

SOUTHWESTERN NEWS

Media contact: Bridgette Rose McNeill

214-648-3404

bridgette.mcneill@email.swmed.edu

SUBSTANCE USED TO TREAT COMPLICATIONS FROM DIABETES ALSO PROVES TO WORK AS ANTIOXIDANT

DALLAS – November 12, 1999 - A substance used for decades in Europe to treat diabetic neuropathy, or nervous-system complications, also functions as an antioxidant in humans, according to researchers at UT Southwestern Medical Center at Dallas.

Alpha-lipoic acid, which is produced by the body to aid in energy metabolism, can inhibit oxidation of protein, low-density lipoproteins (LDL) – the bad cholesterol -- and deoxyribonucleic acid (DNA).

The study, published in the November issue of *Free Radical Biology & Medicine*, is the first to show alpha-lipoic acid, also called thioctic acid, functions as an antioxidant in healthy humans. It was led by Dr. Ishwarlal Jialal, professor of pathology and internal medicine at UT Southwestern, and Dr. Lester Packer, professor of molecular and cell biology at the University of California, Berkeley.

In a 16-week randomized trial, 31 healthy patients took daily supplements of either 400 international units of vitamin E or 600 milligrams of alpha-lipoic acid for eight weeks, alone and then in combination. Urine tests showed that both vitamin E and alpha-lipoic acid reduced levels of F-2 isoprostanes – a marker of oxidative stress and blood tests showed that they also reduced LDL oxidation. However, only alpha-lipoic acid decreased levels of protein carbonyls, which are present after damage from free-radical oxidation to proteins, as well as reduced levels of LDL oxidation.

“This is exciting because it may have important implications for aging,” said Jialal, who is also a senior investigator in the Center for Human Nutrition and head of the clinical biochemistry and human metabolism section. “Alpha-lipoic acid is better than vitamin E at inhibiting protein oxidation.”

Protein oxidation has been implicated in aging and heart disease. Since alpha-lipoic acid is both fat- and water-soluble, it could prove to be more potent than other antioxidants.

(MORE)

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Office of News and Publications • 5323 Harry Hines Blvd., Dallas TX 75235-9060 • Telephone (214) 648-3404 • FAX (214) 648-9119

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Besides preventing neuropathy, alpha-lipoic acid is especially important for diabetics because it may improve blood-glucose control by improving insulin action while also inhibiting the oxidation of LDL cholesterol, which contributes to heart disease. Diabetics are at increased risk of heart disease and have increased oxidative stress.

Some previous studies have shown that alpha-lipoic acid can interact with other antioxidants such as vitamin C to enhance their antioxidant activity.

Other researchers involved in the paper include Drs. Karine Marangon, a pathology research fellow, and Sridevi Devaraj, assistant professor of pathology, both from UT Southwestern and investigators at UC Berkeley.

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