

## **Dietary n-6 LA offers no protection against secondary cardiac events**

*Replacing saturated fats with unsaturated omega-6 linoleic acid increased mortality in males with a prior cardiovascular event*

R.M. Hadfield, PhD

February 14, 2013 – In a randomized-controlled trial of 458 males, with a previous myocardial infarction or other acute cardiovascular hospitalisation, replacing dietary saturated fats with unsaturated omega-6 linoleic acid (n-6 LA) failed to offer secondary prevention and increased mortality.

Christopher E. Ramsden of the Laboratory of Membrane Biophysics and Biochemistry, National Institutes of Health, Bethesda, Maryland and the School of Medicine at the University of North Carolina, Chapel Hill, North Carolina, and colleagues, published their findings in the *BMJ* on February 5, 2013.

The researchers noted that “there is currently no clinical trial evidence indicating that replacing saturated fatty acids with n-6 LA, without a concurrent increase in omega-3 fatty acids, lowers the risk of cardiovascular disease or death.”

Data from the Sydney Diet Heart Study, a single-blinded, randomized controlled trial conducted in the late 1960s on males, aged from 30-59, were re-analysed. Participants were selected from four teaching hospitals in Sydney, Australia at least 8 weeks after admission for acute myocardial infarction (86%) or coronary insufficiency (14%). The primary outcome was all cause mortality and the secondary outcomes were mortality from either cardiovascular or coronary heart disease.

In the dietary intervention group (n = 221) higher rates of mortality were observed compared to the control group (n = 237). All-cause mortality rates were 17.6% for the intervention group vs. 11.8% for the control group (hazard ratio 1.62; 95% CI 1.00 to 2.64;  $P = 0.05$ ). Similarly, for the secondary outcomes of cardiovascular disease and coronary heart disease the hazard ratios were 1.70 ( $P = 0.04$ ) and 1.74 ( $P = 0.04$ ) respectively.

The n-6 LA intake was increased from 6% to 15% of participants' daily energy. This was achieved by including safflower oil and safflower based margarine in the diet, while at the same time reducing saturated fatty acids to less than 10% and cholesterol to 300 mg daily. The controls were not given any dietary advice. At baseline the groups did not show significant differences in any criteria.

On further analysis, a stronger association was seen with increased n-6 LA intake and cardiovascular mortality for moderate to heavy drinkers and smokers. Ramsden *et al.* theorize that diets high in n-6 LA combined with the presence of oxidative stress may result in increased oxidized LA metabolites causing an increased rate of atherosclerosis.

“These findings could have important implications for worldwide dietary advice to substitute n-6 LA, or polyunsaturated fatty acids in general, for saturated fatty acids,” the researchers stated.

*The study was funded by The Life Insurance Medical Research Fund of Australia and New Zealand and The Intramural Program of the National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health. The authors reported no financial or other relevant conflicts.*

*BMJ February 5, 2013 online.*