

Preventive Cardiology



Philip Shaver, MD

Heart disease is the leading cause of death in the United States. Understanding who is at risk for cardiovascular disease and what preventive treatments are most effective is critical in preventing heart attacks and stroke. A group of Eisenhower Medical Center physicians recently sat down to discuss screening tools and treatment therapies for cardiovascular disease. The participants were Eisenhower Cardiologist Charlie W. Shaeffer Jr., MD and Endocrinologist Pushpinder Guleria, MD. Cardiologist Philip Shaver, MD moderated the roundtable.

Dr. Shaver: According to the Centers for Disease Control and Prevention, heart disease is the leading cause of death in the United States for both men and women. Every year, approximately 785,000 Americans have a first heart attack, and another 470,000 Americans who have had one or more heart attacks suffer another one

The lifetime risk for heart disease when one reaches the age of 50 years is 52 percent for men and 39 percent for women. We know that certain factors cause atherosclerosis. We know there is a genetic component. We know that smoking cessation, blood pressure control, cholesterol lowering, all are factors that can decrease the progression of atherosclerosis.

How do we evaluate risk, and what are the treatment options that can help prevent cardiovascular disease and heart attacks? Because for many patients cardiovascular disease is asymptomatic, assessing a patient's cardiovascular risk may be used to prescribe preventive treatments.

Dr. Guleria: There are certain risk factors that we know are greater than others: total cholesterol that is higher than 240; systolic blood pressure greater than 160 or diastolic pressure greater than 100; if a person smokes or has diabetes, or has a close relative with history of heart attack or cardiovascular disease. The more risk factors you have, the worse it is.

We also know what factors can reduce your risk: cholesterol less than 180, blood pressure less than 120/Oftentimes, patients fall in an intermediate risk between the aforementioned values, and additional tools are needed to risk stratify them.80, no smoking, and no diabetes. There are also established risk scores that patients and doctors can use to help determine their likely risk for a heart attack, including the Reynolds Risk Score for women, and the Framingham Risk Score.

Dr. Shaver: There are some other tests we can use to measure risk. We can determine the patient's coronary calcium score, which correlates with plaque in the arteries. There is the CIMT [Carotid Intima-Media Thickness] test, which uses ultrasound to measure the thickness of the carotid artery. We can also take a baseline stress test using the electrocardiogram.

Dr. Shaeffer: A negative treadmill stress test may not help you very much. A positive treadmill gives you a lot of information and can certainly indicate whether a patient is in a high risk category. When we're thinking about these additional tests, they are really most applicable to people who are in the intermediate-risk group, patients without known cardiovascular disease, and patients with two or more risk factors.

Dr. Shaver: Another risk factor is the metabolic syndrome. Some experts have said that there is a metabolic syndrome pandemic. Dr. Guleria, tell us about metabolic syndrome?

Dr. Guleria: I think, it does exist. However, there is debate whether metabolic syndrome confers risk beyond its individual components. These are the people who have abdominal obesity, high blood pressure, triglycerides greater than 150, low HDL (high-density lipoprotein, good cholesterol), fasting blood glucose greater than 100. Anybody who has two or more of these criteria is considered to have metabolic syndrome, and as you know, it is now considered a risk factor for atherosclerosis.

Dr. Shaver: The prevalence of metabolic syndrome is significant: approximately 46 million adults in the United States have it. Without a doubt, it increases the risk of cardiovascular disease by two times, and increases the risk of diabetes about five times. I find the motivating term to tell my patients who have glucose between 100 and 126 (126 being the cutoff for diabetes) is that they have "pre-diabetes." That sometimes is a motivating factor to get them to lose weight

Dr. Guleria: A lot of physicians and patients underestimate the importance of lifestyle modification. I always ask my patients to exercise regularly, see a dietician, change their diet, because even 10 percent weight loss can be significant in not just reducing glucose, but also blood pressure and cholesterol. Dieting and exercise will be my first recommendation to a person with metabolic syndrome or pre-diabetes.

Dr. Shaver: In terms of body fat, is all fat the same when it comes to risk factors?

Dr. Guleria: Abdominal fat is worse. Fat in the hips, however, does not place you at more risk for heart disease. It is now known that fat tissue is metabolically very active and constitutes the largest endocrine organ. Leptin and adiponectin are two examples of hormones produced by fat tissue. Adiponectin may provide a key link between obesity and type 2 diabetes.

Dr. Shaver: Let's talk about cholesterol and lipid-lowering therapy statins. Statins are medications that lower cholesterol levels in the blood by inhibiting an enzyme in the synthesis of cholesterol in the liver. There are a number of different statins that our patients are familiar with — Lipitor®, Crestor®. Dr. Shaeffer, what's the low-density lipoprotein (LDL) receptor, and how is this affected by statins?

