

## Recommendations on the Use of Alcohol after Surgery

*Many thanks to Dr. Cynthia Buffington for allowing us to reprint her article on the use of alcohol. I think you will find it very interesting.*

A 32-year old male 5 months out from gastric bypass surgery was issued a DUI after attending his brother's wedding reception. According to the patient, he had only consumed 2 glasses of champagne, although his blood alcohol levels were above the legal limit to operate a motor vehicle.

A female patient 50 years of age and one-year post-gastric bypass hit and killed a pedestrian with her automobile after having less than 2 glasses of wine. When police arrived she had difficulty with her coordination, slurred her words and seemed somewhat confused, although her alcohol test suggested that her blood alcohol levels were shy of the legal limit.

Were these patients telling the truth about the amount of alcohol they had consumed or did their surgery affect the way the body absorbs or metabolizes alcohol?

A recent study reported in the *British Journal of Clinical Pharmacology* found that the gastric bypass procedure significantly affects alcohol absorption and its inebriating influence. According to the study protocol, a group of gastric bypass patients, three years post-surgery, and their non-surgical controls consumed an alcoholic drink after an overnight fast, and blood alcohol levels were examined over a period of time. The data showed that blood alcohol levels of the gastric bypass patients were higher and required much less time to peak than those of the non-surgical controls.

The more rapid absorption of alcohol and heightened blood alcohol levels would cause the bariatric patient to have a more pronounced feeling of inebriation during and shortly after drinking. And, such effects could have serious ramifications with regard to driving an automobile or performing other skilled tasks such as operating heavy machinery, piloting a plane or any other task that may influence the safety of the individual or that of others.

Why would alcohol absorption be higher for someone who has had a gastric bypass (or other surgical procedure that reduces the size of the stomach, i.e. biliopancreatic diversion with or without the duodenal switch, gastrectomy)? With the gastric bypass procedure, more than 95% of the stomach is bypassed. Alcohol passes directly from the stomach pouch, usually without restriction, into the intestines where, due to the large surface area of the intestines, alcohol is rapidly absorbed.

In addition to anatomical changes that influence alcohol absorption, the bariatric surgical patient may be more sensitive to the effects of alcohol because of low calorie intake. Several studies found that alcohol absorption is more rapid and blood levels higher if alcohol is consumed on an empty stomach than if provided with a meal or drunk soon thereafter. During the first several months following bariatric surgery, total daily calorie intake is quite low. Drinking alcohol, even small amounts, at this time, would increase significantly an individual's risk for intoxication.

Metabolic changes that occur with rapid weight loss, as well as the morbidly obese condition, can also alter the rate that the liver is capable of clearing alcohol from the body by the liver's primary pathway for alcohol metabolism. Reduced clearance of alcohol by this pathway may further increase blood

alcohol levels and the risk for intoxication and alcohol toxicity. Metabolic changes that occur with massive and rapid weight loss may also increase the clearance of alcohol by a secondary pathway of alcohol metabolism that substantially increases the risk for liver damage while, at the same time, makes an individual more sensitive to the toxic and cancer-promoting effects of pollutants in the air, industrial solvents (such as those in household cleaners), and certain drugs.

Alcohol use can also cause brain damage, a loss of consciousness or even death by reducing the supply of sugar (glucose) to the brain. Muscle, heart, liver and other tissues use fat and sugar (glucose) for fuel. The brain, however, needs sugar to function. To avoid a depletion of sugar, the body stores sugar in the form of glycogen. Glycogen stores, however, can be depleted in a short period of time with prolonged work or exercise, fasting or a diet low in carbohydrate. Furthermore, alcohol reduces the process that allows sugar to be stored as glycogen.

The bariatric patient, particularly in the rapid weight loss period and if on a low carbohydrate diet, may have low amounts of stored sugar (glycogen). Drinking alcohol could deplete those stores and cause blood sugar levels to decline. The body, however, has another mechanism to maintain appropriate amounts of sugar in the body. This process is known as gluconeogenesis and is a chemical pathway that converts certain components of protein, lactic acid and other substances into sugar. However, alcohol reduces the production of sugar by this process and can, thereby, cause hypoglycemia (low blood sugar).

