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CPE Monthly: Substance Abuse and Nutrition

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Heal and Nourish

Substance abuse is known to lead to vitamin and mineral deficiencies that threaten physical and mental health, damage vital organs and the nervous system, and decrease immunity. Harmful lifestyles often are associated with addiction, such as poor eating patterns, lack of exercise, and changes in sleep patterns. These compounding factors result in an increased risk of long-term health problems, including metabolic syndrome, diabetes, hypertension, weight problems, and eating disorders.

Malnutrition

Malnutrition related to addiction is categorized as primary or secondary. Primary malnutrition occurs when the substance replaces other dietary nutrients. Secondary malnutrition results from improper nutrient metabolism, absorption, utilization, or excretion even though the diet may be adequate. Both types of malnutrition can result from any substance use.

Patients struggling with multiple addictions show increased deficiencies due to malnutrition. One study revealed that 70% of addicts suffered vitamin D deficiency and low levels of vitamin C, and another showed that 50% were deficient either in iron or vitamins (vitamins A, C, and E being most common) during detox.
MNT for malnutrition includes correcting any deficiencies, providing an adequate diet, and addressing any alterations that need to be made to the diet due to oral, digestive, or metabolic issues. A once-a-day, low-potency multivitamin/mineral supplement may be useful for those unable to consume a calorically adequate diet and those with dietary limitations or severe gastrointestinal damage.

Metabolic Syndrome

Substance abuse, especially alcohol abuse, is associated with an increased risk of metabolic syndrome, which consists of increased abdominal obesity, hyperglycemia, abnormal cholesterol, and hypertension. The mechanisms through which substance abuse contributes to this condition includes increased cell damage, reduced energy production, cells' reduced antioxidant potential, and enhanced excitotoxicity. Some substances, including alcohol and marijuana, lead to higher calorie intakes, increased weight circumference, and poorer nutritional profiles, all of which will lead to an increased metabolic syndrome risk.

The prevalence of metabolic syndrome in substance abusers is reported to be 5% to 31%, with a higher risk for those who abuse alcohol and opioids. Higher risk is thought to be associated with an increased period of dependence on a substance.

Counseling patients on lifestyle changes to decrease their risk of cardiovascular disease and diabetes is important. This includes encouraging exercise, weight loss, dietary changes to reduce blood pressure and cholesterol, and quitting smoking.

Substances' Nutritional Impact

Alcohol

Alcohol is a major cause of nutritional deficiency in the United States. Alcohol provides calories but little nutrition to the body. Many alcoholics are malnourished, either due to ingesting a nutritionally inadequate diet or changes in the body's ability to use the nutrients it receives.

Alcoholism affects every area of the body. It can cause insomnia, anorexia, weight changes, gastrointestinal cramping, decreased digestive enzymes, ulcers, muscle wasting, liver disease, and abnormal glucose levels depending on the amount of alcohol ingested. Those who take in more than 30% of their total calories in alcohol generally have a significant decrease in their intake of all macronutrients and deficiencies in vitamin A, vitamin C, and thiamine.

Alcohol's impact on digestion and the absorption of essential nutrients is important to understand when treating an alcoholic. Alcohol interferes with protein metabolism, leading to important clinical consequences, including low albumin levels, increased fluid in the abdomen, reduced blood clotting, and decreased urea production (resulting in excessive ammonia levels), which may increase the likelihood of altered brain function (eg, hepatic encephalopathy).

Liver disease resulting from alcoholism alters the organ's ability to take up beta-carotene and/or convert it to vitamin A, causing disorders such as night blindness. Dietitians should be cautious when treating alcoholics with low vitamin A levels because blood levels may be inconsistent with what's stored in tissues and because high doses are toxic. It's recommended that patients with low vitamin A and night blindness be treated with 2 mg of vitamin A per day for several weeks. Zinc treatment also may be useful, as it's needed for vitamin A metabolism.

The body moves through four stages of liver damage as alcoholism progresses: fatty liver, alcoholic hepatitis, cirrhosis, and encephalopathy or coma. Protein-calorie malnutrition predicts survival in patients with alcoholic liver disease. Forty-five percent to 70% of alcoholics with liver disease also are glucose intolerant or diabetic.

Treatment goals for patients with alcoholism are to reverse malnutrition, prevent alcoholic liver disease, and establish a healthful lifestyle and coping skills for avoiding alcohol use. If malnourished, alcoholics benefit from a diet high in carbohydrates and moderate in protein. Low-calorie diets and fasting should be avoided because of the nutritional risks and the possibility that a patient has an existing eating disorder or may cross over to a new addiction with food, dieting, or exercise.

The diet should include a mix of omega-3 and omega-6 fatty acids since the amount and type of fats impact hepatic steatosis, fibrosis, and cirrhosis. If tube feeding or total parenteral nutrition is required, dietitians should avoid glutamine-enriched formulas, as they increase ammonia levels. The amino acid taurine, in addition to patients' prescribed diets, has been used to help maintain

recovery after detoxification, as it represses the rewarding effect in the brain associated with alcohol.

Wernicke-Korsakoff's syndrome (wet brain), which occurs with heavy alcohol use due to a lack of thiamine, may be prevented with thiamine supplementation during intervention. Thiamin deficiency occurs because of decreased absorption as a result of the diuretic effect of alcohol and the utilization of thiamin in detoxifying alcohol.

Opioids (Narcotics)
Opioids are used to treat pain and include codeine, oxycodone, heroin, methadone, and morphine. These drugs slow body movements and can cause sedation, leading to slower digestion and constipation.

Withdrawal symptoms can occur with opioids, even with a short duration of use. It brings a wide range of symptoms, mainly diarrhea, nausea, and vomiting, which can lead to poor oral intake, dehydration, and electrolyte imbalances. Nutrient deficits may be caused by poor nutritional intake or the drug's impact on digestion and absorption. Opioids are water soluble, so they clear the body faster than do fat-soluble drugs but produce painful and uncomfortable detox periods. Heroin use can cause glucose intolerance, but this usually resolves with abstinence. For that reason, patients will require blood sugar monitoring and balanced, frequent meals.

When newly abstaining from opioids, patients typically have very low pain tolerance, increased heart rate, anxiety, and trouble sleeping. These symptoms commonly cause them to relapse to their drug of choice. Pharmacotherapy, counseling, and lifestyle changes help prevent relapse in this population of addicts.

Stimulants
Stimulants, including crack, cocaine, amphetamines, methamphetamine, nicotine, and caffeine, generally lead to decreased appetite and weight loss. Cocaine has been associated with anorexia and eating disorders and may impact energy intake and requirements. Large amounts of stimulants result in insomnia, paranoia, anxiety, malnutrition, and memory problems.

When individuals first discontinue stimulant use, dehydration and electrolyte imbalances may occur, so careful monitoring is important. Since low weight and eating disorders may be of concern, encouraging and educating patients on proper nutrition and helping them achieve a healthy BMI is important.

Methamphetamine abusers commonly suffer severe dental problems that interfere with diet quality. One study reported that 41.3% of methamphetamine users had dental disease, and nearly 60% had missing teeth. Dietitians should offer nutrition education to support dental health and recommend foods with an appropriate consistency.

Marijuana
Marijuana, which impairs memory, attention, judgment, and balance and increases heart rate, is the most commonly used drug in the United States. The main nutritional impact of this drug is

increased appetite. Long-term users may be overweight and may need a calorically restricted diet and an exercise program to help them achieve a healthy weight.

Since marijuana is a fat-soluble drug, it can take up to six months for a daily user's brain to return to normal functioning after abstaining.

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