Review Article

Medical Progress

PATIENTS WITH ALCOHOL PROBLEMS

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ALCOHOL use is associated with many health problems,[1,2] along with 100,000 deaths and an annual economic cost of $100 billion in the United States.[1] From the perspective of generalist physicians, the term "alcohol problems" (problems caused by alcohol that may require treatment) refers to a broad array of acute and chronic medical, behavioral, and social problems that may affect their patients.[3] Up to 40 percent of medical and surgical patients have alcohol problems, and alcohol use accounts for more than 15 percent of health care costs.[1,3]

Alcohol problems may be acute or chronic, may range from mild to severe, and may vary in their response to treatment. In these respects, alcohol problems are similar to a wide range of acute and chronic problems seen by generalist physicians every day and thus are well suited to longitudinal management.[3] Generalist physicians who provide continuous care can have a major role in the care of patients who have alcohol problems or who are at risk for alcohol problems by providing effective screening and assessment, patient education, office-based interventions, and referral to specialty services if indicated. Federal agencies and experts on alcohol problems have made a strong case for the active participation of generalist physicians in the treatment of these patients.[3-7] We provide an overview of the major clinical features and recent developments in the identification and treatment of patients with alcohol problems from the perspective of generalist physicians.

PATTERNS OF ALCOHOL USE AND DIAGNOSTIC CRITERIA

Abstainers are persons who do not drink alcohol. One standard drink (180 ml [6 oz] of wine, 360 ml [12 oz] of beer, or 45 ml [1.5 oz] of 90-proof spirits) contains 12 g of alcohol.[1] The terminology and criteria used to categorize patterns of alcohol use and disorders on the basis of health risks and effects are shown in Table 1.

Moderate and At Risk Drinking

"Moderate drinking" and "at risk drinking" distinguish levels of alcohol consumption on the basis of health risks. Although there is variability in the level of consumption that is harmful,[8] increased consumption is correlated with health problems.[1,2] In two prospective studies examining 300,000 men, increased mortality was observed among men consuming more than two[9] or three[10] drinks daily. Another study found that women drinking more than approximately 2.5 drinks daily had increased mortality.[11] The lower levels of alcohol intake associated with specific adverse health effects in women as compared with men[1] are in part due to the lower volume of distribution of alcohol[12] and the decreased activity of gastric alcohol dehydrogenase in women.[13] In the National Health and Nutrition Examination Survey Epidemiologic Follow-up Study, episodic heavy ("binge") consumption of more than four and more than eight drinks (as compared with none) was associated with relative risks of death from injury of 1.9 and 3.3, respectively.[14]

The National Institute on Alcohol Abuse and Alcoholism defines "moderate" drinking as the average number of drinks consumed daily that places an adult at low risk for alcohol problems (Table 1).[4] Although the criteria for "at risk" drinking (which corresponds approximately to the World Health Organization's term "hazardous use"[15]) provide an estimate of population health risk, individual features such as duration of use also affect risk (Table 1). Although there is substantial evidence that moderate drinking (as compared with nondrinking) is associated with health benefits (decreased mortality and cardiovascular disease),[2,9-11,16-19] the level of consumption associated with these benefits is quite low (two to six drinks per week[9,20]). A more recent study that examined middle-aged and elderly U.S. adults demonstrated that the overall death rate was lowest among men and women consuming about one drink daily.[21] The overall mortality benefit in this study was small and was most pronounced among older patients who were at increased risk for cardiovascular disease.[22] There is no evidence to support the routine prescription of alcohol.

Alcohol Abuse and Dependence

The criteria for substance-use disorders including alcohol abuse and alcohol dependence are published in the *Diagnostic and Statistical Manual of Mental*

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TABLE 1. TERMS AND CRITERIA FOR PATTERNS OF ALCOHOL USE.

