Goals and Objectives of Maintaining a Healthy Lipid Profile

Maintaining Your Health on Mackinac

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The lipid profile is a group of tests done on blood samples in the fasting state. The lipids, total cholesterol, and a group of subsets of cholesterol and triglycerides, the pre-fats, are measured. The lipid profile is definitive in relating to the onset and progression of cardiovascular disease. Most importantly, it is the key to measuring the efficacy of a program of prevention of heart attacks and strokes, which affect 40 percent to 50 percent of all Americans.

The past two decades have produced giant strides in scientific research in the biology and chemistry of these substances, providing more efficient methods for medical progress in health maintenance. Indeed, increasing understanding and implementation of new guidelines by the public are, in turn, leading the way in preventive medicine. Goals and objectives have been changing, with life-saving results.

The importance of cholesterol has been known for more than 40 years. Initially, the simple concept of total cholesterol in the blood was dominant and the focus was on the total blood cholesterol level; the critical level was 240 milligrams per deciliter. With surveillance of large numbers of individuals, prominently the Framingham Heart Study, it was revealed that at least half of heart attack victims had levels of 240 milligrams or below.

Cholesterol is a waxy substance that is not soluble in water and requires linkages with substances called lipoproteins for transport in the bloodstream. These lipoproteins are measurable by density, with High Density Lipoproteins (HDL) and Low Density Lipoproteins (LDL), and they are clearly separable as to their effects on the lining of blood vessels. HDL is the "good" cholesterol and LDL the "bad" cholesterol.

Today, under relatively recent guidelines, the goal for total cholesterol is 200 milligrams or less, with 180 or less deemed as "heart healthy." The fractional components of these lipoproteins have different effects on health. The HDL can be protective, while the LDL is detrimental.

When oxidized, the LDL becomes glued to the lining of arteries through the system, causing microscopic penetration and formation of plaque as an inflammatory response. This is at the nexus of heart attack, peripheral occlusive arterial disease, and stroke. Lowering the LDL is the obvious important target. People who have a low risk for heart disease should carry a level of 130 milligrams or less; for someone who has already been diagnosed with heart disease or is at high risk, the level recommended is 100 or less.

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The HDL, on the other hand, can reverse the transport of cholesterol back into the bloodstream, clearing the vessels and routing it to the liver for elimination. Thus the higher the HDL levels, the better. The goal for HDL is a "low" of 40 milligrams for men and 50 milligrams for women. Levels below these are associated with increased risk for heart and vessel disease.

HDL levels of 60 milligrams or higher are strongly protective. Strong evidence exists that increased risk is linked more strongly to low HDL levels than to high LDL levels. As the HDL rises, for every one milligram, the risk falls two to three percent. HDL is a deterrent to the oxidative properties of LDL, it helps in vessel repair as an anti-inflammatory agent, and it also has anti-clotting properties. It has been shown that people who live long lives without progression to heart disease have very high levels of HDL.

Lifestyle modifications can help in increasing HDL. Regular aerobic exercise is good, yet for significant benefit, about 1,200 calories needs to be expended per week on programs like brisk walking, jogging, cycling or swimming. It is the duration and not the extent of the exercise that is the criterion. Realistically, it means walking briskly for three miles four times a week; that is one way. Quitting tobacco can increase HDL by 15 to 20 percent. Losing weight, if you are overweight, can result in improvements in HDL levels. Diets rich in whole grains, legumes, fruits, and vegetables are linked to higher levels. Eating fish and consuming fewer refined carbohydrates is recommended. Among the fats, monounsaturated fats in canola, olive, avocado, nuts, and seeds are helpful. Partly hydrogenated unsaturated oils, the trans-fats, are to be avoided. These raise LDL and lower HDL and are found in many processed foods, bakery products, and snacks. Increasing soluble fiber in the diet, found in vegetables, fruits, legumes, and oats, is helpful. Regarding alcohol, one to two drinks a day may increase HDL levels, but increasing amounts bring added risks to heart disease.

Cholesterol metabolism is intricately related to genetic inheritance. In many instances, cholesterol may not be managed by dietary and lifestyle modifications. When indicated then, in addition to a heart healthy diet and regular exercise, medications will be required.

Statin drugs have revolutionized the treatment of cholesterol abnormalities. They work through the liver and regular testing for side effects is needed. Another medication that works by lowering absorption of cholesterol, from food, in the intestine may be added to the regimen of treatment. This drug, ezitimibe, may be taken separately or is now available in combination with a statin. The recent and perhaps more important focus is now on HDL and attempts to elevate it are being addressed, when indicated, with medications called fibrates and prescription niacin-based medications. They are able to help increase HDL by 10 to 15 percent.

Clearly, all medications taken to control abnormalities of cholesterol need to be carefully understood; regular testing for efficacy as well as for the evaluation and progression of heart disease should be done under the direction of your physician.

To summarize, modern management of cholesterol metabolism is based on regular testing. Total cholesterol levels recommended are 200 or less (180 or less is heart-healthy); HDL levels 40 for men and 50 for women or higher and LDL 130 or less (100 or less for high-risk) individuals. A heart healthy diet, regular aerobic exercise, and avoidance of tobacco are indicated for all, especially people with high risk for heart disease. When indicated, the additive regimen of medications, taken under supervision of a physician in a regular overall program, including regular testing, will help you be healthy, and may well save your life.

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