

Nonconventional and Integrative Treatments of Alcohol and Substance Abuse

by James Lake, MD



The high cost to society of alcohol and drug abuse reflects a crisis of epidemic proportions that has not been adequately addressed by conventional treatment approaches, including mainstream pharmacologic treatments, psychotherapy, and social programs. The annual costs associated with alcohol and drug abuse in the United States were estimated to be \$246 billion in 1992, the most recent year for which data are available.¹ Results of controlled trials and patient surveys confirm that many of the conventional pharmacologic and psychosocial treatments for alcohol and drug abuse or dependence are only moderately effective in terms of discontinuation rates and long-term abstinence.²⁻⁴ In this context, it is important for psychiatrists and other mental health professionals to learn about promising nonconventional and integrative treatment strategies.

In this 2-part column, I will concisely review the evidence for nonconventional and integrative treatments for symptoms related to alcohol and drug abuse, dependence, and withdrawal. Part 1 covers nonconventional and integrative treatments, the beneficial effects of which are achieved through a discrete biologic or pharmacologic mechanism of action. These modalities include dietary modifications; supplementation with specific vitamins, minerals, and amino acids; and use of medicinal herbs from disparate world systems of medicine. Part 2 will review the evidence for nonconventional and integrative treatments that are known to be beneficial but for which there is no evidence of direct biologic or pharmacologic effects. Modalities that will be reviewed in Part 2 include exercise, mindfulness training, cranial electrotherapy stimulation, virtual reality graded exposure therapy, light exposure therapy, acupuncture, and qigong.

Nutrition and supplements

Persons who chronically abuse alcohol are frequently malnourished because of malabsorption of essential nutrients through the mucosa of the stomach and small intestines, which results in reduced serum levels of thiamine, folate, and vitamin B₆.⁵ Malnutrition contributes significantly to both the medical and the psychiatric consequences of chronic alcohol abuse. Hypoglycemia results from the toxic effects of alcohol on the liver and can manifest as confusion, anxiety, and impaired cognitive function.

Rational approaches to the problems noted above include avoidance of refined carbohydrates and increased consumption of complex carbohydrates and quality food sources of protein. Persons

with an alcohol use disorder who improve their general nutrition probably have a better chance of maintaining sobriety than those who do not.^{6,7} Findings from animal studies suggest that low serum thiamine levels may be related to increased alcohol craving.⁸ Niacin taken in the form of nicotinamide (1.25 g) with a meal before drinking may protect the liver against the acute toxic effects of alcohol in persons who are unable to abstain.⁹

When a patient is unable to stop drinking, taking antioxidant vitamins close to the time of alcohol consumption may reduce or prevent hangover symptoms by neutralizing the metabolites of alcohol that cause oxidative damage to the brain.^{10,11} Taking vitamin C (2 g) 1 hour before alcohol consumption increases the rate at which alcohol is cleared from the blood, possibly reducing acute toxic effects on the liver.¹²

Deficiencies in zinc, copper, manganese, and iron are common in persons who abuse alcohol and worsen with continued heavy drinking. Magnesium supplementation at 500 to 1500 mg/d may improve the neuropsychological deficits associated with chronic alcohol abuse by improving cerebral blood flow, which is often diminished in these patients.¹³ There are no contraindications to dietary modifications or supplementation with the vitamins and minerals discussed here when taking conventional drug therapies for relapse prevention or the management of craving or withdrawal.

All persons who struggle with alcohol abuse, or who are in recovery following chronic abuse, should be strongly encouraged to optimize their nutritional status by changing their eating habits and taking the appropriate sup-

plements to compensate for a probable alcohol-related malabsorption syndrome, to mitigate the toxic effects of alcohol abuse on the body and brain, and to reduce craving and the severity of withdrawal.

Amino acid deficiency

Malnutrition and malabsorption in persons who chronically abuse alcohol often lead to deficiencies in important amino acids including taurine, S-adenosylmethionine (SAME), tyrosine, L-tryptophan, and acetyl-L-carnitine. Supplementation with amino acids helps lessen the severity of withdrawal symptoms, protect the liver, and restore normal brain function in patients with chronic alcoholism.

