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## Importance of Diet in Vascular Prevention: Vastly Underestimated

To the Editor:

Recent revisions to dietary guidelines for patients with vascular disease have again underestimated the importance of diet. In my view, this error is based on a misguided focus on fasting lipids. Because low-fat diets only reduce fasting cholesterol by about 10% on average, diet is thought to be unimportant compared with other interventions such as statin drugs.

The Lyon Diet Heart Study<sup>1</sup> should have changed the paradigm for dietary recommendations. In that study, 423 patients with a history of myocardial infarction were randomized to a Cretan Mediterranean diet versus a prudent Western diet. The latter group were advised to follow a prudent diet, but were given no specific dietary instructions; dietary questionnaires at the end of the study showed that these patients were consuming a diet equivalent to the National Cholesterol Education Program step 1 diet, with a cholesterol intake below 300 mg daily and 20% of calories from fat. The Mediterranean diet was high in beneficial fats (olive oil and canola margarine) and low in animal fat. The Mediterranean diet reduced death and myocardial infarction by 60% in 4 years ( $P < 0.0001$ ), an effect that was double that of simvastatin in the Scandinavian Simvastatin Survival Study (4S). Importantly, this benefit occurred without any difference in fasting lipids between the 2 groups. The Mediterranean diet was significantly lower in cholesterol and significantly higher in a number of beneficial substances, such as linolenic acid, but there was no difference in alcohol intake between the 2 groups.

Why has this study been so neglected? I believe that in part the problem is due to a failure to understand the importance of post-prandial fat. Most of the day, what is affecting the artery lining is not the fasting lipids, but post-prandial fat, which impairs endothelial function. A Mediterranean diet has been shown to improve endothelial function in hyperlipidemic men,<sup>2</sup>

perhaps because it has a higher content of antioxidants and significantly lower indices of lipid peroxidation.<sup>3</sup>

Contrary to widespread belief, even dietary cholesterol is very important. An egg yolk only increases low-density lipoprotein by about 10%, but it increases oxidized low-density lipoprotein by 34%.<sup>4</sup> In diabetics (a reasonable surrogate for patients with a risk similar to that of coronary patients), an egg a day doubles coronary risk compared with the risk from less than 1 egg a week.<sup>5</sup>

It is no longer reasonable for patients with vascular disease to be prescribed diets containing egg yolks and daily intake of animal flesh. Dietary recommendations need to take into account the importance of post-prandial fat and should be based on diets similar to the Cretan Mediterranean diet used in the Lyon Diet Heart Study.

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