TERM*	CRITERION
Moderate drinking (NIAAA)	Men: ≤2 drinks/day Women: ≤1 drink/day Over 65: ≤1 drink/day
At-risk drinking (NIAAA)	Men: >14 drinks/wk or >4 drinks/occasion Women: >7 drinks/wk or >3 drinks/occasion
Alcohol abuse (APA)	Maladaptive pattern of alcohol use leading to clinically significant impairment or distress, manifested within a 12-mo period by one or more of the following: Failure to fulfill role obligations at work, school, or home Recurrent use in hazardous situations Legal problems related to alcohol Continued use despite alcohol-related social or interpersonal problems Symptoms have never met criteria for alcohol dependence
Alcohol dependence (APA)	Maladaptive pattern of alcohol use leading to clinically significant impairment or distress, manifested within a 12-mo period by three or more of the following: Tolerance (either increasing amounts used or diminished effects with the same amount) Withdrawal (withdrawal symptoms or use to relieve or avoid symptoms) Use of larger amounts over a longer period than intended Persistent desire or unsuccessful attempts to cut down or control use Great deal of time spent obtaining or using or recovering from use Important social, occupational, or recreational activities given up or reduced Use despite knowledge of alcohol-related physical or psychological problems
Hazardous use (WHO)	Person at risk for adverse consequences
Harmful use (WHO)	Use resulting in physical or psychological harm

*NIAAA denotes National Institute on Alcohol Abuse and Alcoholism, APA American Psychiatric Association, and WHO World Health Organization.

Disorders (fourth edition) (Table 1).[23] The definition of alcohol abuse is similar to the World Health Organization's definition of "harmful use."[15] Alcohol dependence, in particular, is widely considered a prototypical chronic disease like diabetes or arthritis, which may have a wide range of severity, is often characterized by a pattern of intermittent relapse and remission, and is treatable.[3,24] Despite attempts to clarify the term "alcoholism,"[25] the terminology and criteria shown in Table 1 are more precise and clinically useful.

EPIDEMIOLOGY

General Population

The 1992 National Longitudinal Alcohol Epidemiologic Study found that 44 percent of U.S. adults were current drinkers, 22 percent were former drinkers, and 34 percent were lifetime abstainers.[26] Epidemiologic studies in the United States estimate the prevalence of alcohol abuse and dependence in the past year as 7.4 percent[27] to 9.7 percent,[28] and the lifetime prevalence as 13.7 percent[29] to 23.5 percent.[28] Although male sex is associated with a higher prevalence of these disorders,[27,28] and heavy drinking may be inversely associated with age, income, and education,[26] no sociodemographic factor is protective, and all patients should be evaluated for use of alcohol.

Medical Settings

The rates of alcohol abuse and dependence are generally higher in medical settings. Moore et al.[30] found that 20 percent of inpatients screened were classified as having "alcoholism." Bush et al.[31] found a prevalence of alcohol abuse or dependence of 20 percent among patients in community hospitals, and Muller[32] estimated that 22 percent to 26 percent of admissions to U.S. community hospitals were alcohol-related. The lifetime prevalence of alcohol abuse or dependence in outpatient settings ranges in various studies from 16 percent to 36 percent.[33-36] "At risk" or "problem" drinking was found in 41 percent of men and 28 percent of women from 47 general practices in the United Kingdom[37] and in one of six patients in 17 community-based primary care practices in Wisconsin.[38]

SCREENING AND DIAGNOSIS OF ALCOHOL PROBLEMS

Generalist physicians should screen all patients for alcohol problems and should be able to assess patients for alcohol-related diagnoses. Although a diagnosis of alcohol problems may not necessarily be made on a first encounter, continuity of care provides a unique opportunity to evaluate patients over time so that they may be effectively assessed.

Barriers to Effective Screening and Diagnosis

Despite the high prevalence of alcohol problems among medical patients, fewer than half of patients with alcohol problems were so identified by their physicians in one study,[30] and in another study only 24 percent were offered treatment.[31] Patients with alcohol problems are more likely to be identified if they

have medical complications.[30] Women with alcohol problems are less likely to be identified than men.[39] In addition to inadequate training about substance abuse, factors that may be associated with nondetection include physicians' negative attitudes about patients with substance abuse,[40] skepticism about the effectiveness of treatment,[30] and the perception that alcohol problems are not in the realm of generalists.[6] However, early detection by physicians is critical to prevent sequelae of alcohol problems.[1,3,4,7] In addition, the potential interactions of alcohol with a variety of prescription and nonprescription medications[2,41] make routine screening critical.

