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General information

Common name:
Alpha-lipoic Acid (ALA)

Alternate names:
Thioctic Acid; Lipoic Acid; Acetate Replacing Factor; R-ALA; S-ALA; Thioctacid, 1,2-Dithiolane-3-pentanoic acid, 6,8-dithiooctanoic acid.

Routes of administration:
Intravenous (IV), oral, vaginal suppository (only IV will be reviewed in this monograph).

Reported uses in cancer care:
IV ALA has been used by integrative cancer care practitioners with goals of improving survival, tumor response and quality of life (QoL), and alleviating chemotherapy side effects such as peripheral neuropathy.

Summary

IV ALA is mainly used in integrative cancer care for its antioxidant properties, as a means to stimulate glutathione synthesis, strengthen the effects of other antioxidants (e.g., vitamin C and E), and enhance insulin signaling. In total, seven studies reporting on 46 patients were included in

Monographs are created by the Patterson Institute for Integrative Oncology Research team and are updated approximately every two years, or when significant new literature is published. An update on a previous search was completed in Medline and Cochrane Library for IV ALA on January 20, 2023. The previous search was from database inception. Eligibility criteria included English-language human studies in cancer reporting on efficacy, QoL, safety, or feasibility. A scoping review was performed to identify missing papers and background information. The papers were screened by two reviewers independently. Data was summarized into healthcare provider and patient monographs.

Pharmacokinetics

ALA is synthesized in humans in small amounts and it is mainly obtained from dietary sources such as organ meat, red meat, vegetables (spinach, tomatoes, broccoli), and fruits.[1,20,21] ALA

glutathione.[20,21] This antioxidant capacity has been demonstrated clinically in one study of patients with advanced cancer.[31]

Glucose and insulin metabolism

Most studies and systematic reviews looked at the impact of ALA on glucose find a significant reduction in blood glucose and insulin, although some studies have found minimal impact.[32-35] Hyperglycemia, commonly seen in diabetes and cancer, potentiates oxidative stress that can lead to neuronal and endothelial damage.[21] It is speculated that ALA plays a role in the treatment and prevention of chemotherapy-induced peripheral neuropathy (CIPN) by participating in insulin production and enhancing glucose uptake in insulin-sensitive and insulin-resistant muscle tissue.[21]

Anticancer effects

In addition to these primary mechanisms of action, several others have been proposed which

ALA+LDN protocol.[30] One person was still alive and free of any signs and symptoms 39 months after initial diagnosis (at the time of publication) without any standard therapies. A second person was treated for six months and observed an increased QoL, improvement of all symptoms, and no signs of disease recurrence on a PET scan. A third person exhibited immediate improvement in symptoms and was well enough to undergo surgery.

An additional case report describes a 61 year old man with follicular lymphoma who was first treated with a series of nine IV ALA therapies followed by six months of LDN.[41] After 6 months of therapy the patient had complete resolution of multiple large, metabolically active, pathologic lymph nodes, and remained symptom free at the time of publication (1-year).

Finally, a case series included 11 patients with advanced metastatic cancer, 10 of whom were considered chemoresistant and offered palliative care only.[40] They received what the authors described as a metabolic treatment of 600 mg/day IV lipoic acid, 500 mg 3x/day of hydroxycitrate (HCA), and 5 mg of LDN at bedtime. Two patients died due to cancer progression within two months. Another two patients were switched to chemotherapy combined with metabolic treatment, and of those, one reported a dramatic tumor response. The rest of the patients had either stable or slow disease progression. None of the patients experienced significant side effects. Case 11 in this series had advanced hormone-resistant prostate cancer and received anti-androgen therapy in addition to 600 mg IV lipoic acid and 500 mg of HCA/day and experienced a 90% decrease in PSA levels. Authors suggest these preliminary results imply a lack of toxicity and possible efficacy of metabolic treatment in advanced chemoresistant carcinoma.

ALA in combination with other natural health products (NHPs)

A case report described a 64-year-old man with stage 4 renal cell carcinoma (RCC) with lung metastases who progressed on conventional treatment and then received a multimodal treatment including IV ALA.[43] The treatment consisted of IV racemic ALA, IV vitamin C, oral LDN, oral NHPs (ALA, selenomethionine silymarin,

Fourteen patients were enrolled, of whom eight (57%) experienced an improvement in neurological symptoms. The median time to improvement was 4 weeks. Adverse events

should be used cautiously alongside chemotherapy and radiation therapy.

Other medications:
ALA may interfere with thyroid metabolism and

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