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ONLINE EXCLUSIVE

Diabetes and alcohol use: Detecting at-risk drinking

Asking a simple question helps uncover at-risk drinking in patients with diabetes, and brief office interventions have proven effective in modifying behavior.

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PRACTICE RECOMMENDATIONS

- *Ask a question such as "How many drinks containing alcohol did you have on a typical day when you were drinking in the last year?" to ascertain a patient's quantity of alcohol use.* (A)
- *Apply elements of the FRAMES approach to help patients curtail at-risk drinking—eg, use elevated HbA1c levels as evidence of a need to change behavior.* (A)

Strength of recommendation (SOR)

- (A) Good-quality patient-oriented evidence
- (B) Inconsistent or limited-quality patient-oriented evidence
- (C) Consensus, usual practice, opinion, disease-oriented evidence, case series

There are enough challenges in controlling diabetes mellitus without the hindrance of undetected problematic alcohol use. The good news is that asking a single nonthreatening question can help you detect at-risk drinking—defined by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) as 5 or more drinks on one occasion or more than 14 drinks per week for men; and 4 or more drinks on one occasion or more than 7 drinks per week for women.[1,2] And, for patients who may be compromising their diabetes care and overall health through problem drinking, brief intervention techniques used in the office can enable them to reduce alcohol consumption significantly.

When alcohol becomes a problem in diabetes care

Several studies have explored the long-term benefits of moderate alcohol use on glycemic control—with mixed results. A 2007 study found that diabetes patients who drink 1 glass of wine per day exhibited a lower fasting glucose level than abstainers after 3 months.[3] There was no difference, however, on postprandial glucose levels. A 2008 study found that individuals who drank one to 2 glasses of wine per day for a month had lower fasting serum insulin levels relative to when they have abstained for a month,[4] although levels of fasting plasma cholesterol, HDL cholesterol, glucose, and hemoglobin A1c (HbA_{1c}) remained unchanged relative to periods of abstinence.[4]

Furthermore, rates of coronary heart disease and CHD mortality in a meta-analysis were significantly lower in 3 categories of alcohol consumption (<6 g/d, 6 to <18 g/d, and ≥18 g/d) compared with abstinence.[5] Nondrinkers also had a greater risk of total mortality compared with the lightest drinking group. Notably, however, the lower limit of the highest drinking category was only 1.5 drinks per day.

How big is the problem? In a study of insulin-treated pa-

tients seen for severe hypoglycemia, 17% had been drinking before the episode.[6] In a primary care sample, 28% of randomly selected patients with type 2 diabetes met *Diagnostic and Statistical Manual of Mental Disorders-IV* criteria for a lifetime incidence of alcohol abuse and 13% met either current or lifetime criteria for alcohol dependence.[7] Another study of primary care patients with diabetes[8] found that 13.4% met NIAAA criteria for at-risk drinking; 11.1% of these at-risk drinkers met criteria for current alcohol dependence. (According to the NIAAA, the rate of at-risk/heavy drinking among US adults is 30%, and about one in 4 heavy drinkers meets the criteria for alcohol abuse or dependence.[1])

At-risk drinking for men is ≥5 drinks on one occasion or >14 per week; for women, ≥4 drinks on one occasion or >7 per week.

Detrimental effects with immoderate drinking. Individuals who engage in at-risk drinking, as defined by the NIAAA, are at increased risk for alcohol dependence[9] and associated complications such as diabetic neuropathy and retinopathy,[10] atherosclerosis,[11] and total and CHD mortality.[3,12] Heavy drinking also interferes with neuroendocrine, gastrointestinal, and sexual function,[13] and its interaction with diabetes increases the risk for hepatocellular carcinoma after controlling for hepatitis B and C serology.[14]

Interference with diabetes control. Research examining the short-term effect of alcohol use has produced contradictory results, partly due to differences among studies, such as whether alcohol is administered with a meal and whether a fasting glucose level is measured.[15] However, alcohol affects glycemic control and, when used excessively, can impair glucose production.[16,17] Alcohol may induce hypoglycemia,[10,18] and even small amounts may jeopardize diabetes control.[13] In a study of patients with insulin-treated diabetes, alcohol use in the presence of mild hypoglycemia increased diastolic blood pressure or exacerbated hypoglycemia-related cognitive deficits.[19] Another concern—in both the short and long term—is that alcohol interacts negatively with certain diabetes medications. It is more likely to induce hypoglycemia in the presence of sulfonylurea medications.[10] Chlorpropamide decreases the rate of ethanol elimination from the blood.[20] And, in those taking metformin, excessive alcohol use elevates risk for lactic acidosis.[21]

Diminished self-care. Alcohol use can interfere with self-care,[22,23] which is a crucial component of diabetes treatment.[24] It may lead to reduced eating[16] or to decreased willingness to adhere to prescribed dietary regimens.[13] It also impairs other self-care behaviors[13,15,25] such as self-monitoring blood glucose and showing up for medical appointments.[26] In a large, diverse sample of patients with diabetes,[24] heavy drinkers had the highest rates of morbidity. Importantly, alcohol and diabetes self-care behavior were significantly negatively associated. Studies of ethnic minority samples have yielded comparable results.[27]

