



STRONG HEART STUDY

NEWSLETTER

INVESTIGATING CARDIOVASCULAR DISEASE IN AMERICAN INDIANS

September 1997

Volume 9, Number 2

ATHEROSCLEROSIS TARGETED IN STRONG HEART STUDY: PHASE III

The first two phases of the Strong Heart Study have documented the occurrence of heart attacks, strokes and other complications of atherosclerosis in many participants. Until recently, the only way of directly detecting atherosclerosis (the clogging of arteries with deposits of fat known as plaque) has been by specialized tests. These tests, called angiograms, require injecting substances into the arteries that show up on x-rays, and portray the outlines of the blood vessels. Over the last several years, it has become possible to look directly for atherosclerosis without an angiogram by taking pictures of arteries in the neck using high-frequency sound (called ultrasound), produced and measured by a special probe placed on the skin.

In Phase III of the Strong Heart Study, this new technique will be used for the first time in a large population of American Indians. The arterial ultrasound examination involves placing a probe the size of a microphone over the skin on each side of the neck and angling it in different directions to look at the major arteries to the head. Pictures of

the carotid arteries will appear on a TV screen on the ultrasound machine and be recorded on videotape for analysis. Special measurements of blood pressure will be made at the end of the ultrasound examination. This test will be done as the Phase II echocardiograms were, in specialized vans or in Indian Health Service facilities.

Investigators employ ultrasound technology to assess circulation in next phase of study

The pictures that this test provides make it possible to determine whether atherosclerotic plaques are present, whether the arteries that supply blood to the brain are narrowed, and whether there is any stiffening of the arteries. The measurements needed to get these answers will be made by the same doctors at Cornell

Medical Center in New York who read the echocardiograms in Phase II of the Strong Heart Study. The findings from this test may be especially valuable to Strong Heart Study participants by identifying individuals who will benefit greatly from treatments to prevent heart attack and stroke by lowering cholesterol and blood pressure levels and other helpful interventions.



ASTHMA, ALLERGIES ADDED TO THE LIST OF SHS RESEARCH TOPICS FOR 1998

Investigators with the Strong Heart Study are pleased to announce that they have obtained additional funding from the National Institutes of Health's Office of Research on Minority Health to study asthma and allergies during the third phase of the exam.

Until recently, many doctors thought that asthma was not a problem for American Indians. However in 1995, the Strong Heart Study found that about one of every five participants reported attacks of wheezing with shortness of breath, and six percent had been told they had asthma.

Asthma is a common cause of missed school or work. American Indians who live on or near a reservation are frequently exposed to materials in the air at home and at work that others rarely encounter, including dusty roads, smoke from burning

wood, farm and ranch animals and plants, chemicals, molds in wet areas and insects.

In addition, exposure to environmental tobacco smoke is common among some tribes and may make allergic reactions

**Recent flooding
in the Dakotas has
contributed to the list
of allergens plaguing
Indian communities**

worse. More recently, flooding has been a concern, especially among Spirit Lake tribal members in North Dakota. The level of nearby Spirit Lake has been rising and, since there is no outlet for this water, basements have flooded and many people

have developed allergies to the molds that grow in the flooded areas.

These exposures and other factors may be a cause of hay fever, wheezing and asthma, but often it is difficult to locate a doctor who specializes in asthma and allergies to thoroughly investigate these possibilities.

Strong Heart Study staff, under the guidance of Dr. Paul Enright with the University of Arizona, will conduct the Phase III studies of asthma, allergies and lung disease. Specialized tests will be made available to allergy-prone SHS participants, including all of those with wheezing symptoms and asthma. These tests will include breathing tests for asthma in the clinic and at home and allergy skin tests or blood tests for cats, dogs, house dust mites, cockroaches, grasses, trees, molds and other allergens that may be inhaled at home or at work.

We expect the results of these tests to be helpful in treating those individuals with asthma or hay fever. In addition, a better understanding of the overall causes of asthma in American Indians may later allow measures to be taken to reduce the causes of asthma.

Scientists have never completely understood why some people put on too much weight while others seem to stay thin. Why is it that some people feel full after a meal and others just keep on eating?