Screening Approaches in Medical Settings

General History and Screening Questionnaires

The patient's history is the most valuable source of information concerning alcohol use, and self-reported information on alcohol use is reliable and reproducible.[42] A four-step process facilitates screening and diagnosis.[1,4,5] Step 1 is to ask all patients about current and past alcohol use, and because genetic predisposition and family environment are major risk factors for alcohol problems,[43] the family history should also include questions about alcohol problems. In step 2, a detailed history regarding quantity and frequency of use should be obtained from all drinkers by asking questions such as the following: "What type or types of alcoholic drinks (beer, wine, spirits) do you consume?" "How often do you drink?" "How much do you usually drink on a typical drinking day?" "Do you ever drink more than your usual amount, and if so, how much?" These questions can help distinguish moderate from at-risk drinking (Table 1) and identify binge drinking.

Step 3 involves the use of standardized questionnaires to detect alcohol problems.[44] The four-question CAGE instrument focuses on impaired control (*c*ut down), use despite consequences (*a*nnoyed by criticism, experiencing *g*uilt), and dependence (*e*ye-opener drink in the morning). The questionnaire has been extensively evaluated in health care settings. The sensitivity of the CAGE questionnaire for identifying lifetime alcohol problems in patients seen in health care settings ranges from 60 percent to 95 percent, and the specificity ranges from 40 percent to 95 percent, when the cutoff is set at two or more positive responses.[34,36,45,46] However, the questionnaire may be less useful in specific populations, such as patients more than 60 years old[47] and pregnant women.[44] Other screening tests, such as the Alcohol Use Disorder Identification Test (AUDIT), show promise.[44] The AUDIT, which includes three questions regarding the quantity and frequency of current drinking and seven questions regarding past drinking, had a sensitivity of 92 percent and a specificity of 94 percent in medical patients in six countries,[15] and a sensitivity of 96 percent and a specificity of 96 percent in an academic general medical clinic.[35] Generalist physicians may use the CAGE questionnaire plus the three AUDIT quantity-and-frequency questions to identify potential alcohol abuse and dependence or current hazardous drinking.[5]

In step 4, which is based on the results of screening, more specific questions are asked of patients with suspected or known alcohol problems. The questions are used to evaluate the patient in terms of the criteria for alcohol abuse and dependence (Table 1) and to look for evidence of medical, psychiatric, and behavioral complications of alcohol use or use of other substances and to ascertain prior treatment. Given the high rates of concomitant use of tobacco[48] and drugs[49] by persons with alcohol problems, it is particularly important to screen patients for tobacco and drug abuse. For example, alcohol increases the risk of head, neck, and lung cancers[50] and mortality[51] among smokers, and smoking has been demonstrated to be a predictor of hidden problem drinking by patients seen by general practitioners.[52] Thus, careful screening for use of other substances is critical.

Physical Examination and Laboratory Studies

Although they are not sufficiently sensitive or specific for use in screening patients, physical examination and laboratory tests (such as liver-enzyme tests)[46] may provide clues to the presence of unsuspected alcohol problems and are essential when patients with known or suspected alcohol problems are evaluated for alcohol-related complications. Testing for carbohydrate-deficient transferrin has a sensitivity of 58 percent to 70 percent and a specificity of 82 percent to 98 percent for the detection of heavy drinking[53] or alcohol abuse,[54] and may be useful for monitoring alcohol-dependent patients.

Assessment of Patients for Alcohol-Related Problems

Although many patients have few or only subtle symptoms, familiarity with important alcohol-related medical, psychiatric, and behavioral problems facilitates the identification, assessment, and treatment of patients with such problems. The major medical diseases associated with problem drinking are numerous and have been discussed in prior reviews.[1,2] Generalist physicians may be less familiar with the broad spectrum of psychiatric and behavioral problems seen in this patient population.