Part 1

Taurine supplementation may lower the serum level of acetaldehyde, a toxic metabolite of alcohol that can interfere with normal mental function.¹⁴ In an early controlled trial, 60 patients hospitalized for acute alcohol withdrawal were randomly assigned to supplementation with taurine, 1 g 3 times daily, versus placebo. Significantly fewer severe withdrawal symptoms, including delirium and hallucinations, were observed in the taurine-treated group.¹⁵

SAME that is normally present in the liver is depleted by chronic alcohol abuse. Persons who abuse alcohol but who take SAME at dosages of 400 to 800 mg/d may have less severe liver damage.¹⁶⁻¹⁸ Because of its established antidepressant effects, SAME is a logical choice when treating patients with depression who abuse alcohol.¹⁹ Preliminary findings suggest that SAME supplementation may also reduce alcohol intake.²⁰

Patients with alcohol use disorders who were abstaining were treated with acetyl-L-carnitine at dosages of 2 g/d for 3 months. These patients performed better on tests of memory, reasoning, and language compared with a matched control group.²¹ Preliminary findings suggest that tyrosine may be a useful adjunctive therapy in treatment of cocaine abuse.²² Low serum levels of L-tryptophan were correlated with low serotonin levels in a subset of persons with alcohol use disorders who were at increased risk for early-onset alcoholism associated with antisocial behavior. This suggests that long-term supplementation with L-tryptophan (or 5-hydroxytryptophan [5-HTP], the immediate precursor to serotonin) may be

a useful preventive intervention in this high-risk population.²³ Taking L-tryptophan before drinking may reduce the severity of the cognitive impairment associated with alcohol use.²⁴

Available evidence suggests that safety problems are seldom reported when typically used therapeutic doses of quality-brand amino acid supplements are combined with conventional psychiatric medications.^{25,26} However, rare cases of serotonin syndrome have been reported when L-tryptophan, 5-HTP, or SAME were used concurrently with serotonergic drugs. Therefore, patients using this integrative strategy should be closely monitored for emerging adverse effects.^{27,28} Safety concerns have not been reported when combining taurine or acetyl-L-carnitine with conventional psychiatric medications.

Herbal treatments

Several herbs are used in traditional Chinese medicine to diminish alcohol craving, lessen alcohol absorption through the gut, or reduce symptoms of withdrawal.²⁹ Kudzu (*Radix puerariae*) has been used as a treatment for alcohol abuse and dependence in Chinese medicine for almost 2000 years. Kudzu extract significantly reduces alcohol craving in dependent animals.³⁰ The reduced alcohol craving is probably related to the high plant concentrations of daidzein and daidzin—2 biologically active molecules categorized as isoflavones.³¹

In a weeklong placebo-controlled study, 14 heavy drinkers were pretreated with 1000 mg tid of kudzu versus placebo. Participants were given the opportunity to drink beer during the study. Persons who were pretreated with kudzu consumed significantly fewer beers; however, they did not report diminished alcohol craving. More studies are needed to confirm the effects of kudzu on reducing alcohol consumption in at-risk populations. Findings from a small open trial suggest that Mentat, a proprietary Ayurvedic compound herbal formula, may reduce the risk of relapse in abstinent alcoholics.³²

Using Chinese medicinal herbs and conventional Western drugs concurrently poses complex issues, and few studies have been performed in this area.³³ Until research findings suggest that specific combinations of Chinese

herbs and conventional drugs have positive synergistic effects, it is prudent to advise patients to use only conventional Western medications or a specific Chinese herbal formula under appropriate medical supervision.

Ashwagandha (*Withania somnifera*) is another important herb in traditional Ayurvedic medicine. Animal studies and case reports in humans suggest that ashwagandha lessens the severity of withdrawal symptoms from morphine.^{34,35} Because of its sedating properties, caution should be exercised when ashwagandha is used in combination with benzodiazepines or other conventional sedative-hypnotics.

Preliminary findings suggest that ginseng (*Panax ginseng*) may reduce the tolerance and dependence associated with the long-term use of cocaine, methamphetamine, or morphine.³⁶⁻³⁸ The mechanism of action that is responsible for reduced tolerance observed with ginseng may involve inhibition of narcotic-induced depletion of dopamine in the brain.³⁹ Early findings suggest that glycosides derived from *Aristeguetia discolor*, a plant used in traditional Peruvian medicine, reduce withdrawal symptoms in morphine-dependent persons.⁴⁰

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