blood pressure reading: ex: 120 if 120/80mmHg), total cholesterol and HDL cholesterol. Using these numbers, your age, gender and smoking status, the following link will calculate your 'Framingham risk score', as a percentage over 10 years, meaning your risk of having a heart attack in the next decade. Be sure to multiply your total and HDL cholesterol by 39 first, to convert Canadian values to American units.

<http://hin.nhlbi.nih.gov/atp/iii/calculator.asp?usertype=pub>

## Smokers have more heart attacks than non-smokers and are more likely to die when they have a heart attack

If your calculated score is less than 10% per 10 years, your risk of having a heart attack is **low**. Lifestyle changes (see below) are recommended and drug therapy is only needed if your cholesterol is very high.

You're considered to be at **intermediate** risk if your result is between 10 and 20%. In this case, you should make lifestyle changes and your doctor may consider prescribing you lipid-lowering drugs.

The **highest** risk group is when your value is over 20% or you have diabetes or a previous heart attack. Your doctor will very likely prescribe medication and suggest lifestyle changes to prevent a heart attack.

## Healthy lifestyle changes

If you smoke, try to stop. Smokers have more heart attacks than non-smokers and are more likely to die when they have a heart attack. Talk to your doctor about smoking cessation programs or nicotine replacement therapy.

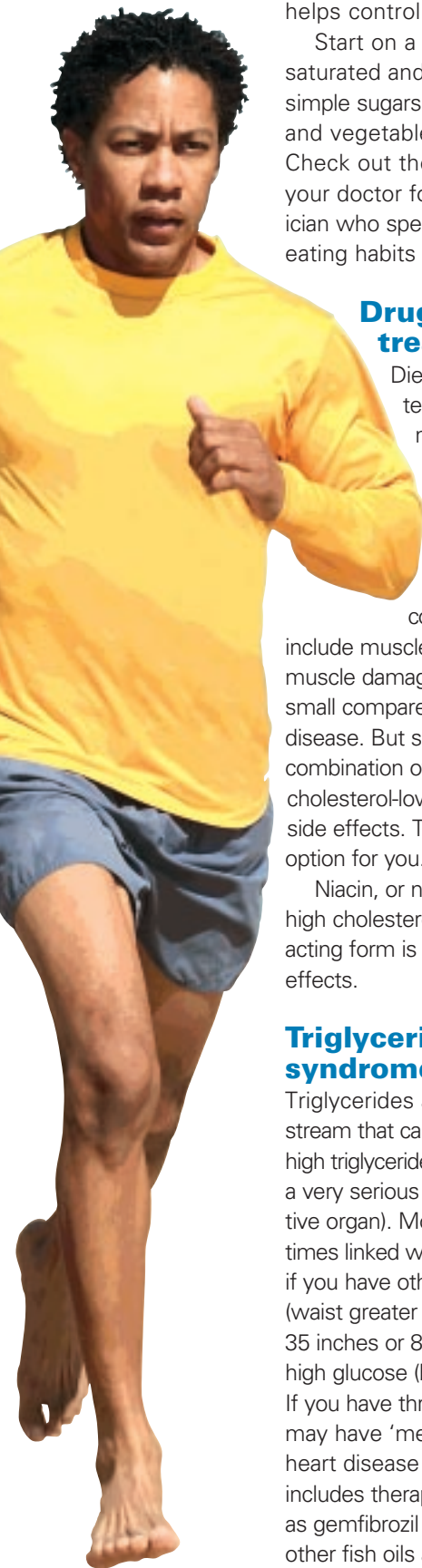


Cholesterol and calcium accumulation in blood vessels walls cause hardening of the arteries — leading to narrower blood-carrying pipes

## Your heart disease risk

You're considered at risk if you have two or more of the following risk factors:

- Age: older than 45 for men or 55 for women
- Smoker
- High blood pressure
- Diabetes
- Abnormal blood cholesterol levels



Aerobic exercise — three to five times a week for at least 20 minutes — lowers blood pressure, increases HDL (good) cholesterol, and helps control weight.

Start on a heart-healthy diet that's low in saturated and total fat, minimizes calories and simple sugars, and emphasizes soluble fibre, fruit and vegetables. The DASH diet is a good start. Check out the text box for how to find it. Ask your doctor for a referral to a nutritionist or dietician who specializes in HIV care if you have bad eating habits or need help planning meals.

### Drugs and complementary treatments

Diet changes can improve high cholesterol, but drugs are often required. The most-frequently prescribed cholesterol-lowering drugs are statins, which can reduce heart disease by 50% if taken regularly at adequate doses. Pravastatin (Pravachol®), atorvastatin (Lipitor®) and rosuvastatin (Crestor®) are the most common. Side effects are rare, but include muscle pain and very occasionally, severe muscle damage or liver inflammation. The risks are small compared to the benefits of preventing heart disease. But some statins interact with ARVs, and a combination of statins and fibrates (another type of cholesterol-lowering drug) is more likely to cause side effects. Talk to your doctor about the best option for you.

Niacin, or nicotinic acid is also available to treat high cholesterol, but it often causes flushing. A long-acting form is now available which has fewer side effects.

### Triglycerides & metabolic syndrome

Triglycerides are a type of fat found in the bloodstream that can be increased by ARV treatment. Very high triglycerides (>10 mmol/L) may cause pancreatitis, a very serious inflammation of the pancreas (a digestive organ). Moderately high triglycerides are sometimes linked with heart disease, and should be treated if you have other risk factors like abdominal obesity (waist greater than 40 inches or 102 cm in men; and 35 inches or 88 cm in women), high blood pressure, high glucose (blood sugar) levels or low HDL levels. If you have three or more of these five factors, you may have 'metabolic syndrome', which doubles heart disease risk. Treatment of high triglycerides includes therapeutic diets, drugs called fibrates (such as gemfibrozil or fenofibrate), consuming salmon or other fish oils and cutting down on alcohol.

Vitamins like folic acid, B<sub>6</sub> or B<sub>12</sub> are currently being studied for heart disease prevention. Vitamin E has been studied extensively, and although several early studies showed benefits, a recent, large study found that in some people vitamin E can *increase* heart failure without reducing heart attacks. So if you're 55 or older and have heart disease or diabetes, vitamin E is potentially harmful and best avoided.

### Help yourself

For those at high risk of heart disease, your best bets are statin therapy, and treating high blood pressure and diabetes with lifestyle changes and medication. These changes will reduce your risk of heart attack and death by 50-80%. Everyone, regardless of his or her risk, is strongly recommended to stop smoking (even cutting down helps), start regular aerobic exercise and eat a heart-healthy diet. **R**



### Healthy meals

The **DASH** (Dietary Approaches to Stop Hypertension) eating plan is clinically proven to reduce high blood pressure. It involves a combination of foods low in total fat, saturated fat and cholesterol, with plenty of fruit, vegetables and low-fat dairy products. Get a copy online for free (google: DASH) or call 1-301-592-8573. Or visit [www.heartandstroke.ca](http://www.heartandstroke.ca) for recipes and great information on stress, smoking and blood pressure.