

α -Lipoic acid as a triglyceride-lowering nutraceutical.

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Abstract

Considering the current obesity epidemic in the United States (>100 million adults are overweight or obese), the prevalence of hypertriglyceridemia is likely to grow beyond present statistics of ~30% of the population. Conventional therapies for managing hypertriglyceridemia include lifestyle modifications such as diet and exercise, pharmacological approaches, and nutritional supplements. It is critically important to identify new strategies that would be safe and effective in lowering hypertriglyceridemia. α -Lipoic acid (LA) is a naturally occurring enzyme cofactor found in the human body in small quantities. A growing body of evidence indicates a role of LA in ameliorating metabolic dysfunction and lipid anomalies primarily in animals. Limited human studies suggest LA is most efficacious in situations where blood triglycerides are markedly elevated. LA is commercially available as dietary supplements and is clinically shown to be safe and effective against diabetic polyneuropathies. LA is described as a potent biological antioxidant, a detoxification agent, and a diabetes medicine. Given its strong safety record, LA may be a useful nutraceutical, either alone or in combination with other lipid-lowering strategies, when treating severe hypertriglyceridemia and diabetic dyslipidemia. This review examines the current evidence regarding the use of LA as a means of normalizing blood triglycerides. Also presented are the leading mechanisms of action of LA on triglyceride metabolism.

KEYWORDS: AMPK; ChREBP; FGF21; PPAR α ; SREBP1

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