Assessing alcohol use: Obstacles and solutions

Although alcohol use can be readily evaluated during routine primary care appointments, it is often neglected, perhaps due to a lack of awareness about its impact on diabetes.[15] Those who are most often assessed tend to have a psychiatric diagnosis or other condition raising a red flag for physicians.[28] When internists, general practitioners, and psychiatrists were questioned in a study regarding patients' alcohol and drug use, all 3 groups were misinformed about which substance-use treatments were empirically supported[29] and did not believe that treatment for alcohol abuse held much promise. Another study showed that physicians can be reluctant to screen for alcohol use because of the difficulty in recognizing a problem, the perceived unimportance of alcohol use as a health risk, a supposed lack of adequate intervention tools, and a fear of stigmatizing patients.[30] Physicians are more likely to discuss alcohol use under certain extreme conditions such as when a patient smells of alcohol.

Multiple opportunities to ask in the VA system. In the Veterans Health Administration, primary care VA providers have reported that prompts for alcohol screening embedded in computerized progress notes, clinical reminder lists, and annual health evaluation forms encourage them to assess alcohol use. Other useful materials include manual checklists and reference cards.[31] These providers also report that education,

feedback on rates of alcohol screening, and increased supervision facilitate assessment. Finally, providers indicate that asking nurses or clerical staff to administer the screen improves completion rates.

Ask a simple question

"How often have you had a drink containing alcohol in the last year?" or "How many drinks containing alcohol did you have on a typical day when you were drinking in the last year?" are questions that can help you compare a patient's alcohol use to the at-risk drinking cutoffs established by the NIAAA.[1,2]

Recent research has also validated the use of a single question in identifying NIAAA-defined at-risk drinking.[32] Simply ask patients, "How many times in the past year have you had X or more drinks in a day?" (X = 5 for men or 4 for women). The screen is positive when a patient acknowledges having done so at least once in the past year. This question was 81.8% sensitive and 79.3% specific for unhealthy alcohol use, and 87.9% sensitive and 66.8% specific for current alcohol abuse or dependence.[32] Advantages of this method are its brevity, ease of scoring, validity in the primary care setting,[32] and ease of recollection for treatment providers (**TABLE 1**).[1,2]

Brief intervention works in primary care

Brief interventions for drinking have strong empirical support. In a review of treatments for alcohol abuse and dependence,[33] brief intervention was one of only 2 "efficacious" treatments.

Although some individual studies of brief alcohol interventions in primary care have not shown favorable results, several systematic reviews have demonstrated the efficacy of such interventions in this setting. General practitioner–delivered brief interventions led to significantly better patient outcomes compared with standard care, and "very brief advice" resulted in reductions in alcohol consumption overall and in the percentage of "excessive drinkers."[34] In a review of health behavior interventions,[35] brief interventions reduced risky or harmful drinking. In one of 2 meta-analyses that support this finding, brief interventions with primary care patients not seeking treatment for alcohol abuse yielded small-to-medium effect sizes relative to control conditions.[36] In the other study, brief interventions significantly reduced longer term alcohol use in primary care patients.[37]

The US Preventive Services Task Force conducted a systematic review of behavioral counseling interventions and recommends screening and brief interventions for unhealthy drinking in primary care.[38,39] Its findings indicate that alcohol use declines significantly after brief interventions containing at least 2 of the following elements: feedback regarding drinking, advice to reduce drinking, or goal setting.

Brief advice is a form of intervention that shows considerable promise in primary care.[40–42] Two 10- to 15-minute sessions have led to significant reductions in the mean number of drinks and frequency of excessive drinking in the 7 days before a follow-up interview, as well as a reduction in binge drinking episodes in the previous 30 days.[41,42]

One study produced positive results with just a 5- to 10-minute counseling session involving advice for drinking goals delivered by primary care providers as part of a routine medical visit.[43] This intervention led to significant decreases in alcohol use at a 6-month follow-up for high-risk drinkers compared with controls.[43] Brief interventions additionally work within the time constraints of a busy primary care practice and are cost effective.

Some primary care providers think a specialist should conduct interventions and suggest that having a specialist immediately available would enable intervention.[31] In fact, some research has supported the idea of special training. In a European study, primary care providers reported that more practical training, information about brief intervention studies, personal training, and lectures would facilitate interventions.[44]

Applying brief alcohol interventions to diabetes patients

Newer research has tested the efficacy of al-

Spending just 5 or 10 minutes discussing drinking goals during routine office visits led to significant reductions in alcohol use for high-risk drinkers.