Nearly half (45 percent) of adults diagnosed with alcohol abuse or dependence in the Epidemiologic Catchment Area survey had another lifetime psychiatric diagnosis, including drug abuse or dependence in 21.5 percent and other mental disorders in 36.6 percent.[49] The most common disorders included anxiety (with a lifetime prevalence of 19.4 percent), antisocial personality (lifetime prevalence, 14.3 per-

cent), and affective disorders (lifetime prevalence, 13.4 percent).[49] In the National Comorbidity Study, the 12-month prevalences of anxiety and affective disorders among alcohol-dependent persons were 36.9 percent and 29.2 percent, respectively.[55] These data point to the importance of careful evaluation of patients with alcohol problems for drug use and mental disorders.[29]

Even higher rates of symptoms of depression and anxiety are found during periods of heavy drinking and withdrawal and may contribute to an increased risk of suicide or relapse.[56] For the majority of patients, these symptoms remit without pharmacologic intervention during the first two to four weeks of abstinence, although vegetative symptoms (such as insomnia and anorexia) may resolve more slowly.[57] Differentiating patients with coexisting primary depressive or anxiety disorders from those whose symptoms are secondary to heavy alcohol use is critical, since additional pharmacologic treatment may be required for patients with primary affective disorders to manage symptoms and promote abstinence.[57]

Other important behavior-related problems, such as family, employment, and legal problems and social dysfunction, may be more prevalent than specific medical or psychiatric diagnoses. Alcohol-induced behavior may result in other specific problems, such as accidents and injuries,[1,58] violence (assault and homicide),[59] and child and domestic abuse.[60] In addition, alcohol use has been associated with behavior that increases the risk of infection with the human immunodeficiency virus.[61] Thus, a history of these behavior-related problems should also prompt a careful assessment of drinking behavior, and problem drinkers should be assessed carefully with respect to these issues.

TREATMENT APPROACHES FOR PROBLEM DRINKERS

After diagnosis and assessment, the first goal of the generalist physician is to engage the patient in the process of behavioral change. Generalist physicians can have an important role in the management of alcohol problems by providing advice and brief interventions for at-risk and problem drinkers and by referring alcohol-dependent patients to treatment. By providing continuity of care for patients with alcohol problems, generalist physicians can monitor the patients' responses to interventions and help to adapt the interventions accordingly.

Discussing Alcohol Problems with Patients and Assessing Their Readiness for Treatment

When alcohol problems are identified, it is important to evaluate the patient's perceptions of the problems. Many fail to acknowledge any link between alcohol use and the resulting problems. This denial can serve to ward off feelings of shame and hopelessness about drinking. Physicians need to be sensitive to denial and convey to patients in a nonjudgmental way that recognition of problems related to drinking is critical for recovery. The physician can use concrete information gathered from the patient's history, physical examination, and laboratory studies to indicate why alcohol is of concern and provide reassurance that help will be provided.

The six-stage model of Prochaska et al.[62] outlining the process of change in addictive behavior may be used to assess the patient's readiness for intervention, and stage-specific interventions may be employed that are targeted to an individual patient's stage of readiness to change.[62-64] For example, regardless of the skill of the physician, some patients will refuse to accept the diagnosis and will thus be currently uninterested in behavioral change (the "precontemplation" stage). Physicians should attempt to remain engaged with these patients and work with them to overcome denial during future visits in order to move them into the next stage ("contemplation"), in which they recognize their problem. Patients who have decided to change their behavior ("determination") require advice on what steps to take to support their decision, and those who have begun to change their behavior ("action") should be monitored carefully for compliance with their action steps. Those who have successfully stopped using alcohol ("maintenance") might benefit from ongoing support for their remission and monitoring for signs of relapse.

