Recognition of Alcohol and Substance Abuse

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Ten percent of the population abuses drugs or alcohol, and 20 percent of patients seen by family physicians have substance-abuse problems, excluding tobacco use. These patients can be identified by relying on regular screening or a high index of suspicion based on "red flags" that can be noted in various clinical situations. The modified CAGE questionnaire is an excellent screening instrument, but several alternatives are available. The best screening test is one that the physician will routinely use well. Laboratory indicators such as gamma-glutamyl transpeptidase, mean corpuscular volume, and carbohydrate-deficient transferrin are nonspecific but can add to the evidence of alcohol abuse. If problem alcohol use is diagnosed, even brief physician advice can be helpful. If the problem has progressed to addiction, referral to an addiction specialist or treatment center is recommended. Special issues arise in dealing with substance abuse in adolescents, elderly patients, and patients with mental illness, but the family physician can play an important role in recognizing this common problem. (Am Fam Physician 2003;67:1529-32,1535-6. **Copyright© 2003 American Academy of Family Physicians.)**

A patient information handout on substance abuse and problem drinking, written by the author of this article, is provided on page 1535.

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Substance abuse, defined as the problematic use of alcohol, tobacco, or illicit drugs, has been called the nation's number one health problem.[1] The costs to society are enormous; the National Institute on Alcohol Abuse and Alcoholism estimates that alcohol and drug abuse are associated with 100,000 deaths per year and cost society $100 billion per year.[2]

It is thought that approximately 10 percent of American adults have a problem with drugs or alcohol, and an estimated 20 percent of patients seen by family physicians have substance-abuse problems, excluding tobacco use.[3] Patients who abuse alcohol and drugs are much more likely to develop medical problems than the general population.

Definitions

The American Medical Association recognized alcoholism as a disease in 1956. Early editions of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (DSM) required the presence of tolerance or withdrawal symptoms before a diagnosis of alcohol or drug dependence could be made. In the fourth edition of this publication, the requirements shifted to loss of control and failure to abstain from using the substance despite evidence of the problems it causes.[4] A practical approach for the family physician is to define addiction as the continued use of mood-altering chemicals despite an identified medical or social contraindication. This definition is helpful because physicians do not have to consider the amounts of substances being used or the duration of use.

The distinction between addiction and problem use is particularly important. The problem drinker or drug user may have undiagnosed medical or social problems but not yet have experienced a major loss of control. In full-blown addiction, patients continue using alcohol or drugs despite negative consequences, have a compulsion to continue using alcohol or drugs, and are in denial about the effects on themselves and others.

Approach to the Patient

Patients can present with "red flags" for alcohol and drug problems *(Table 1)*.[5] These warnings can be detected during physical examinations or by screening during consultations for atypical progress of medical problems. Although none of the red flags is pathognomonic for alcohol or drug problems, the presence of even one should raise suspi-

See page 1413 for definitions of strength-of-evidence levels.

See editorial on page 1443.

TABLE 1
"Red Flag" Complaints for Substance-Abuse Problems

Frequent absences from school or work	Gastrointestinal symptoms, such as epigastric distress, diarrhea, or weight changes
History of frequent trauma or accidental injuries	Sexual dysfunction
Depression or anxiety	Sleep disorders
Labile hypertension	

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cion. In addition to the typical signs, a history of relationship difficulties, poorly explained trauma, or convictions for driving while intoxicated (DWI) should raise suspicion.

A number of physical findings can suggest alcohol or other drug problems *(Table 2)*.[5] Another warning flag pops up when a patient with a chronic disease fails to respond in the expected manner to treatment, such as a patient with diabetes whose glucose level becomes more difficult to control or a patient with hypertension whose blood pressure becomes more difficult to manage despite apparently optimal therapy and supposed compliance.

It is still important to screen all patients for drug and alcohol use when there are no obvious red flags, suspicious physical findings, or atypical features of chronic disease. Screening should be done whenever possible but particularly at the time of the periodic evaluation. In selecting a screening tool, the physician should decide between using a screening test or focusing on the amount of alcohol consumed.

The American Society of Addiction Medicine has developed standards for a positive screen based on the number of drinks ingested per week. Using this standard, a positive screen is considered consumption of more than 14 drinks per week or more than four drinks per occasion for men. For women, a positive screen is more than seven drinks per week or more than three drinks per occasion.[6] The numbers for women are lower because it takes fewer drinks for women to experience

A key feature of addiction is continued use of the substance despite negative consequences.

TABLE 2
Physical Findings that Suggest Alcohol and Other Drug Problems

Mild tremor
Odor of alcohol on breath
Enlarged, tender liver
Nasal irritation (suggestive of cocaine insufflation)
Conjunctival irritation (suggestive of exposure to marijuana smoke)
Labile blood pressure, tachycardia (suggestive of alcohol withdrawal)
"Aftershave/mouthwash" syndrome (to mask the odor of alcohol)
Odor of marijuana on clothing
Signs of chronic obstructive pulmonary disease, hepatitis B or C, HIV infection

HIV = human immunodeficiency virus.

Adapted with permission from Schulz JE, Parran T Jr. Principles of identification and intervention. In: Graham AW, Schultz TK, Wilford BB, eds. Principles of addiction medicine. 2d ed. Chevy Chase, Md.: American Society of Addiction Medicine, 1998:251.

the negative consequences of alcohol consumption.[7] If the screen is positive, the physician should take a more extensive history and consider physical examination and laboratory evaluation. The latter can help rule out a false-positive screen and classify the patient as a problem drinker or an alcoholic.

