Problem Drinking and Alcoholism: Diagnosis and Treatment

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Alcoholism is one of the most common psychiatric disorders with a prevalence of 8 to 14 percent. This heritable disease is frequently accompanied by other substance abuse disorders (particularly nicotine), anxiety and mood disorders, and antisocial personality disorder. Although associated with considerable morbidity and mortality, alcoholism often goes unrecognized in a clinical or primary health care setting. Several brief screening instruments are available to quickly identify problem drinking, often a pre-alcoholism condition. Problem drinking can be successfully treated with brief intervention by primary care physicians. Alcohol addiction is a lifelong disease with a relapsing, remitting course. Because of the potentially serious implications of the diagnosis, assessment for alcoholism should be detailed. Alcoholism is treated by a variety of psychosocial methods with or without newly developed pharmacotherapies that improve relapse rates. Screening for problem drinking and alcoholism needs to become an integral part of the routine health screening questionnaire for adolescents and all adults, particularly women of child-bearing age, because of the risk of fetal alcohol syndrome. (Am Fam Physician 2002;65:441-8,449-50. Copyright© 2002 American Academy of Family Physicians.)

A patient information handout about problem drinking, written by the authors of this article, is provided on page 449

Alcohol misuse is associated with considerable morbidity and mortality (100,000 deaths annually), social and legal problems, acts of violence, and accidents. Alcoholism is among the most common psychiatric disorders in the general population: the lifetime prevalence of alcohol dependence, the severe form of alcoholism, is 8 to 14 percent.[1] The ratio of alcohol dependence to alcohol abuse is approximately two to one. The incidence of alcoholism is still more common in men, but it has been increasing in women, and the female to male ratio for alcohol dependence has narrowed to one to two.[2] Serious drinking often starts in adolescence; approximately 40 percent of alcoholics develop their first symptoms between 15 and 19 years of age.[3]

Alcoholism often goes undiagnosed; the rate of screening for alcohol consumption in health care settings remains lower than 50 percent.[4] Some patients also may withhold information because of shame or fear of stigmatization. This can lead to missed information about medical and psychiatric conditions, potential surgical complications, unexpected alcohol withdrawal symptoms, drug interactions, and lost opportunities for prevention, including intervention during pregnancy to prevent damaging effects of alcohol on the fetus. All too often, patients, particularly the elderly, continue to be treated symptomatically for alcohol-related conditions without recognition of the underlying problem *(Table 1)*. There are many reasons why there is a worldwide tendency for physicians to neglect or be unaware of symptoms and signs of alcohol abuse, but inappropriate attitudes, insufficient medical school training in this subject, and subsequent low confidence to treat are key elements.

Etiology

Alcoholism is familial; an important risk factor for developing the disease is to have an alcoholic parent. Although environmental and interpersonal factors are important, a genetic predisposition underlies alcoholism, particularly in the

more severe forms of the disease. Heritability of alcoholism (the genetic component of interindividual variation in vulnerability) is 40 to 60 percent.[5] The major genes that have so far been identified are protective against alcoholism; approximately one half of all Southeast Asians have genetic variants of alcohol metabolizing enzymes such that after drinking only small amounts of alcohol, they experience an unpleasant facial flushing reaction with tachycardia, nausea, and headaches as a result of the accumulation of the toxic metabolite acetaldehyde.

Comorbidity

Nearly all alcoholics have a comorbid psychiatric disorder, most commonly anxiety and mood disorders in women and drug abuse and antisocial personality disorders in men.[6] Approximately 70 percent of alcoholics are heavy smokers (more than 20 cigarettes per day), compared with 10 percent of the general population.[7]

