Reviewing your investment strategy: where does diet fit in your personal portfolio\textsuperscript{1,2}

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In this issue of the Journal, Jenkins et al (1)—from the University of Toronto, Unilever, and the Almond Board of California—present the results of a provocative comparison of 3 cholesterol-lowering interventions: a low-fat vegetarian diet, the same diet combined with 20 mg of the cholesterol-lowering drug lovastatin, and a diet containing a “portfolio” of foods with enhanced cholesterol-lowering properties. The results of this short-term study are impressive—consumption of the portfolio diet resulted in a nearly 30% reduction in LDL cholesterol. Even though statin therapy achieved a small but significantly greater reduction in LDL than did the portfolio diet, the authors concluded that both therapies permitted a similar number of persons to achieve their LDL therapeutic target. Does this mean that dietary therapy will be resurrected as a viable nondrug option when aggressive lipid-lowering therapy is indicated? Will we be seeing branded “portfolio diet” products in the grocery stores? Should more patients consider dietary therapy to achieve primary prevention goals?

Any diet devotee cheering these results needs to reexamine whether there really is a diet-versus-drug debate for cholesterol lowering and, more important, whether the results of any such debate are relevant to a patient determined to take all steps to reduce his or her risk of disease. Drugs are designed specifically to accomplish a biologic task; their use is optional for some but mandatory for many. A diet is designed to sustain life; dietary intake is not optional, but good dietary choices can enhance the control of disease. For many, it is not the choice between diet and drug therapy per se that is important—it is the choice between which set of therapy-associated risks and inconveniences is more acceptable to achieve control of disease.

Jenkins is an outstanding advocate of dietary therapy. He has combined all of his previously successful interventions into a portfolio designed to achieve the maximum cholesterol lowering that diet can offer. Implementing a portfolio diet requires a major commitment. Exclusion of meat and dairy products is necessary to achieve a dietary cholesterol intake of \(<25 \text{ mg/d}}\). Soy and tree nut proteins serve as the primary sources of protein. Such a diet is enriched with high-fiber foods—at least double the average US intake—and is supplemented with 40% psyllium, a dietary fiber supplement. Plant sterol esters are added through the use of enriched margarine. The commitment to a portfolio diet by some patients is a minor difficulty compared with the risks of drug therapy; however, to most patients, the inconveniences of the portfolio diet outweigh the minor non–life-threatening risks of statin therapy that have been estimated to occur in up to 15% of patients receiving long-term treatment (2).

If this commitment is made, will the stellar results reported in this Journal be achievable in our clinics? Several aspects of the trial design and execution may have contributed to its enhanced efficacy. The trial enrolled subjects who were lean and followed a baseline diet already low in dietary cholesterol. Both leanness (3) and chronic low cholesterol intake (4) are associated with hyperresponsiveness to diet. The subjects essentially had “mixed dyslipidemia” and an average fasting triacylglycerol concentration \(>150 \text{ mg/dL}}\), and only single measurements at 2 and 4 wk were made to determine efficacy. Because LDL concentrations were calculated, day-to-day fluctuations in triacylglycerol concentrations could have resulted in spurious changes in LDL (5). Finally, lipid lowering was assessed as changes from an ad libitum diet, which introduced bias. A better comparison of the efficacy of statin drugs with that of the portfolio diet would have defined the control diet as baseline, which would have removed any influence that an ad libitum lifestyle could have had on the calculations of benefit (6).

Jenkins et al cited literature that supports the cholesterol-lowering efficacy of their 4 primary dietary maneuvers but failed to cite trials that found less robust responses. Specifically, 3 dietary elements—soy protein, fiber, and nuts—have not consistently achieved the large reductions in LDL that were cited by Jenkins et al. In a randomized trial of soy protein, a 5% reduction in lipids was observed, but only in hypercholesterolemic subjects (7); this and other evidence convinced the Adult Treatment Panel of the National Cholesterol Education Program not to include soy protein as one of their dietary adjuncts. The benefits of high-fiber diets are limited by their palatability. For example, guar gum can lower LDL by 12% (8), but it is not well accepted by the American palate. The dose of psyllium in a typical fiber supplement consists of 3.4 g psyllium husks, or 2.4 g soluble fiber. In the study by Jenkins et al, subjects consumed 3–5 doses of psyllium per day. At more typical soluble fiber intakes, a 3% lipid-lowering effect can be reasonably expected. Those who achieved the greatest reductions in LDL consumed 8–10 doses per day. A 3% lipid-lowering effect from the consumption of water-soluble...
fiber is a reasonable and reproducible goal (9). A 10% reduction in LDL can be achieved with the consumption of sterol esters (10). The lipid-lowering effects of nuts may be due more to a substitution rather than to a direct lipid-lowering effect; ie, nuts contain less saturated fat than do many other protein sources (11). Optimistically, the portfolio diet might be expected to produce a 13–20% reduction in LDL.

Even if the real world implementation of the portfolio diet does not achieve as great an LDL reduction as observed in the study by Jenkins et al, this important study reemphasizes how diet fits into one’s investment in his or her personal health. Dietary therapy is an essential component of both the primary and secondary prevention of coronary disease. Good dietary habits belong in every long-term disease-management portfolio.

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REFERENCES