Summary

Phytosterols are sterols found naturally in various oils from plants. Phytosterols compete with cholesterol for a place in the mixed micelles, needed for cholesterol absorption by the small intestine. As a result, cholesterol absorption, either from food or from bile salts is lowered by about 50%, leading to a lowering of about 10% of blood cholesterol level, despite an increase in hepatic cholesterol synthesis. This reduction is achieved when phytosterols are given both as monotherapy, and in addition to statin therapy. The average Western diet contains about 400–800 mg of phytosterols per day, while the dose needed for lowering the blood cholesterol level is about 2–3 grams per day. Therefore, for the purpose of reducing blood cholesterol, they should be given either as phy-tosterol-enriched food or as supplements. The reduction in the level of low-density lipoprotein (LDL) cholesterol achieved with phytosterols may reduce the risk of coronary disease by about 25%. For this reason the American Heart Association has recommended the consumption of phytosterols, as part of a balanced diet, for lowering blood cholesterol levels.

High levels of LDL cholesterol is a well known risk factor for atherosclerosis, which is the main cause of mortality in Western countries [1]. Statins are the drugs of choice for people who are at high risk of developing cardiovas-cular diseases, and who have LDL cholesterol levels higher than recommended [2]. Following recent studies, low LDL cholesterol target levels have been set for high-risk patients. Such target levels mandate the use of high doses of potent statins in many cases [2]. Some of these high-risk patients fail to reach LDL cholesterol target levels even with intensive statin therapy. Moreover, 10–20% of statin-treated patients develop side effects (mainly myopathy), which limit the ability to use intensive statin therapy [3]. Potential therapies in such cases include ezetimibe, bile acid sequestrants and niacin [2]. Another treatment option which gathered renewed interest in re-cent years is the use of phytosterols. Phytosterols are plant-derives sterols that inhibit the intestinal absorption of cholesterol. This review covers current knowledge on cholesterol absorption and the available data concerning phytosterols efficacy and safety.

Keywords

Phytosterols, sterols, stanols, cholesterol