Usually when blood sugar levels fall, there are certain hormones produced that restore blood sugar levels to normal. However, when someone drinks alcohol, the response of these hormones to low blood sugar is blunted. To make matters worse, hormone responses to low blood sugar are also blunted or depressed in postoperative bariatric patients. The bariatric patient, therefore, would have a much higher risk of becoming hypoglycemic (having low blood sugar) than someone who drinks that has not had the surgery, particularly if the patient drinks alcohol during the rapid weight loss period.

Since the brain and nervous system need sugar for fuel, low blood levels could adversely affect neuromuscular and cognitive functions, causing a loss of coordination and balance, slurred speech, poor vision, and confusion. These are all conditions that mimic those associated with intoxication. The patient described earlier, who appeared extremely intoxicated even though her blood alcohol levels were not high, may have been hypoglycemic. Low blood sugar, over a period of time, can result in a 'black out' or loss of consciousness, brain and nerve damage, and even death.

The use of alcohol after surgery could also cause irreversible brain and nerve damage, coma and possible death by inhibiting the absorption of important vitamins, including B-complex vitamins such as thiamin (B1) or vitamin B12. Alcohol inhibits the absorption of thiamin and other B-complex vitamins, reduces activation of certain vitamins, and stimulates the breakdown of vitamin A, pyridoxine, and folate. These vitamins may already be deficient in bariatric patients because of nutrient restriction, malabsorption or impaired digestion of foods produced by the prospective surgery. Alcohol use, then, would compound the negative effects that bariatric surgery has on vitamin/mineral status and increase the risk for associated health problems, including nerve and brain damage, defects in metabolism, a decrease in the ability of the body to heal, low immunity, fatigue and more.

Alcohol has numerous other toxic effects in the body. Not only does alcohol cause liver disease but also negatively affects other tissues. Alcohol's influence on the heart inflammation (myocarditis), a

loss of heart tissue (cardiomyopathy), and irregular heart beats (arrhythmias) that can lead to sudden death. Skeletal muscle is particularly susceptible to alcohol with loss of skeletal muscle fibers and strength. Alcohol also causes inflammation of the intestinal tract, gastritis, pancreatic, acid reflux disease and increased risk for gastric and esophageal cancer. And, alcohol causes damage, often irreversible, to the brain and nervous system.

In addition to the numerous health problems that drinking alcohol after surgery may cause, the bariatric patient should also be cautious of alcohol addiction. The prevalence of food addiction and associated eating abnormalities, i.e. binge eating, carbohydrate cravings, are high among individuals with morbid obesity. With bariatric surgery, the addictive tendency for food and aberrant eating behavior are considerably improved. However, individuals with addictions often transfer their addiction to yet another substance, such as alcohol. According to the findings of Austrian psychologist, Dr. Elisabeth Ardel, addiction transfer may occur in as many as 25% to 30% of bariatric patients.

Drinking alcohol after surgery may also reduce maximal weight loss success. Alcohol has no nutrient benefits and contains high numbers of calories that may cause weight gain or prevent weight loss. One 12-ounce can of beer, for instance, contains 150 calories; 3.5 ounces of wine contains 70 calories; 1.5 ounces of gin, rum, vodka or whiskey contains between 97 and 124 calories; and 1.5 ounces of liquor contains 160 calories.

Are there guidelines for using alcohol after surgery? Presently, there are no official guidelines that have been established pertaining to the use of alcohol after having bariatric surgery. However, based upon knowledge of changes in the absorption and metabolism of alcohol, coupled with the metabolic state of the bariatric patient at various stages postoperatively, the following suggestions are recommended

- Do NOT drink alcohol during the rapid weight loss period.
- When drinking, remember that small amounts of alcohol can cause intoxication or can result in low blood glucose with serious consequences.
- Do not drive or operate heavy equipment after drinking alcohol, even small amounts.
- Eat if you plan to have a drink.
- Make certain to take your bariatric vitamin and mineral supplements.

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