Can a Mediterranean-Style Diet Reduce Heart Disease?

Rose Marie Robertson, MD; Lynn Smaha, MD, PhD

Cardiovascular disease and stroke are the leading causes of death and disability in the United States, and the prevalence of these diseases continues to increase on a global basis. Since Brown and Goldstein\(^1\) first reported the influence of plasma cholesterol levels on the atherosclerotic process, there has been a public health focus on the effects of altering cholesterol levels by diet and other lifestyle behaviors on the progression and development of cardiovascular disease.

Recently, evidence has also suggested that dietary patterns may have an effect on the mechanisms of atherosclerotic plaque vulnerability and the progression to thrombosis.\(^2\)

Both epidemiological studies and randomized clinical trials\(^3-6\) have shown that a substantial number of cases of coronary heart disease can be prevented by appropriate interventions. Although the beneficial effect of lowering LDL cholesterol and triglycerides with medications\(^7-10\) has been well documented, lifestyle modifications, dietary interventions, and control of known risk factors are all considered key components of treatment and prevention.

The American Heart Association (AHA) Step I and II diets have been widely recommended as components of treatment for patients at risk of coronary heart disease.\(^11\) Key components of these diets are reductions in the proportion of dietary calories derived from fat and, in particular, a decrease in saturated fats and cholesterol to levels substantially below the average American diet.\(^12\) There are also specific recommendations to increase the dietary intake of fruits, vegetables, and whole grain products.

Unfortunately, despite the well-documented evidence regarding currently available and effective methods of intervention, the burden of cardiovascular disease in the United States and the world is excessive,\(^13\) and we must continually seek better ways to lower the prevalence of cardiovascular disease.

We currently live in an age in which dietary advice comes in many forms, the range of recommendations is broad, and the science behind these recommendations is highly variable. The consumer is often bewildered and confused about which advice is best and which is also based on sound science.

In this issue of Circulation, the AHA issues a scientific advisory\(^13\) stating that a Mediterranean-style diet demonstrates impressive effects on cardiovascular disease. Early reports from the Lyon Heart Study caused us to commission this advisory and to examine the current scientific basis for the effect of such dietary modifications in general; this led to recommendations for the AHA, practitioners, and the public. Because of the potentially substantial significance of their findings, we believe an aggressive pursuit of the issues raised by the study\(^14\) and the advisory\(^13\) must be undertaken.

The Lyon Diet Heart Study,\(^14\) although conducted in a relatively small population, provides interesting and potentially significant enhancements to the dietary management currently provided by the AHA Step I and II diets. At the core, there are many similarities between the AHA Step diets and the Mediterranean-style diet; however, the Lyon diet added specificity regarding form and types of fat-containing foods and oils. \(\alpha\)-Linolenic acid was provided as a supplement. Of additional note is the work on the importance of omega-3 fatty acids and their antithrombotic effects.\(^15,16\)

These results of the Lyon Diet Heart Study are highly significant and, if confirmed, they would provide substantially enhanced methods of reducing coronary heart disease and its risk. In addition, the rapidity of onset of the beneficial effects suggests that the diet had effects besides a decrease in the rate of progression of atherosclerosis.

The study, which was conducted over 46 months and was completed by 204 control and 219 intervention patients with similar risk factor profiles, showed that those in the intervention group had a 50% to 70% reduction of cardiac end points. These differences are highly significant, and if the diet results in equivalent results in non-Mediterranean populations, we will have at our disposal substantially enhanced methods to reduce coronary heart disease and its risk.

The scientific advisory issued by the expert panel raises key issues that should be addressed in the next studies in this area. These include the following:

1. Potential geographic and nonmeasured cultural and social differences among potential target populations. These differences will need definition and consideration to determine if the conclusions can be applied to a broader and more diverse population.
2. Enhanced definition of the baseline diets of both the control and intervention groups at the beginning of the study.
3. Enhanced, ongoing analysis of true dietary patterns throughout studies and an assessment of any changes in comorbid risk factors during the study.

It does seem that substantial enhancement to the effectiveness of our current dietary recommendations\(^11\) may be provided by integrating the features of the diet used in the Lyon Diet Heart Study with current AHA guidelines. Studies addressing the issues listed in the scientific advisory will need to be completed before this conclusion can be drawn. Such
studies should be aggressively pursued because of their major potential and societal impact.

References

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