TABLE 1

Ask these simple questions to assess alcohol use[1,2]

To assess…	Ask…
Frequency of alcohol use	"How often do you drink alcohol (including beer or wine)?" or "How often have you had a drink containing alcohol in the last year?"
Quantity of alcohol use	"When you do drink alcohol, how many standard* drinks do you have?" or "How many drinks containing alcohol did you have on a typical day when you were drinking in the last year?"
Binge drinking	For men: "How often do you have 5 or more standard* drinks on one occasion?" For women: "How often do you have 4 or more standard* drinks on one occasion?"
Alcohol use with the NIAAA single-question screen	How many times in the past year have you had X or more drinks in a day?" (X = 5 for men and X = 4 for women; positive response ≥1)

*A standard drink is equal to 12 oz. of regular beer, 8 to 9 oz. of malt liquor, 5 oz. of wine, or 1.5 oz. of 80-proof spirits.[1]
NIAAA, National Institute on Alcohol Abuse and Alcoholism.

For further information on at-risk drinking, visit the National Institute on Alcohol Abuse and Alcoholism, at http://www.niaaa.nih.gov/Pages/default.aspx.

cohol interventions with diabetes patients in the primary care setting. In one study,[45] brief advice was given in 2 15-minute sessions and 2 5-minute follow-up telephone calls. Compared with controls, significantly more participants who received the intervention reduced heavy drinking from baseline to follow-up. One caveat is that patients with hypertension were included in the sample, making it difficult to determine the impact of the intervention on diabetes patients specifically.

In a small study of patients with diabetes exhibiting at-risk drinking,[8] a single-session intervention based on motivational interviewing (MI) principles[46] gave participants personalized feedback in relation to sex-based norms of drinking rates and HbA1c and triglyceride laboratory results. Patients were given information on the physiologic effects of alcohol on diabetes, the potential interactions between alcohol and diabetes medications, and the effect of alcohol on diabetes self-care behavior. They were asked to identify pros and cons of their drinking and to develop personal change goals. One of 2 PhD-level clinical psychologists trained in MI administered the single 50-minute intervention. By 1 month and continuing through to the 6-month follow-up, participants had reduced the proportion of drinking days, mean number of daily drinks, and proportion of heavy drinking days.

Ramsey and colleagues[47] extended this work by comparatively examining a group of patients exhibiting at-risk drinking who received no intervention. The results favored the intervention group, with a medium-to-large effect size for the proportion of drinking days, a medium effect size for the reduction of mean number of daily drinks, and a small-to-medium effect size in the reduction of heavy drinking days. Furthermore, in the intervention group there was a trend toward better diabetes adherence behavior.

Implementing brief intervention in practice. Despite differences among interventions, the elements of brief interventions tend to be similar.[48] Incorporating these elements in the primary care setting provides a useful framework that will likely prove beneficial. Specifically, brief interventions typically contain elements of the FRAMES (**TABLE 2**)[46] acronym:

- **F**eedback about one's drinking relative to others
- **R**esponsibility for deciding to change
- **A**dvice to change drinking
- **M**enu of options for implementing a change strategy
- **E**mpathic listening
- **S**elf-efficacy enhancement.

Decision-making models indicate that expectations about the effects of behavior change play a significant role in determin-

TABLE 2

How to implement the FRAMES approach in brief interventions[46]

FRAMES elements	Sample statements
Feedback about one's drinking relative to others	"Based on what you told me, you are drinking an average of 21 drinks per week, which puts you above the cutoff for at-risk drinking" or "According to what you told me, it looks like you are drinking more than 88% of men (or women) in the United States."
Responsibility for deciding to change	"You're in the best position to decide how you would like to make a change" or "Although reducing your drinking would be good for your health, it's up to you to decide when you're ready to make a change."
Advice to change drinking	"Your test results indicate your HbA1c, an important measure of blood sugar, is elevated; making a change in your drinking will likely improve your blood sugar" or "I am concerned about the effect on your health of drinking alcohol while taking your diabetes medications. Making a change in your drinking is likely to protect you from complications."
Menu of options for implementing a change strategy	"If it's okay with you, I can share what has worked for others whose drinking is similar to yours. Some people alternate a drink containing alcohol with water or diet soda. Others will bring only a certain amount of money with them when they go to a bar."
Empathic listening	"It sounds like this has been a concern" or "I know that change can be difficult."
Self-efficacy enhancement	"I wonder if you could use some of the same strategies you used to lose 10 pounds last year?" or "It sounds like you have some ideas for how to make this happen."

ing whether a decision to change is made.[49] The perceived costs and benefits of changing drinking[50,51] and positive[52] and negative alcohol expectancies[53,54] predict future alcohol use. For patients with diabetes who are at-risk drinkers, primary care appointments may provide "teachable moments" in which brief advice can have a significant impact—particularly when patients are told laboratory test results; advised about the sugar and carbohydrate content of alcohol; or given information regarding the effect of alcohol on diabetes, medications, and self-care behavior. Finally, primary care providers will also likely have knowledge of a patient's comorbid conditions (eg, depression) that may relate to diabetes or alcohol use. JFP

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Primary care appointments may provide "teachable moments" in which brief advice can have a significant impact—particularly when patients are told laboratory test results.

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