Several other screening tools are available, but the CAGE questionnaire and the conjoint screening test are the most practical for family physicians. CAGE is a mnemonic for a questionnaire that asks about attempts to ***C***ut down on drinking, ***A***nnoyance with criticisms about drinking, ***G***uilt about drinking, and using alcohol as an ***E***ye opener.[8,9] The test requires approximately one minute to complete, and although it does not diagnose alcoholism or problem drinking, it should prompt the physician to look further.

The CAGE questionnaire does not differentiate between current and former problems, and it is more accurate in detecting alcoholism than problem drinking. Screening for other substances can be incorporated into the CAGE format by simply including references to them in the questions.[10] The CAGE questionnaire is thought to be 60 to 90 percent sensitive when two or more questions are positive and 40 to 60 percent specific for excluding substance abuse.

Both the CAGE questionnaire and the conjoint screening test perform well as screening tools for substance abuse.

The conjoint screening test is even shorter, involving only two questions: "In the past year, have you ever drunk or used drugs more than you meant to?" and "Have you felt you wanted or needed to cut down on your drinking or drug use in the past year?"[11] When primary care patients were studied, at least one positive response detected current substance-use disorders with nearly 80 percent sensitivity and specificity. As with all screening tests, performance varies with the prevalence of substance abuse in the particular population screened.

It is more important for physicians to pick a screening tool and use it routinely than to try to find the best screening method in each situation. The best method is the one that physicians use on a regular basis. No single screening test can diagnose substance abuse, but a positive screen raises suspicion and should prompt physicians to investigate further.

Laboratory Evaluation

Although many laboratory tests have been used in the evaluation of substance abuse, none is diagnostic. The most useful laboratory tests to confirm alcohol-abuse problems are gamma-glutamyl transpeptidase (GGT), mean corpuscular volume (MCV), and carbohydrate-deficient transferrin (CDT). A urine toxicology screen is the best test to confirm problems with other drugs.

The serum GGT determination is one of the most widely used laboratory tests. This hepatic enzyme is elevated in patients who use alcohol excessively.[12] The test has a higher sensitivity than specificity because other conditions, such as nonalcoholic liver disease, hyperthyroidism, and use of anticonvulsants, can elevate GGT levels.[13]

MCV also has been used as a marker of heavy alcohol consumption. It tends to be less sensitive than measurement of the GGT level, but an elevated MCV level combined with an elevated GGT level should raise suspicion about alcohol abuse.[12]

CDT tests are available to screen for excessive alcohol consumption. It has been estimated that four to seven drinks per day for at least one week can significantly elevate CDT levels in patients with alcoholism.[14]

Special Populations

Recognition of substance abuse in adolescents, geriatric patients, and patients with mental illness provides special challenges.

Drug and alcohol use during adolescence differs from use in adults. The typical acting out of adolescents can be confused with the effects of drug and alcohol use. Adolescents' mistrust of adult authority frequently complicates the detection of substance abuse. A family physician who has interacted with an adolescent over time probably is trusted more than other adult authority figures. The best chance for the physician to detect problems is in the context of routine medical care.[15] Family physicians need to be aware of potential problems and modify the CAGE questionnaire to screen for both drugs and alcohol.

Older patients with alcoholism fall into two groups. The early-onset group had alcoholism earlier in life, while problems in the late-onset group begin after the age of 60.[16] Several studies have evaluated the efficacy of the CAGE questionnaire in elderly patients. While the overall sensitivity and specificity are quite good, this screening tool is not as effective in discriminating between current drinking and a past drinking problem. It is particularly important to modify the CAGE questionnaire to detect drug abuse, because elderly patients are prone to self-medication. The physician must be aware that cognitive impairment can affect the patient's ability to respond accurately to the questions.

The physician should be suspicious of substance abuse in patients with mental disorders. Results from the Epidemiologic Catchment Area study[17] demonstrated that 47 percent of patients with a lifetime diagnosis of schizophrenia or schizophreniform disorder met criteria for some form of substance abuse. In patients with antisocial personality disorder, the percentage was 83.6; in patients with anxiety disorders, the percentage was 23.7; and in patients with affective disorders, the percentage was 32. Suspicion of substance abuse is important not only because

of the prevalence of this disorder, but also because it is very difficult to treat mental illness if concomitant substance abuse is unrecognized.

Treatment

A detailed outline of the treatment of substance abuse is beyond the scope of this article. If problem drinking is identified, even brief physician advice can be helpful.[18] [Evidence level A, randomized controlled trial] These patients have experienced some negative consequences but have not yet experienced a major loss of control. The patient who has been diagnosed with substance abuse should be referred to an addiction-medicine specialist or an inpatient or outpatient treatment center. These steps give the patient a solid start on the recovery process.

If insurance problems or other factors prevent referral, it is possible to detoxify the patient on an outpatient basis. The patient then can be referred to Alcoholics Anonymous or Narcotics Anonymous for sustained follow-up support. Specific medical therapies are available for opioid addiction.

Whatever treatment the patient undergoes, it is important for the family physician to be supportive of the patient and the family in recovery and to be extremely careful about prescribing mood-altering drugs in the future. As a chronic disease, substance abuse tends to relapse. The family physician can play a pivotal role by dealing with the patient and family in a nonjudgmental manner.

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