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# A Mediterranean Type Diet Reduced All Cause and Cardiac Mortality After A First Myocardial Infarction

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**Question** In patients who have had a first myocardial infarction (MI), does a Mediterranean type diet (rich in  $\alpha$  linolenic acid) reduce death, subsequent MI, and cancer better than a diet similar to the Step 1 American Heart Association (AHA) diet?

Design

Randomised controlled trial with a mean follow up of approximately 4 years (Lyon Diet Heart Study).

Setting

A coronary care unit in Lyon, France.

## Patients

605 patients {mean age 54 y, 91% men}\* who had a first MI. {Exclusion criteria were severe heart failure, hypertension [blood pressure >180/110 mm Hg], inability to complete an exercise test, or other conditions thought to limit survival or participation}.\*

## Intervention

302 patients were allocated to a Mediterranean type diet consisting of increased bread, cereals, fresh fruit and vegetables, legumes, and fish; moderate amounts of red wine at meals; decreased meat and delicatessen foods; and no butter or cream (replaced by an experimental canola oil based margarine rich in oleic and  $\alpha$  linolenic acids). Foods were to be prepared with canola and olive oils. Patients and their families were seen by a dietitian at randomisation, 2 months, and then once each year. 303 patients allocated to the control group were to follow a diet similar to the Step 1 AHA diet of 30% total energy from fats (10% saturated, 10% monounsaturated, and 10% polyunsaturated) and <300 mg cholesterol each day according to advice from their attending physician.

## Main outcome measures

All cause and cardiac mortality, incident cancer, combined all cause mortality and non-fatal cancer, and combined all cause mortality, non-fatal cancer, and MI.

## Main results

Analysis was by intention to treat. After adjustment for sex, age, blood cholesterol concentration, leucocyte count, and aspirin use, patients allocated to the Mediterranean type diet had a lower risk of all cause mortality (relative risk [RR] 44%, 95% CI 21% to 94%); cardiac mortality (RR 35%, CI 15% to 83%); combined all cause mortality and non-fatal cancer (RR 44%, CI 24% to 83%); and combined all cause mortality, non-fatal cancer, and non-fatal MI (RR 38%, CI 23% to 61%); and a trend toward a decreased risk of cancer (RR 39%, CI 15% to 101%).

## Conclusions

After a first acute myocardial infarction, patients who followed a Mediterranean type diet had reduced all cause and cardiac mortality; combined all cause mortality and non-fatal cancer; and combined all cause mortality, non-fatal cancer, and myocardial infarction compared with patients who followed an approximate Step 1 American Heart Association diet. The Mediterranean type diet also showed a trend toward a decreased risk of cancer.

## Commentary

de Lorgeril *et al* provided good clinical control in the examination of their hypotheses that a Mediterranean diet would have both cardioprotective and cancer reduction effects. For example, they used annual follow up visits with a dietitian, did 3 day diet recall histories, and took blood samples to see if patients really used the diet advice. Both diets consisted of approximately 30% of calories from total fat, but differed in the type of fat consumed (eg, for the Mediterranean diet, fat was provided by canola margarine). The results add to the diet-disease debate that type of dietary fat contributes to morbidity and mortality over and above the effects of total fat intake alone.

Because the researchers did a good job of examining alternative reasons for their findings, I am convinced that it is prudent to advise patients that a Mediterranean diet would most likely be of help to them. Specifically, this means increasing carbohydrates, fruits and vegetables (5 servings/d), reducing meats, allowing moderate use of red wine with dinner, and using canola and olive oil exclusively, and no butter or cream.

Because the sample was primarily men, the generalisability of the results to women cannot be assumed. The authors also did not describe the racial distribution of the sample. It is unclear whether all components of the Mediterranean diet need to be adopted to have the protective effects. For example, could people just switch to

canola and olive oil or just consume a greater variety of fruits and vegetables, or do they really need to add red wine to their diet? Perhaps it is an interaction of all of these factors.

It was particularly interesting that patients with cancer had lower concentrations of trans-fatty acids and had not used lipid lowering drugs. Given that trans-fatty acids (which are formed during hydrogenation of oils into margarine) were associated with 6% of acute MIs in Italian women,<sup>1</sup> additional research should be done on this important topic.

## References

1. Tavani A, Negri E, D'Avanzo B, *et al.* Margarine intake and risk of nonfatal acute myocardial infarction in Italian women. *Eur J Clin Nutr* 1997;**51**:30–2.

## Footnotes

Source of funding: not stated.

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A modified version of this abstract appears in ACP Journal Club.

\* de Lorgeril M, Renaud S, Mamelle N, *et al.* *Lancet* 1994;**343**:1454–9.