TABLE 1
Indicators of Possible Problem Drinking or Alcoholism

Symptoms	Signs
Recurrent intoxication, nausea, sweating, tachycardia	Heavy, regular alcohol consumption, heavy cigarette smoking
Amnesic episodes (blackouts)	Other substance abuse (e.g., cannabis, cocaine, heroin, amphetamines, sedatives, hypnotics, and anxiolytics)
Mood swings, depression, anxiety, insomnia, chronic fatigue	Unexpected medication response (drug interactions)
Grand mal seizures, hallucinations, delirium tremens	Poor nutrition and personal neglect
Dyspepsia, diarrhea, bloating, hematemesis, jaundice	Frequent falls or minor trauma (particularly in the elderly)
Tremor, unsteady gait, paraesthesia, memory loss, erectile dysfunction	Accidents, burns, violence, suicide
	Recurrent absenteeism from work or school
	Spontaneous abortion, child with fetal alcohol syndrome
	Increased vulnerability
	Alcoholic parent, childhood conduct disorder, antisocial personality disorder
	Negative life event

TABLE 2
Elevated Laboratory Test Results as Indicators of Alcohol Misuse

Evidence of recent drinking
Breath analysis/blood alcohol level
Monitoring heavy drinking in men
Gamma-glutamyltransferase
Carbohydrate-deficient transferrin—available in specialized centers
Nonspecific association
Mean corpuscular volume
High-density lipoprotein cholesterol and triglyceride levels
Evidence of liver impairment
Serum glutamic oxaloacetic transaminase level
Alkaline phosphatase level
Alanine aminotransferase level

Medical Sequelae

Profound medical sequelae may develop following heavy, long-term drinking. Apart from fibrosis, cirrhosis, and some neurologic damage, many sequelae are at least partially reversible with abstinence. Alcohol is carcinogenic, particularly in association with smoking. Women tend to be at greater risk of medical complications.[8] It has been estimated that 6 percent of the children of alcoholic women have fetal alcohol syndrome, which is characterized by growth deficiency, distinctive abnormal facial features, microencephaly and mental retardation, and attention and behav-

TABLE 3
U.S. Government Recommended 'Safe' Levels for Alcohol Consumption

Men: two drinks per day
Women: one drink per day
Standard drink (U.S.) = 12 g of alcohol: one 12 oz bottle of beer (4.5 percent); or one 5 oz glass of wine (12.9 percent); or 1.5 oz of 80-proof distilled spirits

Information from 10th special report to U.S. Congress on alcohol and health: highlights from current research from the Secretary of Health and Human Services. U.S. Dept. of Health and Human Services, Public Health Service, National Institutes of Health. National Institute on Alcohol Abuse and Alcoholism 2000:429-30; NIH publication no. 00-1583.

ioral problems. There are probably several times as many alcohol-damaged children who have nonspecific symptoms of intellectual impairment and behavioral deficits.[9] Even drinking seven to 14 drinks per week can cause moderate fetal damage, particularly when five or more drinks are consumed on one occasion.[10]

Diagnosis of Problem Drinking and Alcoholism

SYMPTOMS AND SIGNS

Although few of the symptoms and signs of alcohol abuse are diagnostic *(Table 1)*, each should alert the family physician to the possibility of alcohol misuse. Elevated blood test results *(Table 2)* suggest chronic, heavy drinking.

DEFINITIONS OF 'SAFE,' PROBLEM, AND HEAVY DRINKING

An important warning sign is clearly regular, heavy drinking. The ceiling for low-risk alcohol use advocated by the U.S. government is one standard drink per day for women and two standard drinks per day for men *(Table 3)*.[11] Because of age-related changes in the body, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) recommends that men and women older than 65 years consume no more than one drink per day.

At-risk alcohol use, or problem drinking, is defined as more than seven drinks per week or more than three drinks per occasion for women; and more than 14 drinks per week or more than four drinks per occasion for men. Heavy drinking is often defined as more than three to four drinks per day for women and more than five to six drinks per day for men.

