



Carnitine, the Life-Giving Nutrient

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Recently, the press has run amok with an article on L-carnitine, a nutrient synthesized from the amino acids methionine and lysine and necessary for the transport of fatty acids into the mitochondria for the generation of energy. The article in *Nature Medicine* looks at the effect of carnitine supplementation at mega doses **in mice** and the production of a toxic metabolite trimethylamine-N-oxide (TMAO), the production of which is based solely on the balance of the intestinal microbiota of these mice. It was not the carnitine in the mice leading to atherosclerosis, but the presence of a toxic metabolite, when mice colonic bacteria get a hold of massive overdoses of a nutritional supplement, which led to atherosclerotic mice! This is the article that your “media” stirs into a national frenzy?!

So, although I can point to *hundreds* of articles on the health benefits of carnitine *in Humans* and its derivatives acetyl-L-carnitine (ALC) and propionyl-L-carnitine (PLC), I will focus on a recent review available as a full article on PubMed. “Critical update for the clinical use of L-carnitine analogs in cardiometabolic disorders” Published in *Vascular Health Management*, 2011; 7 169-176. Let me quote a well-known fact among the nutritionally-educated medical community that led to this review: “The beneficial cardiovascular effects (*and anti-cancer – my addition*) of ALC and PLC have been extensively evaluated in animals and humans since the mid-1980s.” This is the article you never heard of. Critical teaching point: why do you believe the media selected one article that creates fear for public consumption when articles of relevance fostering hope get left hidden in obscurity?

This review looks at the nearly 30 years of research on carnitine analogs in the treatment of peripheral arterial disease (PAD), ischemic heart disease, cerebral ischemia, congestive heart failure (CHF) and the treatment of Type 2 Diabetes Mellitus. In atherosclerosis causing low blood-flow to the legs (PAD), carnitine, primarily PLC, has shown in multiple trials to improve both the physical and psychological quality of life. As low carnitine concentration in the heart has been repeatedly demonstrated in those who die of myocardial infarctions (MIs – “heart attacks”) both ALC and PLC supplementation have been studied for the improvement of myocardial ischemia with promising results yet larger trials are needed. The combination of ALC and alpha lipoic acid (ALA) has been proven to improve blood flow and decrease blood pressure in patients with stable coronary artery disease (CAD). ALC and ALA combined have consistently been shown to improve glucose metabolism in both diabetics and those with impaired glucose tolerance (“pre-diabetes”).

Most recently a double-blind, placebo-controlled study of ALC, 3000 mg per day, in patients with Amyotrophic Lateral Sclerosis (ALS – “Lou Gehrig’s Disease”) improved median survival from 22 months to 45 months! Yes a supplement doubled survival time, and functionality, in this uniformly fatal disease. Something so amazing had to be headline news!? No, an article on mice colonic bacteria intended to drive the fear-machine herding people away from reason and towards pharmaceutical answers for nutritional questions made headlines instead.

What I learned from this experience is that I don’t prescribe the carnitine analogs enough. Furthermore I do have to learn more about when PLC or ALC or both might be superior. In diabetes, atherosclerosis, and neurodegenerative disorders I typically prescribe the combination of ALA 300mg Time Release (Source Naturals) twice per day with ALC 500 mg (Source Naturals) 1-2 tabs 2-3 times per day. I will be combining ALC with PLC for atherosclerotic conditions. The publicized article also points towards the importance of our own colonic health in how we metabolize our food. I do hope that everyone learned not to listen to the media about health-related information other than to research anything reported as news before coming to your own conclusions.

Your Journey to Health and Healing,
Gary E. Foresman, M.D.

References:

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