There must be some sort of signal from the body to the brain. The body must have a way of telling the brain to stop eating. Scientists have wondered what this signal is, and whether it works differently in people who are overweight in comparison to those who are thin.

In 1994, scientists at the Rockefeller University in New York discovered a hormone signal, made in fat cells, that travels in the blood to the brain where it helps control the appetite. The discovery of this hormone, named leptin, generated a great deal of excitement because obesity is such a serious problem among Americans. The discovery of leptin raised hope that we could find a treatment for this serious problem.

Obesity costs the U.S. more than \$58 billion a year and Americans spend almost \$28 billion just trying to lose weight. Doctors especially are concerned about obesity since it is a strong risk factor for heart disease and diabetes. Overweight people are almost 15 times more likely to get diabetes than those who are thin. Obesity and the risks of heart disease and diabetes are special concerns for the Indian people.

Compared to whites, Indians are more likely to be overweight and have higher rates of diabetes. Many tribes have high rates of heart disease and others have high rates of diabetes. Obesity, diabetes and heart disease (the leading cause of death of Indians) are serious concerns for all Indians. One of the best ways to lower the risks of heart disease and diabetes is to control obesity. Unfortunately, the treatment of obesity is rarely successful with our current drugs and diets.

LEPTIN:

THE HORMONE LINKED TO APPETITE CONTROL TO BE MEASURED IN SHS PARTICIPANTS

The Strong Heart Study has received a grant from the Amgen Corporation to measure leptin in blood samples collected during the first examination. Amgen is a biotechnology corporation in California that owns the patent on leptin. If leptin is ever used as a drug, Amgen will hold the rights to produce the substance.

We know very little about how leptin actually contributes to obesity in people. We know that leptin levels are higher in obese people than they are in thin people. The Strong Heart Study investigators will measure the hormone from stored blood specimens to learn whether it is important in causing obesity or whether high levels increase the risk of heart disease.

The measurement of leptin will be done on samples identified only by a number so that the results can be kept strictly confidential. The substance will be measured in samples from groups of participants who in the years after their first Strong Heart Study examination either stayed thin, gained weight, had heart problems or remained healthy. By comparing the levels of the hormone among the groups, we hope to learn if its levels can be used to predict who will become obese and who will have heart problems. The SHS researchers will analyze the data and then write reports which will be published in scientific journals after tribal review and approval. We hope that learning more about leptin will help the Indian people stay healthy and lower their risks of heart disease and diabetes.

SHS PARTICIPANT CREDITS STUDY WITH EARLY DIABETES DIAGNOSIS

For Raymond Roy Almanza, The Strong Heart Study means more than just an opportunity to monitor the health of Native Americans nationwide: for Mr. Almanza, the Strong Heart Study *means* health.

“Because of my participation in the study,” Mr. Almanza said, “I found out I had high levels of blood sugar; I found out I had diabetes.”

Almanza, a member of the Comanche Tribe from Indianola, Oklahoma, first became aware of the study in 1991 while working as a comprehensive grant coordinator with the Comanche Indian Housing Authority. He was approached by SHS recruiter Juanita Cortez and asked to participate.

“I had retired after 25 years of civil service at Ft. Sill Military Base. When Juanita asked me, I was newly hired at the housing

authority and did not know how I could take part at the Lawton study site with my new job schedule,” he said. Indianola lies 20 miles west of Lawton. “My housing manager said I could participate and that’s how I first became involved.”

“After I participated in the first phase, I received a call from Juanita. She suggested, based on results from blood tests taken in the study, that I schedule an appointment with a diabetes clinic. She then helped me make that appointment. At the hospital, they confirmed that I had diabetes.”

Almanza said he was immediately put on treatment and referred to a dietician for diet monitoring.

“The people at the Strong Heart Study caught the situation before it became a serious threat to my health,” Almanza said. “I



Raymond Almanza, SHS participant since 1991, discovered he had diabetes while working with study researchers

strongly recommend this program.”

“I understand that some people don’t want to participate, but the more you learn about this study, the more you want to be a part.”

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