Biomedicine

From Atlanta at the American Heart Association's 72nd Scientific Sessions

Aneurysms frequent in cocaine users

Cocaine abuse sends more people to hospital emergency rooms than any other illegal drug because it can cause high blood pressure, heart attacks, strokes, and the chest pain called angina. Now, a study in Minnesota of cocaine users examined for angina or other heart problems finds that these drug users are unusually susceptible to coronary aneurysms, a rare condition in which a weak spot balloons out from the coronary arteries, the blood vessels that nourish the heart. The cocaine users were six times as likely to have a coronary aneurysm as are other people with known heart disease, the highest-risk group previously identified.

Coronary aneurysms aren't as dangerous as brain aneurysms and typically aren't treated since they rarely burst. However, a coronary aneurysm places a patient at increased risk of heart attack. The swirling, disrupted blood flow at an aneurysm promotes atherosclerosis, the formation of hard, fatty plaques in the vessels, says cardiologist Timothy D. Henry of Hennepin County Medical Center (HCMC) in Minneapolis, an investigator in the cocaine study.

Of 112 cocaine users participating in the study, 34 had coronary aneurysms, reports physician Aaron Satran of HCMC. Satran notes that nearly all the participants smoked and that three-fourths had high blood pressure and high cholesterol readings—factors that could boost their risk of aneurysm.

Still, the incidence of coronary aneurysms was sharply higher than the 5 percent rate that other researchers found in a previous study of 20,087 heart patients, who had similar risk factors. In both investigations, physicians detected aneurysms by using angiography, an X-ray technique in which dye is injected into the arteries.

In the latest study, the participants classified as moderate or severe cocaine users by Satran and Henry were more than twice as likely to have a coronary aneurysm as mild users were.

The researchers didn't determine whether the cocaine users, whose average age was 44, have aneurysms elsewhere in the body. Moreover, the scientists haven't yet looked into the mechanism underlying the coronary aneurysms. "If cocaine does in fact cause aneurysms, we're still unsure as to how it does," Satran says. *—N.S.*

Arterial disease appears in young hearts

It seems logical that transplant patients receiving a heart from a donor who died young and free of cardiovascular disease are getting a fresh start.

Not necessarily. A new study shows that in some cases even hearts from healthy, young donors show signs of heart disease.

E. Murat Tuzcu, a cardiologist at the Cleveland Clinic Foundation, reports that his team's examination of transplant recipients only weeks after surgery revealed early signs of heart disease in 18 of 77 hearts transplanted from donors who died before their 30th birthday. What's more, 5 of 32 hearts from teenage donors within this group also had nascent heart disease.

While past studies of young soldiers who died in combat have found hints of budding atherosclerosis, or plaque formation in blood vessels, this study is the first to assess such disease in living transplanted hearts, Tuzcu says. Autopsies are valuable, he says, but they can't show the narrowing of arteries that can occur during heart pumping.

The signs of atherosclerosis seen in the teenage hearts represent "the seeds of heart disease that end up as a heart attack 20 or 30 years [later]," Tuzcu says.

Using ultrasound devices threaded through a large vein or artery to reach the heart arteries, the researchers precisely measured vessel thickness and blood-flow blockage. "We can actually see when the plaque starts to accumulate and grow," Tuzcu says. Physicians routinely use such ultrasound and angiography to monitor new heart transplants.

The findings should be a wake-up call for teens and their parents, Tuzcu says. Many young people in the United States are eating too much and exercising too little to keep their hearts healthy, he says. *—N.S.*

Sterol margarine cuts bad cholesterol

Sterol esters, natural chemicals derived from plant oils, masquerade as cholesterol and interfere with cholesterol absorption in the body. Consumed regularly, these sterols reduce blood concentrations of low-density lipoprotein, or LDL, the so-called bad cholesterol, a new study shows.

Researchers at the Chicago Center for Clinical Research assigned 224 people with slightly elevated cholesterol readings to one of three low-fat diets containing precisely specified amounts of margarine. Some participants ate margarine containing 1 or 2 grams of sterols derived from soybeans. Others ate similar margarine having no sterols. Neither researchers nor participants knew which spreads contained the sterols until the study ended.

After 5 weeks, volunteers getting margarine containing either amount of sterols averaged LDL decreases of roughly 5 percent, while those eating sterol-free margarine had LDL increases of less than 3 percent, reports epidemiologist Kevin C. Maki.

High-density-lipoprotein concentrations, the so-called good cholesterol, were unaffected by the sterols, Maki says.

People taking the sterols had no side effects except for decreased blood concentrations of beta-carotene, which dropped by as much as 20 percent in some people but still remained in the normal range. Beta-carotene is an antioxidant, but studies in which people took beta-carotene supplements have not shown clear benefits, Maki says.

Sterol spreads have not yet been approved for general use. Margarines containing stanol esters, which also interfere with cholesterol absorption, are already approved for sale in the United States. Stanols are derived from the wood pulp of pine trees and have been widely used in Finland for several years (SN: 11/14/98, p. 311). *—N.S.*

Gene variant linked to heart risk

Apolipoprotein E (APOE) is a tireless worker. It attaches to cholesterol particles, binds them to liver cells, and helps expel the fatty substance from the body.

However, the version of the protein called APOE-4, encoded by a variant of the *APOE* gene, seems to do a poorer job than the other forms. Research has linked APOE-4 to high cholesterol concentrations. Now, scientists at the National Institute of Aging (NIA) in Baltimore find that healthy people with the *APOE-4* gene are more likely to develop heart problems than are those carrying other *APOE* versions. This added risk showed up even when blood cholesterol concentrations were normal.

Over 17 years, the researchers tracked 731 healthy people, whose average age at the start of the study was 52. Of 200 people carrying the gene variant, 21 percent were noted as having died of heart disease, being diagnosed with a heart attack, complaining of chest tightening, or having an unusual electrocardiogram reading. In contrast, only 13 percent of the 531 people carrying another version of the *APOE* gene showed such problems during the study, says cardiologist Angelo Scuteri of NIA.

About 15 to 25 percent of people in the general population carry the *APOE-4* gene variant, he says.

Further study of *APOE-4* may show that people who carry it "should be treated more aggressively [for heart problems] or watched more frequently by their physicians," Scuteri says. *—N.S.*