

Case Report

Dietary Supplements in Dyslipidemia

Emily Gutierrez¹, Yousef Elyaman¹

1. Neuronutrition Associates 6618 Sitio Del Rio Suite D102 Austin, TX 78730; E-Mail:
drelyaman@hotmail.com

* **Correspondence:** Dr. Gutierrez; Email: info@neuronutritionassociates.com; Taylor Hohmann;
Email: nutrition@neuronutritionassociates.com

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Abstract

Lifestyle and dietary interventions can have a significant impact on patients with dyslipidemia and should be encouraged with the use of dietary supplements. With new research, there is evidence that using dietary supplements, specifically nutraceuticals can be helpful for cholesterol management. Four commonly used supplements are: Red Yeast Rice, Omega 3 Fatty Acids, Niacin and Berberine.

Keywords

Dyslipidemia; dietary supplements; high cholesterol; lifestyle; interventions

Dietary Supplements in Dyslipidemia

While dietary and lifestyle intervention should be the primary treatment for dyslipidemia, there may be a role for recommending specific dietary supplements. This report focuses on four commonly used supplements that have demonstrated efficacy.



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1. Red Yeast Rice- is a fermented rice product containing monacolin K, an HMG- CoA reductase inhibitor. It has been found to lower total cholesterol, low-density lipoprotein (LDL), and in one study, decrease mortality in patients with cardiovascular disease [1-3]. Even though monacolin K is the active ingredient in lovastatin, the lipid lowering effect of Red Yeast Rice is greater than equivalent doses of lovastatin, suggesting other active ingredients. The source is extremely important ensuring that every batch is citrinin (a potentially nephrotoxic mycotoxin) free [4]. Red yeast rice dosages of 600-1,200mg/day are most widely studied but some data suggests 2,400-4,800mg/day [5].

2. Omega 3 Fatty Acids- both docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) have been widely studied for the treatment of heart disease and hyperlipidemia [6, 7]. Newer data supports EPA only formulations significantly reduce lipid peroxidation and cholesterol formation at a dose of 1,800mg/day [8, 9]. Not only has it been found to lower triglyceride and LDL levels, but it has demonstrated possible plaque regression and improvement in unstable angina when given with a statin vs statin therapy alone.

3. Niacin- or (B3), is a water-soluble vitamin that has been shown to be effective in dyslipidemia. Negative effects of niacin found in the HPS2-THRIVE study may have been due to the addition of laropiprant (a prostaglandin D2 receptor antagonist) and should not be attributed to niacin alone [10]. Also of note, the nicotinamide or “flush free” form of niacin does not have lipid lowering properties and should not be used in place of nicotinic acid. Recommending baby aspirin 30 minutes prior to dosing, slow titration, and using an extended release formula may decrease the common side effect of flushing. Dosages range from 500-4,000mg/day [11]. Caution is advised in diabetic and hyperuricemia patients since niacin can increase both serum uric acid and glucose.

4. Berberine- is an isoquinoline plant alkaloid that has several therapeutic benefits including cholesterol and glucose lowering properties [12-14]. Preliminary data suggests it to be a potential proprotein convertase subtilisin-like kexin type 9 (PCSK9) inhibitor. PCSK9 is a serine protease that degrades hepatic LDL receptors increasing serum LDL [15]. The recommended dose is 1-4g per day.

Clinicians must be judicious in their use of prescribing dietary supplements, taking into account comorbid conditions and closely monitoring laboratory values pre and post treatment to ensure safety and efficacy.

Dietary supplements lack the same regulatory rigor as prescription medications in the United States, therefore specific product and brand recommendations are imperative for clinicians to give to their patients so that product potency, purity, and quality can be assured [16]. Recommendations should include pharmaceutical grade supplements that have third party product testing and verification through organizations such as Good Manufacturing Practice Certification or the National Sanitation Foundation.

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Author Contributions

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Competing Interests

The authors have declared that no competing interests exist.

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