Dr. Shaeffer: Cholesterol is made in a number of areas in the body, and it circulates in our blood throughout the body. Low-density and high-density lipoproteins serve to transport cholesterol in the blood for bodily functions as well as deposition, sometimes in undesirable sites, such as the arterial wall. If there is less LDL cholesterol formed in the liver, then the LDL receptor in the liver attracts cholesterol circulating in the blood into the liver cell, and therefore the LDL concentration in the blood drops. Statin therapy accentuates this process by reducing cholesterol synthesis in the liver cell.

Dr. Shaver: LDL does provide a good function — you can't make cell membranes without cholesterol. It is absolutely critical to life, which is why our livers manufacture it. You have to have it, but we don't want the level in the blood too high.

Dr. Shaeffer: Statins are very effective. They lower LDL and they may also reduce plaque. But, some patients on statins complain of muscle pain. For a small percentage, the pain can be intense and may necessitate stopping the drug. If that occurs, I usually switch the patient to a different statin or lower the dose. Statins are also just as effective in women as they are for men. They're our drugs of first choice. We want to do everything we can to help our patients tolerate them.

Dr. Shaver: What about Coenzyme Q10? Does it have a role in treating patients who are intolerant of statins?

Dr. Shaeffer: There's no scientific data that shows it's effective, and it's expensive. Red yeast rice is another supplement patients ask me about. It's a low-dose statin, and I

have seen patients get much pain from red yeast rice.

Dr. Shaver: *I have this theory about supplements. If a patient goes to the health food store and gets something, they think they're healthy. If you give them a prescription, they think they're sick. People are resistant to taking prescription medicines, but they will take something over-the-counter. Now, let's go to an absolutely perfect drug. Niacin is a vitamin, water-soluble B complex, B3. In 1955, they noted it decreased cholesterol. It's the best high density lipoprotein raising drug we have, and it lowers LDL, it lowers triglycerides... it seems to do everything right.*

Dr. Shaeffer: It doesn't lower LDL quite as much as statins do, but it does have a favorable effect. It has a significant effect on raising HDL, the favorable lipoprotein. However, it has side effects that are difficult to deal with, primarily flushing, which is caused by dilation of the blood vessels, and in some cases rashes and itching. So, many patients don't like niacin.

Dr. Guleria: I have some patients who tell me that they do get some flushing from niacin despite aspirin or ibuprofen, but it's tolerable, and they have learned to sleep through the flushing. Obviously, if the flushing is bothersome, I switch them to some other cholesterol-lowering medication.

Dr. Shaeffer: I do think that you have to tell the patient they're going to flush. Because almost every patient does. But, I think the key thing to tell them is that if they continue to take the drug, the flushing will get better. If they really want to raise their HDL, which I tell them is very important, this is what you have to do.

Dr. Shaver: *Patients also ask about aspirin. The American Heart Association® recommends aspirin as a secondary prevention, as therapy for patients who've had a heart attack or ischemic stroke, or who have stable angina. It's use for primary prevention is more controversial. Another over-the-counter product that has gotten a good deal of attention is fish oil.*

Dr. Shaeffer: Fish oil is very interesting. It has some potential therapeutic effects as far as the Omega 3s are concerned. It has some effects on cardiac membranes. It may have some anti-arrhythmic effects. In trials, people who were put on fish oil in a small dose, one gram a day, had a favorable outcome. If you look at the epidemiology of Omega 3, the Japanese have a very low incidence of cardiovascular disease. In much higher doses, generally two to three grams of EPA and DHA (good fatty acids), components of the fish oil have a very potent impact on reducing triglycerides.

Dr. Shaver: *What about vitamin D?*

Dr. Guleria: Vitamin D is the only vitamin that can be synthesized by humans. Vitamin D deficiency is an epidemic. Unless the level is checked, the condition may remain undiagnosed. Even in those people who are living where there is good sun exposure and who seem to have normal dietary habits, people are frequently vitamin D deficient. There is no hard evidence that vitamin D reduces any specific kinds of cancers or reduces cardiovascular mortality. The major benefit of vitamin D replacement is better muscle strength (thus, reducing falls in the elderly) and less osteoporosis.

Dr. Shaver: *There's actually a trial, NIH [National Institutes of Health] is sponsoring, with 20,000 people called the Vital Trial. It's going to be 2,000 units of vitamin D daily plus fish oil.*

Dr. Guleria: It's interesting that this NIH study is giving them 2,000 IU (international units) daily because some studies have shown that the risk of complications from vitamin D, mainly hypercalcemia (too much calcium in the blood), may be increased in some people at doses as low as 2,000 IU daily.

Dr. Shaver: *Charlie, the new National Cholesterol Education Panel guidelines should be out soon, what do you think is going to be new? I think that we will use statins more liberally given their excellent safety record and the availability of potent generic forms. Atorvastatin, i.e., Lipitor should be generic in 2011.*

Dr. Shaeffer: I think more people will want their LDLs lower, because even for primary prevention, getting the LDL down around 55 seems to do a lot of good as the recently published JUPITER Trial demonstrated. I think the LDL goals across the board will be less, and they will certainly be less in people who have very high risk and for those with high risk.