



Review Article

Nutritional Protocol for Hypercholesterolemia

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Abstract

Hypercholesterolemia is a condition that is prevalent throughout the Western world. It is closely associated with coronary artery disease (heart disease), the leading cause of death in the United States. Statin drugs (HMG-Coenzyme A reductase inhibitors) are the most popular treatment option for traditional medical practitioners. However, these medications are associated with serious risk factors. These include muscle pain, congestive heart failure, liver damage, muscle damage and new onset of type II diabetes mellitus. Statin drugs are not recommended for diabetics or people with a history of liver disease, or during pregnancy. This paper reviews the literature for alternative treatments that will lower total cholesterol levels and improve the overall lipid profile of a patient with hypercholesterolemia.

Hypercholesterolemia, hypertriglyceridemia and combined hyperlipidemia are implicated in the majority of deaths in the United States. Collectively, these conditions are sometimes referred to as dyslipidemia. Currently, it is estimated that 15 million people in the US take statin drugs for dyslipidemia. Another 20 million are recommended to take statins by their physicians and choose not to.

It is recommended that total cholesterol levels should be below 200 mg/dl, triglycerides below 150 mg/dl, LDL below 130 mg/dl and HDL above 40 mg/dl for males, above 50 mg/dl for females.

Although statin drugs are considered safe, up to 39% of patients have side-effects of myalgia and/or elevated liver enzymes. They are known to lower tissue levels of Coenzyme Q10 and are not appropriate for pregnant women. Other more serious side-effects include new or worsening congestive heart failure.

Ideally, raising HDL levels and lowering LDL levels and total cholesterol is ideal. Although statin drugs lower total cholesterol and LDL levels, they do little to raise HDL levels. Fortunately, most of the natural alternatives to statins positively affect blood lipids in multiple ways.

Diet

A diet rich in plant-based foods (vegetables, fruits, whole grains and legumes, high in mono-unsaturated fatty acids and omega-3 fatty

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acids, and low in arachidonic acid (saturated animal fats) has been shown to greatly reduce the risk of mortality from CAD [1,2].

Niacin

Niacin is often thought of as difficult to use and somewhat dangerous. While some forms of niacin (slow-release) can be hepatotoxic, the non-flush form (inositol hexaniacinate) is well-tolerated and has great therapeutic benefit. In the famed Coronary Drug Project, niacin was the only cholesterol-lowering agent that reduced overall mortality. Even 15 years after stopping supplementation, the benefits of niacin supplements were evident [3]. Niacin has been shown to affect multiple aspects of atherosclerosis, including lowering overall cholesterol, lowering LDL, raising HDL and lowering lipoprotein (a) [4].

Since most cholesterol synthesis occurs during sleep, inositol hexaniacinate should be taken just before bed [5]. Dosing begins with 500 mg/day, increasing the dose by 500 mg every two weeks until the therapeutic dose of 1500-3000 mg/day is achieved. If after three months, cholesterol levels are normal, withdraw inositol hexaniacinate. If cholesterol remains high, consider including guggulipid in addition to niacin. Liver enzymes should be checked before ensuing the protocol and every three months. No one with pre-existing liver disease or elevated liver enzymes should be given niacin in any form.

Pantethine

This is the stable form of pantothenic acid (B5), the most important component of Coenzyme A (CoA). CoA is essential for the utilization of fats within the cell. Pantethine (not pantothenic acid) has been shown to be effective in lowering blood lipids, especially triglyceride levels [6,7].

Garlic (*Allium sativum*) and Onion (*Allium cepa*)

Both garlic and onion impact atherosclerosis at several steps. In several studies, the supplementing of garlic at doses of 10 mg of alliin or a total allicin potential of 4000 mg can lower total serum cholesterol by about 10-12%, LDL by 15% and increasing HDL by 10% and a reduction of triglycerides by 15% [8,9].

Guggulipid

The guggulsterone fraction of gum guggul was shown to exhibit impressive anti-inflammatory and hypocholesterolemic activity. The standardized extracts (E-guggulsterone and Z-guggulsterone) are well-tolerated with no known side effects. Guggulipid is also appropriate for the rare patient that cannot tolerate inositol hexaniacinate. Dosing is 25 mg, three times per day of guggulsterones is effective for elevated cholesterol, elevated triglycerides, or both [10].

Vitamin C

Ascorbic acid (Vitamin C) works as an antioxidant in aqueous solutions, both inside and outside of the cell. Along with Coenzyme Q10, it regenerates vitamin E (the primary fat-soluble antioxidant) in the body. Even in smokers, vitamin C is extremely effective in preventing oxidation of LDL [11]. Vitamin C supplementation at 500 mg/day along with 272 IU/day of vitamin E for six years was demonstrated to reduce the progression of carotid artery atherosclerosis by 53% in men

and 14% in women [12]. Taking high doses of vitamin C can cause diarrhea. This usually happens in doses above 2500 mg/day.

Vitamin E

There are conflicting studies regarding vitamin E and its ability to prevent LDL oxidation even though it has been clearly demonstrated that vitamin E is able to become incorporated into the LDL molecule. The higher dosage of vitamin E, the greater degree of protection from oxidation. Most researchers agree that 400 IU are needed to get clinically significant effects [13,14].

Conclusion

Given the large number of patients that cannot tolerate statin drugs, combined with the serious side-effects they are associated with, alternatives for dyslipidemia are more attractive than ever. These alternatives can provide equal and sometime superior effects than statin drugs alone. Considering cost, safety and efficacy, practitioners can be confident that using these alternatives may provide more desirable outcomes.

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