Treatment of At-Risk and Problem Drinkers with Brief Interventions

There is substantial evidence supporting the efficacy of brief interventions for at-risk and problem drinkers who are not alcohol-dependent. These interventions typically involve providing patients with feedback about the problems associated with their drinking habits and advising them to reduce drinking to safer levels. The efficacy of brief interventions for nondependent drinkers has been documented in seven of eight randomized clinical trials in health care settings,[65] and a meta-analysis of eight studies calculated a pooled odds ratio of 1.95 (95 percent confidence interval, 1.66 to 2.30) for decreased drinking after a brief intervention as compared with no intervention.[66] The FRAMES acronym (*f*eedback: review problems experienced because of alcohol; *r*esponsibility: changing alcohol use is the patient's responsibility; *a*dvice: advise to cut down or abstain; *m*enu: provide options for changing behavior; *e*mpathy: use an empathic approach; *s*elf-efficacy: encourage optimism about changing behavior) summarizes a counseling strategy commonly used in brief interventions.[67]

Three of the largest randomized clinical trials of brief interventions illustrate their specific techniques

and benefits.[37,38,68] Wallace et al.[37] compared the effects of "simple advice" and "no advice" during one to five visits over 10 months in a cohort of 909 "excessive" drinkers (35 or more drinks per week in men and 21 or more drinks per week in women) identified in 47 British general practices. Simple advice, which included advice about the effects of alcohol, patient education, and a prescription ("Cut down on your drinking"), was associated with significantly greater reductions in the number of drinks per week than was no advice among both men (decreased by 18 vs. 8 drinks per week) and women (decreased by 12 vs. 6 drinks per week). In a multinational study sponsored by the World Health Organization, more than 1500 "heavy" drinkers recruited from primary care facilities, hospitals, and other settings were randomly assigned to have a 20-minute health interview only (the control group) or, in addition, 5 minutes of "simple advice" (advice and education about alcohol problems) or 20 minutes of "brief counseling" (simple advice plus review of a problem-solving manual).[68] Men in both intervention groups reduced their daily alcohol consumption by 17 percent more than controls, and simple advice was as effective as brief counseling.

Most recently, Fleming et al.[38] evaluated a brief intervention by a physician in a sample of 723 subjects identified in 17 community-based primary care practices in Wisconsin. Both the intervention and the control groups received a booklet on general health issues, and the intervention group also received structured counseling about their drinking behavior during two 15-minute visits to a physician and a follow-up telephone call from a nurse. After 1 year, the intervention group had significant reductions from base line in the mean number of drinks per week (from 19.1 to 11.5) and the mean number of episodes of binge drinking over 30 days (from 5.7 to 3.1). Improvements in these drinking characteristics were significantly greater for patients who received the intervention, and intervention was also associated with decreased hospitalization among men.

These and other studies[65,66] support the concept that physicians can play a major part in the treatment of the largest segment of patients with alcohol problems (at-risk or problem drinkers) seen in their practices through the use of brief interventions.

Treatment Approaches for Alcohol Dependence

More intensive treatment is generally required for managing alcohol dependence. Although abstinence is the preferred goal, complete and permanent abstinence is not always achieved in patients with chronic conditions such as alcohol dependence, and important treatment outcomes may also include the duration of abstinence, reduction in alcohol use, and improvement in health and social functioning.[24,69] Treatment continues over a period of years, mainly on an outpatient basis, with increasing intensity if symptoms recur. Studies suggest that remission may eventually occur without formal treatment in as many as 78 percent of patients with a lifetime diagnosis of alcohol dependence.[70,71] Remission without treatment is more common among patients with less severe dependence, and moderate drinking may be a viable option for some, although there is evidence that dependent persons who engage in limited drinking after treatment have poorer outcomes than those who abstain.[72]

Once an alcohol-dependent patient has decided to stop drinking, management of withdrawal (if needed) and psychosocial and possibly pharmacologic treatments to prevent relapse are critical to reduce alcohol-related morbidity.[3] Practice guidelines for the treatment of disorders of alcohol use have been developed by the American Psychiatric Association[73] and the American Society of Addiction Medicine.[74] To refer patients to treatment and provide ongoing support, physicians should be familiar with the common treatment approaches and the evidence supporting their effectiveness.

