To the Editor:

The holidays are approaching. Many people will be gathering with family, friends, and loved ones. The holidays are filled with laughter, joy, gluttony, and festivity. There are some traditions that are unique to each family, but one tradition that is pervasive in western society is alcohol consumption. It is estimated that a quarter of the yearly sales of distilled spirits occur between Thanksgiving and New Year’s Day.1 Alcohol consumption, especially in excess, is not without risk. Chronic alcohol abuse is associated with hypertension, stroke, liver damage, and an increased risk of cancer. There are also short-term consequences including memory loss, impaired judgment, unintentional injury, violence, driving under the influence, and others. A less commonly known consequence is the development of alcohol-induced atrial arrhythmia, known as “Holiday Heart Syndrome.” First described in the 1970s, this disease was remarkable in that a majority of patients who presented with an arrhythmia did not chronically abuse alcohol and were otherwise healthy. In the United States, 5% to 10% of new atrial fibrillation diagnoses are related to alcohol abuse.2 Holiday Heart Syndrome often presents with symptoms of palpitations, dyspnea, anxiety, weakness, and chest pain among others. Patients who are not hemodynamically compromised can typically be observed and treated conservatively.

There are several hypotheses as to why an episode of binge drinking can induce atrial fibrillation. One mechanism is the accumulation of ethanol metabolites in myocardial tissue causing oxidative stress and mitochondrial injury.2 Repetitive oxidative stress in myocardial tissue can result in damage to myocytes causing cardiomyopathy, a known contributor to atrial fibrillation.3 Other mechanisms include direct effects of metabolites on cardiac ion channel function, increased sympathetic and parasympathetic nervous system activity, and decreases in the atrial refractory period. Research in mouse models has shown that excessive alcohol use over a 10-day period results in significantly increased early depolarization of the atria.4 Studies in young healthy adults with no atrial fibrillation predisposition have shown that a single acute alcohol intoxication episode caused prolonged QT intervals and widened QRS complexes.5 Furthermore, in a double-blinded randomized control trial, alcohol intoxication significantly decreased the effective refractory period of the pulmonary veins specifically, which consistently have been shown to be the area of the left atrium most often responsible for atrial fibrillation.6 Across these 3 studies, alcohol use has been shown to alter the heart’s natural rhythm. The most direct evidence of a causal relationship between the 2 is from 1983 when 7 otherwise healthy adults were given 3 to 6 drinks of whiskey and had their right atrium paced to 120 beats per minute. The majority of subjects in this study developed atrial fibrillation, which resolved when alcohol intake ceased.7 If we shift our focus to those who already have been diagnosed with atrial fibrillation, 35% of patients can link episodes of arrhythmia to acute alcohol use.8 A randomized control trial in patients who had atrial fibrillation who were randomized to the normal alcohol use arm had an increase in atrial fibrillation burden when compared with those who were randomized to abstinence.8 One fair criticism would be that the exact biochemistry is unknown for why atrial fibrillation occurs after acute alcohol binges. Although that is true, the correlation between atrial fibrillation and acute alcohol binges is undeniable.

The relative indifference about the disease process and its impact on society stems from the idea that the holiday season comes once a year, and that binge drinking, if only during the holidays, should not be scolded. Atrial fibrillation is a cancer-like disease, where once the substrate to cause the disease develops, patients are forever at risk of recurrence.9 An under-researched topic is whether a single episode of atrial fibrillation, like that seen in Holiday Heart Syndrome, can result in substrate formation predisposing patients to atrial fibrillation. Until the evidence does come out, perhaps it is best to moderate holiday drinking habits.

When you’re enjoying time with your loved ones this holiday season, don’t hesitate to tell Grandma she’s had enough eggnog. After all, you would hate for her to get run over by a reindeer.
References


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