IDENTIFYING PROBLEM DRINKERS

There are several brief, easy to use and score, screening instruments that are designed to identify problem drinking and alcoholism, and can be self-administered by a patient.[12] The AUDIT[13] (Alcohol Use Disorders Identification Test) is considered to be

Screening for Problem Drinking: The Alcohol Use Disorders Identification Test (AUDIT)

1. How often do you have a drink containing alcohol?
   ☐ Never ☐ 2 to 3 times a week
   ☐ Monthly ☐ 4 or more times a week
   ☐ 2 to 4 times a month
2. How many drinks containing alcohol do you have on a typical day when you are drinking?
   ☐ 1 or 2 ☐ 3 or 4 ☐ 5 or 6 ☐ 7 to 9 ☐ 10 or more
3. How often do you have 6* or more drinks on one occasion?
   ☐ Never ☐ Weekly
   ☐ Less than monthly ☐ Daily or almost daily
   ☐ Monthly
4. How often during the past year have you found that you were not able to stop drinking once you started?
   ☐ Never ☐ Weekly
   ☐ Less than monthly ☐ Daily or almost daily
   ☐ Monthly
5. How often during the past year have you failed to do what was normally expected from you because of drinking?
   ☐ Never ☐ Weekly
   ☐ Less than monthly ☐ Daily or almost daily
   ☐ Monthly
6. How often during the past year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
   ☐ Never ☐ Weekly
   ☐ Less than monthly ☐ Daily or almost daily
   ☐ Monthly
7. How often during the past year have you had a feeling of guilt or remorse after drinking?
   ☐ Never ☐ Weekly
   ☐ Less than monthly ☐ Daily or almost daily
   ☐ Monthly
8. How often during the past year have you been unable to remember what happened the night before because you had been drinking?
   ☐ Never ☐ Weekly
   ☐ Less than monthly ☐ Daily or almost daily
   ☐ Monthly
9. Have you or someone else been injured as a result of your drinking?
   ☐ No ☐ Yes, but not in the past year ☐ Yes, during the past year
10. Has a relative or a friend or a doctor or other health worker been concerned about your drinking or suggested you cut down?
    ☐ No ☐ Yes, but not in the past year ☐ Yes, during the past year

**—4 in women (National Institute on Alcohol Abuse and Alcoholism. National Alcohol Screening Day).*

Procedure for scoring:

Questions 1-8 are scored 0, 1, 2, 3, or 4. Questions 9 and 10 are scored 0, 2, or 4.
The maximum possible score is 40. A score of 8 or more is suggestive of problem drinking.
For women, the cutoff point should be 4 or more.

FIGURE 1. The Alcohol Use Disorders Identification Test (AUDIT).

Adapted with permission from Saunders JB, Aasland OG, Babor TF, de al Fuente JR, Grant M. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project On Early Detection Of Persons With Harmful Alcohol Consumption—II. Addiction 1993;88:791-804.

TABLE 4
Screening for Problem Drinking: Quantity/Frequency Questionnaire*

- On average, how many days per week do you drink alcohol?
- On a typical day when you drink, how many drinks do you have?
- What is the maximum number of drinks you have had on a given occasion during the past month?

*—Indications for at-risk alcohol consumption or problem drinking: >seven drinks per week or >three drinks per occasion for women and men ≥65 years; >14 drinks per week or >four drinks per occasion for men <65 years.

Adapted from 10th special report to the U.S. Congress on alcohol and health: highlights form current research from the Secretary of Health and Human Services. U.S. Dept. of Health and Human Services, Public Health Service, National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism. 2000;430; NIH publication no. 00-1583.

the most accurate test for identifying problem drinking *(Figure 1)*.[14] The AUDIT is used by the NIAAA in the community for National Alcohol Screening Day. If there is only time for a shorter screening instrument, the Quantity/Frequency Questionnaire[15] devised by the NIAAA may be used *(Table 4)*.[15] Identified problem drinkers can then be further assessed for alcoholism.