Management of the Alcohol Withdrawal Syndrome

Most patients with mild symptoms of alcohol withdrawal (for example, morning tremors) do not seek treatment, and those with mild-to-moderate symptoms can often be treated safely as outpatients.[75] Patients with moderate-to-severe withdrawal or coexisting problems are often best treated as inpatients.[76] Severity of withdrawal, progression of symptoms, and response to treatment may be assessed with the revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale,[77] on which clinicians rate 10 common withdrawal phenomena. The major goals of the medical management of withdrawal are to minimize the severity of symptoms, prevent or manage more severe withdrawal phenomena (seizures and delirium), and facilitate entry into ongoing treatment to promote abstinence from alcohol. The third goal, although it is often neglected by physicians, represents the most important long-term outcome.

Although a variety of medications have been evaluated for the pharmacologic management of alcohol withdrawal, benzodiazepines are the safest and most effective (Table 2).[1,3,78] A recent meta-analysis of clinical trials of the pharmacologic management of alcohol withdrawal demonstrated that benzodiazepines decreased the incidence of seizures and delirium tremens.[78] Chlordiazepoxide, diazepam, lorazepam, and oxazepam are among the agents most commonly used for treating inpatients in the United States,[79] and longer-acting benzodiazepines may provide a smoother withdrawal[80] and more effectively prevent seizures.[81] Short-acting agents may be safer in patients with hepatic dysfunc-

TABLE 2. PHARMACOLOGIC THERAPIES FOR ALCOHOL WITHDRAWAL AND PREVENTION OF RELAPSE.

TREATMENT PHASE AND DRUG CLASS	EXAMPLES	EFFECTS
Alcohol withdrawal		
Benzodiazepines	Chlordiazepoxide* Diazepam* Oxazepam* Lorazepam and others	Decreased severity of withdrawal; stabilization of vital signs; prevention of seizures and delirium tremens
Beta-blockers	Atenolol Propranolol	Improvement in vital signs; reduction in craving
Alpha-agonists	Clonidine	Decreased withdrawal symptoms
Antiepileptics	Carbamazepine	Decreased severity of withdrawal; prevention of seizures
Prevention of relapse		
Alcohol sensitizers	Disulfiram*	Decreased alcohol use among those who relapse
Opioid antagonists	Naltrexone*	Increased abstinence, decreased no. of drinking days
Homotaurine derivatives	Acamprosate	Increased abstinence

*The drug has a Food and Drug Administration–approved indication for this use in the United States.

tion.[82] Fixed-dose, loading-dose, and individualized symptom-triggered methods of administering benzodiazepines have all been demonstrated to be effective.[82] In the loading-dose approach, the patient is given 20 mg of diazepam, additional doses are given if needed until the patient is sedated, and then diazepam blood levels gradually taper through normal metabolism.[81] In a recent randomized study, symptom-triggered administration of chlordiazepoxide (based on CIWA-Ar scores) significantly decreased the mean duration of treatment (9 vs. 68 hours) and the dose of chlordiazepoxide administered (100 vs. 425 mg), as compared with fixed-dose administration, without increasing withdrawal symptoms or complications.[83]

More recent additions to the pharmacotherapy of withdrawal include beta-blockers, clonidine, and carbamazepine.[78] A placebo-controlled study of atenolol as an adjuvant to benzodiazepines[84] demonstrated significant improvements in withdrawal signs and symptoms, and clonidine and carbamazepine[82] may also lessen withdrawal symptoms. Because of the established safety and efficacy of benzodiazepines in preventing severe withdrawal and seizures, these drugs are best viewed as adjunctive rather than primary therapy.[78]

Referral of Patients to Self-Help Groups

Alcoholics Anonymous sponsors more than 36,000 groups in the United States and serves as the prototype for self-help organizations.[85,86] In the Alcoholics Anonymous disease model, alcoholism is a physical, mental, and spiritual disease, and lifelong abstinence and participation in a recovery program are critical to success. Although there is considerable variety in the type (open meetings are available to any interested person; closed meetings are available only to active members), format (speaker, discussion, or 12-step), size, and demographics of meetings, the 12 traditions and the 12 steps are fundamental tenets of all meetings.[85] Step one, for example, addresses denial and encourages a commitment to abstinence rather than futile attempts to control drinking: "We admitted we were powerless over alcohol — that our lives had become unmanageable." Alcoholics Anonymous slogans provide practical advice in a format that can be understood and remembered — for example, "One day at a time," "HALT — hungry, angry, lonely, and tired," and "One drink, drunk." Benefits of self-help groups also include peer support and opportunities for alcohol-free social interactions.

