Down With the Bad and Up With the Good …. Cholesterol, That is

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Over the past few decades, much evidence has accumulated which demonstrates that elevated levels of LDL cholesterol (LDL-C; the "bad" cholesterol) are an important risk factor in the development of coronary artery disease. Multiple studies, primarily using highly effective medications called "statins," have shown significant reductions in major cardiovascular events by lowering levels of LDL-C. Yet the majority of patients who take these medications may still suffer a heart attack or other serious cardiovascular problems. How then do we explain this "residual risk"? Many potential factors acting alone or in concert may impact cardiovascular risk, but the issue is much more complex than simply reducing LDL-C.

Low concentrations of HDL cholesterol (HDL-C; the "good" cholesterol) are one of the major factors in residual risk, and are often under treated. A low level of HDL-C (less than 40 or 50 mg/dl for men and women, respectively) is not uncommon and has been recognized as an independent (i.e. regardless of LDL-C) risk factor for coronary artery disease. A woman's level of HDL-C tends to be much higher than a man's, and may be one explanation for their relative protection against coronary artery disease in the premenopausal years. After menopause, HDL-C levels fall, and a woman's risk catches up to, and eventually surpasses, that of men. HDL is felt to be cardioprotective primarily by transporting cholesterol from the tissues of the body back to the liver, where it can be properly disposed. HDL also has other beneficial antioxidant and anti-inflammatory effects. Low levels of HDL-C may be seen in isolation, but most commonly are associated with elevated levels of triglycerides, central obesity, and insulin resistance as part of the Metabolic Syndrome. In fact, up to 50% of men with coronary artery disease and most diabetics have a lipid problem characterized by high triglycerides, low HDL-C, and small, dense LDL particles. Standard cholesterol testing may not fully identify this disorder.

Suboptimal levels of HDL-C are the most difficult portion of a cholesterol profile to improve. As usual, lifestyle changes are the foundation of treatment, and include a low dietary intake of simple carbohydrates and white starches and increased intake of mono- and polyunsaturated fats, regular exercise, and weight loss. Regular moderate alcohol use (no more than one or two normal sized drinks/day) can also raise HDL-C levels, and this effect is not just limited to red wine. Despite conscientious efforts at all of the above, medications are often necessary. The most effective medication available to improve HDL-C concentrations is niacin (vitamin B3). High doses of niacin are necessary to achieve these results, but the occurrence of expected side effects often limits its use.

Because of these issues, moderate-dose niacin is most often used in combination with statins or other cholesterol-lowering medications.

In conclusion, HDL helps protect against cardiovascular disease by removing excess cholesterol from body tissues and exerting powerful antioxidant and anti-inflammatory effects. Low levels are an independent risk factor for coronary artery disease and are most often found in patients with the Metabolic Syndrome. Alterations in diet, regular exercise, and weight loss are necessary, but usually insufficient to remedy this problem. High doses of niacin are often required and very helpful, but due to metabolic and nuisance side effects, should only be used under the supervision of a physician.