The CAGE questionnaire has consistently proved to be the superior instrument for detecting alcohol abuse and alcohol dependence *(Table 5)*.[16] The 10-question Brief Michigan Alcoholism Screening Test (BMAST) and the five-question TWEAK (Tolerance, Worry about drinking, Eye-opener drinks, Amnesia, Cut down on drinking K/C) are also used reliably to detect alcoholism by assessment of the patient's, relatives', and friends' attitudes to their drinking.[12] Whichever questionnaire is used, lower thresholds for a positive result should be used for women *(Figure 1* and *Table 5)*, because women experience harmful effects at lower levels of alcohol consumption than men.[17]

TABLE 5
Screening for Alcoholism: The CAGE Questionnaire*

Treatment

The severity of the alcohol problem, comorbid medical and psychosocial problems, and the patient's motivation to change are key elements influencing the family physician's choice of intervention.

TREATMENT OF PROBLEM DRINKING

Brief intervention is a short-term counseling strategy based on motivational enhancement therapy that concentrates on changing patient behavior and increasing patient compliance with therapy *(Figure 2)*.[18,19] It has been shown to be effective for helping socially stable problem drinkers to reduce or stop drinking,[19,20] for motivating alcohol-dependent patients to

enter long-term alcohol treatment, and for treating some alcohol-dependent patients for whom the goal is abstinence.[21] Generally conducted in four or fewer sessions, each lasting from a few minutes to an hour depending on the severity of the patient's alcohol problem, it is designed for health professionals who are not specialists in addiction *(Figure 2)*.[18,19]

TREATMENT OF ALCOHOL DEPENDENCE AND ABUSE

A formal diagnosis of alcoholism can have enormous personal implications for a patient, therefore assessment should be detailed *(Table 6)*.[1]

Alcohol abuse and dependence have a variable course characterized by periods of remission and relapse. There are three major hurdles to overcome in the treatment of alcoholism: (a) physiologic dependence (symptoms of withdrawal), (b) psychologic dependence (alcohol used as treatment for anxiety, de-

Key Elements of Effective Brief Intervention for Problem Drinking in a Primary Health Care Setting

Session 1: Visit with physician, 15 minutes

1. Review quantity and frequency of current drinking.
2. Review personal drinking cues.
3. Give feedback of personal risk for alcohol-related problems.
4. Give explicit advice to reduce or stop drinking.
5. Discuss patient's personal responsibility and choice for reducing or stopping drinking.
6. Find appropriate personal timing for change.
7. Establish a drinking goal and agree on a contract.
8. Set up a drinking diary.
9. Suggest ways for behavior modification, coping techniques, and self-help materials.
10. Encourage self-motivation and optimism.

Session 2, two weeks later: Clinic nurse, via telephone

Follow-up and reinforcement

Session 3, two weeks later: Visit with physician, 15 minutes

Follow-up and reinforcement

Session 4, two weeks later: Clinic nurse, via telephone

Follow-up and reinforcement

FIGURE 2. Brief interventions for problem drinking in a primary care setting.

Information from Fleming M, Manwell LB. Brief intervention in primary care settings. A primary treatment method for at-risk, problem, and dependent drinkers. Alcohol Res Health 1999;23:128-37, and Fleming MF, Barry KL, Manwell LB, Johnson K, London R. Brief physician advice for problem alcohol drinkers. A randomized controlled trial in community-based primary care practices. JAMA 1997;277:1039-45.

TABLE 6

Synopsis of Diagnostic Criteria for Alcohol Abuse and Dependence

Acamprosate, now being tested in the United States, appears to be safe and well tolerated and may almost double the abstinence rate among recovering alcoholics.

pression, stress), and (c) habit (the central part that alcohol occupies in the framework of daily living).

Alcohol dependence is treated in two stages: withdrawal and detoxification, followed by further interventions to maintain abstinence.

IMMEDIATE TREATMENT: DETOXIFICATION

The severity of withdrawal symptoms increases with each withdrawal episode. Severe withdrawal (grand mal convulsions, delirium tremens) occurs in 2 to 5 percent of heavy drinking, chronic alcoholics fewer than three days after stopping alcohol consumption, and may last for three to seven days. With treatment, mortality is about 1 percent; death is usually caused by cardiovascular collapse or concurrent infection.

