Complementary and Alternative Therapies in Amyotrophic Lateral Sclerosis

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KEYWORDS

• Complementary and alternative medicine • Paternalism • Autonomy

KEY POINTS

- Patients with amyotrophic lateral sclerosis (ALS) often consider complementary and alternative therapies they read about on the Internet.
- Common types of alternative therapies considered for ALS include special diets, nutritional supplements, cannabis, acupuncture, chelation, and energy healing.
- Physicians may handle discussions about alternative therapies via paternalism, autonomy, or shared decision making.
- ALSUntangled reviews alternative therapies via a shared decision making model.

INTRODUCTION

Complementary and alternative medicine (CAM) is defined as nonmainstream treatment used in addition to (complementary) or instead of (alternative) standard evidence-based care.[1] At some point in their illness, most patients with amyotrophic

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lateral sclerosis (PALS) will try at least one type of CAM.[2,3] It is easy to see why. ALS rapidly disables and shortens the life span. Although symptom management has improved in recent years,[4–6] there remains no evidence-based clinically meaningful disease-modifying therapy to improve this dreaded condition. Surveys shed light on patient motivations and expectations for ALS CAMs: 10% think they will find a cure; 30% think they will improve; 50% think they will slow progression.[2,3] Other drivers the authors have encountered include peer pressure from family members and friends who have these expectations and the belief that nothing worse than the present disease could possibly be encountered.

The Internet has made it easier than ever for PALS to find CAMs. A Google search of *ALS treatment*, for example, yields more than 100 million hits.[7] Although this breadth is impressive, there is often little depth within Web sites offering CAMs. Claims such as *clinically proven* and *perfectly safe* are too often supported by data that range from absent, to flawed, to completely inaccurate. Real harms have come to PALS pursuing CAMs, including physical, financial, and psychological harms.[8,9] There is also the potential for scientific harms, as pursuit of CAM is sometimes undertaken in place of enrollment in a trial; meaning trials may take longer, cost more, and have to be stopped prematurely because of poor enrollment.[10]

In this article, the authors describe the types of ALS CAMs that they have been asked about most often over the years. The authors then discuss options for reviewing CAMs with PALS, including one called ALSUntangled.

TYPES OF COMPLEMENTARY AND ALTERNATIVE MEDICINE THAT PEOPLE WITH AMYOTROPHIC LATERAL SCLEROSIS COMMONLY ASK ABOUT

Diets and Nutritional Supplements

The importance of energy balance is well established in ALS, with both preclinical and human studies offering evidence to support a disease-influencing effect of premorbid weight, weight maintenance, and caloric intake.[11–13] Although studies in the healthy population suggest that reduced caloric intake provides survival benefits by reducing the risk for chronic disease, the opposite is true in ALS. ALS SOD1-mutant mice placed on a calorie-restricted diet showed reduced paw-grip strength and significantly reduced survival compared with animals receiving adequate nutrition.[14] In contrast, several studies examining the effects of high-calorie diets enriched in carbohydrates or fat have shown prolonged survival in SOD1 animals.[15–18]

Evidence supporting a survival benefit related to energy balance in PALS has been collected primarily from population studies that include assessment of body mass index (BMI) and malnutrition. Malnutrition in ALS has been defined as the loss of greater than 10% baseline body weight or a BMI lower than 18.5 kg/m^2; both are considered negative predictors of survival in ALS. Although the prevalence varies between studies, some report more than half of all PALS meet the criteria for malnutrition.[19] The literature consistently shows that a higher BMI, between 30 and 35 kg/m^2, is associated with decreased risk of disease, later disease onset, and prolonged survival.[20] Low BMI or rapid weight loss negatively affects disease progression, with reports suggesting a 7.7-fold relative risk of mortality in malnourished PALS.[12] In addition, Lindauer and colleagues,[21] in their prospective study assessing adiposity by MRI imaging, reported that increased subcutaneous fat mass was a statistically significant predictor of survival in men.

Weight loss is nearly ubiquitous in ALS and presents significant challenges for patients. In a cohort of 121 patients, queried by Körner and colleagues,[22] weight loss had a negative impact on quality of life (QOL) with perception of reduced physical