Reviewer's report

Title: Effects of supplementing n-3 fatty acid enriched eggs and walnuts on cardiovascular disease risk markers in healthy free-living lacto-ovo-vegetarians: a randomized, crossover, free-living intervention study

Version: 1
Date: 27 November 2013
Reviewer: Franca Marangoni

Reviewer's report:

This paper reports results of an intervention study carried out on a small population with a well defined experimental design, aimed at evaluating the effects of the increase of dietary n-3 PUFA amounts on lipid profile and inflammatory markers. However there are some aspects that deserve to be clarified and/or further explained.

Introduction

"...Whether or not ALA and EPA/DHA have equivalent effects on CVD risk factors in healthy lacto-ovo-vegetarians (LOV) has not been conclusively established": the different roles of the 18 carbon ALA and of the longer chain EPA and DHA at cardiovascular level have been supported by a lot of publications. Moreover, being ALA of vegetable origin it is not clear the reason why vegans assume less ALA than omnivores.

"Consumption of ALA rich walnuts... similarly..." Again, walnuts and fatty fish provide different concentrations of different n-3 PUFA with different effects.

"The dietary ratio of n-6 to n-3..." From the Joint FAO/WHO Expert Consultation on Fats and Fatty Acids in Human Nutrition, 10-14 November, 2008, WHO, Geneva: Based on both the scientific evidence and conceptual limitations, there is no compelling scientific rationale for the recommendation of a specific ratio of n-6 to n-3 fatty acids or LA to ALA, especially if intakes of n-6 and n-3 fats lie within the recommendations established in this report.

Methods

Informations about the real amounts of ALA supplied with walnuts and ALA and DHA with enriched and standard eggs should be provided.

Results

Table 1: According to the study design session, standard eggs provide 1/10th ALA than enriched eggs; however the ALA intake results higher with standard eggs (1.35 g vs 1.04). These data need further clarification.

Table 2: what about differences between basal values and fatty acid levels at the end of each dietary period? Circulating DHA levels need more than 4 weeks to
reach basal values after supplementation with high doses.

The conversion of dietary ALA to EPA has been widely demonstrated. However EPA levels do not seem to be affected by supplementation with about 2 g ALA per day with walnuts. Please, explain. Moreover, the increase in n-3 PUFA is not followed by an increase in total PUFA in subjects supplemented with enriched eggs.

Table 3: what about differences between lipid/lipoprotein concentrations at the beginning and at the end of each dietary period? The reported data are inadequate to conclude that walnut supplementation

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests below. If your reply is yes to any, please give details below.