Dynamic Chiropractic

VITAMINS / SUPPLEMENTS

Questionable Interpretations of the Literature: The Lipoic Acid Example

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Health is big news; health is daily news. No longer are stories on health reserved for one small column once a week in your daily newspaper. In our quest for safe, natural alternatives to treat and prevent a wide variety of conditions, there is often a race to get new products to market or promote new discoveries of different applications for existing supplements.

A few months ago, I was perusing a pile of free literature that was dropped into my bag of groceries at a local health food store. As I sifted through them and placed them in my recycle bin, a large headline caught my eye: "Lipoic acid prevents nerve damage." This small blurb did not really say much, except that everyone needs lipoic acid and that a study "*proved that it can prevent nerve damage*." Just as I was about to discard the handout, I saw a small partial reference (lead author and journal), which I jotted down. A couple of weeks later, I came upon this scrap of paper and decided to track down the article.

Alpha Lipoic Acid - A Brief Review

Alpha lipoic acid, also known as thioctic acid, is an endogenous substance in humans that is also one of the super antioxidants that caught on in the 1990s and is now available in supplemental form. It has both hydrophilic (water soluble) and hydrophobic (lipid soluble) properties. Alpha lipoic acid (ALA) rapidly and easily penetrates biomembranes of cells and organelles.

ALA can regenerate both vitamin C and vitamin E after it neutralizes free radicals, and thus becomes a free radical itself. ALA has therapeutic applications for patients with atherosclerosis, cirrhosis, diabetes mellitus and polyneuritis, all of which have elevated free radical activity in membrane phospholipids. Dosing ranges from 50-600 mg per day.[1] The future of this product looks very good.

The Study Referred

Here is a synopsis of the study[2] that was good enough for an advertiser to make the claim that humans should take alpha lipoic acid to prevent nerve damage.

Study Subjects - Male rats.

Study Design - Ischemia produced by ligature of the arterial supply to the sciatic nerve of a hind limb for three-to- five-hour periods.

Intervention - One group received 100 mg/kg body weight of alpha lipoic acid administered intraperitoneally for three days.

Results - ALA reduced sensory impairment and nerve fiber degeneration when ischemia ranged from three to four hours. It did not help when the blood supply to the sciatic nerve was blocked for five hours.

Interpretation - ALA was helpful in rats when dosed in a suprapharmacological fashion with an intraperitoneal delivery. For a 150-pound human, this equates to a dose of 70,000 mg (which is 10,000 mg more than my entire bottle of 60-100 mg capsules on my vitamin shelf at home). Therefore, if a person sustains ischemic nerve damage for a period of under five hours, one could theoretically reduce this damage with a similar dose of lipoic acid administered in a similar fashion by an IV catheter into the small intestine.

Conclusion

The purpose of this article was not to "slam" alpha lipoic acid. It was merely an excellent example of the all-too-common (pick one word) abuse, extrapolation or misinterpretation of a scientific study for the purpose of selling a product. Just because a statement contains a reference does not mean that it is true or that the reference has been applied correctly.
Before I recommend a product to a patient, I like to have the following questions answered in a satisfactory manner:

1. Was the cited evidence for use from a human study?

2. Were the people in the study a similar age and gender of the target audience?

3. Were their levels of fitness and the presence or absence of disease similar to those of the target audience?

4. Was the dose described and (if so) was it at a level commonly recommended on labels?

5. Was the quality, purity and form of the product used in the study available to consumers?

In these days of highly competitive supplement marketing, both the buyers of supplements and readers of supplemental "literature" need to beware.

References

1. Bradford R, Allen H. *Oxidology* 2nd edition. Robert W. Bradford Foundation, Chula Vista, CA, June, 1997;202205.

2. Mitsui Y, Schmeicer J, Dolman P et al. Alpha Lipoic Acid Provides Neural Protection from Ischemia - Reperfusion Injury of the Peripheral Nerve, *J Neuro Sci*,1999,V(163),#1,6-11.

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