Withdrawal severity and indications for pharmacotherapy can be assessed by the revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) instrument.[22] Use of benzodiazepines greatly reduces the risk of seizure and symptoms of withdrawal. Alcoholics should be admitted to the hospital for detoxification if they are likely to have severe, life-threatening symptoms or have serious medical conditions, suicidal or homicidal tendencies, disruptive family or job situations, or are unable to attend outpatient facilities.[23]

SUSTAINED TREATMENT: LONG-TERM MAINTENANCE OF ABSTINENCE

Considerable evidence shows that long-lasting neurobiologic changes in the brains of alcoholics contribute to the persistence of craving. At any stage during recovery, relapse can be triggered by internal factors (depression, anxiety, craving for alcohol) or external factors (environmental triggers, social pressures, negative life events).[23] Psychosocial treatments concentrate on helping patients to understand, anticipate, and prevent relapse.

BEHAVIORAL TREATMENT APPROACHES

Alcoholics Anonymous (AA) and 12-Step Facilitation Therapy. AA and similar self-help groups follow 12 steps that alcoholics should work through during recovery. This free program is particularly supportive for those who are poor, isolated, lonely, or who come from a heavy-drinking social background. Twelve-Step Facilitation (TSF) is a formal treatment approach incorporating AA and similar 12-step programs.[24]

Cognitive-Behavior Therapy (CBT). The aim of CBT is to teach patients, by role-play and rehearsal, to recognize and cope with high-risk situations for relapse, and to recognize and cope with craving.[25]

Motivational Enhancement Therapy (MET). This counseling method is used to motivate patients to use their own resources to change their behavior.[26]

Results of a large multisite study, Project MATCH,[27] found that there was no difference in the efficacy of CBT, MET, and TSF during the year following treatment, however, MET was found to be most effective in those patients with high levels of anger, and TSF and AA involvement was particularly effective in patients from a heavy drinking social environment.[27]

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PHARMACOTHERAPY

Thirty to 60 percent of alcoholics maintain at least one year of abstinence with psychosocial therapies alone.[28] However, more than 20 percent of alcoholics achieve long-term sobriety even without active treatment.[1] More effective therapies are clearly needed, and pharmacotherapeutic agents have recently emerged that can be used as adjuncts to psychosocial treatments.

Anti-craving Medications. The most promising of these medications are the opioid antagonist, naltrexone (Revia), and acamprosate, a glutamate antagonist. These drugs, used separately and in combination, are likely to be the first of many pharmacotherapies targeting multiple neurotransmitters.

Several studies have shown that naltrexone (50 mg once daily) reduces alcohol consumption in male and female alcoholics and is effective, when combined with psychosocial treatment, in reducing relapse rates.[29,30] A recent preliminary study has found that taking naltrexone two hours before an anticipated high-risk situation reduces alcohol consumption in early problem drinkers, particularly women.[31] Acamprosate, used extensively in Europe and now being tested in the United States, appears to be safe and well tolerated and may almost double the abstinence rate among recovering alcoholics.[32]

Aversive Pharmacotherapy. Disulfiram (Antabuse, 250 to 500 mg daily), a drug with a moderate record of adverse effects[33] which has been available since the late 1940s, blocks the metabolism of acetaldehyde and causes an unpleasant flushing reaction if taken with alcohol. Outcomes of patients who take disulfiram are improved when the drug is taken under supervision.[34]

Pharmacotherapy for Comorbid Conditions. Depression and anxiety can precipitate heavy drinking but can also be a result of alcohol abuse. A careful history is required to identify the primary problem. Fluoxetine (Prozac), a selective serotonin reuptake inhibitor, has been found to be effective in decreasing depressive symptoms and the level of alcohol consumption in depressed alcoholics.[35]

When to Refer

After a screening questionnaire has identified problem drinking, the physician may question the patient further to determine the severity of alcohol misuse. The physician may try brief intervention and/or suggest AA, or refer the patient to an addiction specialist. The family physician should play a critical holistic role in treatment and prevention, working with the patient and family, even when other specialists may be involved.

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