Despite the popularity of Alcoholics Anonymous, little research into it has been conducted, although recent studies provide some evidence that it may be cost effective for some patients.[87] Walsh et al.[88] randomly assigned alcohol-abusing workers to compulsory Alcoholics Anonymous, inpatient treatment followed by Alcoholics Anonymous, or a choice of treatment. All three groups improved on measures of job performance and drinking outcomes, and the costs for patients assigned to Alcoholics Anonymous averaged $1,200 less per patient over two years. Patients assigned to inpatient treatment, however, had the best drinking outcomes, and inpatient treatment was eventually required by 63 percent of the patients assigned to Alcoholics Anonymous. A more recent study demonstrated that the treatment costs over three years were 45 percent lower for those who chose Alcoholics Anonymous than for those who chose outpatient treatment, and the outcomes were similar.[89]

Physicians can play an important part in encouraging patients to participate in Alcoholics Anonymous by being familiar with its basic precepts and knowing about local meetings.[90,91] Attending an open meeting can help physicians familiarize themselves with Alcoholics Anonymous.

Referral of Patients to Alcohol Treatment Programs

Project MATCH (Matching Alcoholism Treatments to Client Heterogeneity) provides a useful set of benchmarks for the effectiveness of current alcohol treatment programs.[92] The project compared three psychosocial treatments reflective of treatments in general clinical use: 12-step facilitation (involving counseling based on the principles of Alcoholics Anonymous), cognitive behavioral coping-skills therapy (emphasizing lifestyle changes and coping skills to reduce the likelihood of relapse), and motivational-enhancement treatment (using motivational interviewing and the patient's own resources to encourage abstinence).[92] The study enrolled 774 patients after inpatient treatment and 952 patients who received outpatient therapy only. The three treatments were randomly assigned within each group. The primary outcome measures were the percentage of days on which the patient was abstinent and the number of drinks per drinking day. The secondary outcome measures were the time to the first drink and the time to the first relapse (three consecutive heavy-drinking days). Overall, there were significant and sustained improvements in outcomes during the first year for all three treatments and no significant differences between treatments. In the group that had received inpatient care, the percentage of days abstinent went from approximately 20 percent in the month before treatment to more than 90 percent in the month after treatment. During the first 12 months of follow-up, 35 percent of the patients who had received inpatient care remained completely abstinent, 25 percent drank but did not meet criteria for relapse, and 40 percent had a relapse. Among those who had received only outpatient care, the percentage of days abstinent was slightly higher before treatment than among those who had received inpatient care, and it averaged more than 80 percent during the first 12 months after treatment. During the first 12 months of follow-up, 19 percent of those who had received only outpatient care maintained complete abstinence, 35 percent drank but did not meet criteria for relapse, and 46 percent had a relapse. Severity of psychiatric illness, patient motivation, sex, and severity of sociopathy had some significant effects on drinking outcomes.

The substantial improvements of patients in all three Project MATCH treatment groups may be related to the high overall quality of the treatments and their delivery. For example, techniques to enhance compliance (such as calling patients between sessions) helped maintain high rates of participation. Although overall better outcomes were found for patients who had received inpatient care than for those who had received only outpatient care, causal inferences are precluded because the patients were not randomly assigned to the two groups.

The role of inpatient or residential programs was questioned when reviews found no evidence of any superiority of treatment in these settings over outpatient treatment.[3] The findings of Walsh et al.,[88] Project MATCH,[92] and a recent critical review,[93] however, suggest that some patients may benefit from treatment initiated in an inpatient or residential setting. On the basis of the available evidence, the current criteria for inpatient or residential treatment developed by the American Psychiatric Association[73] and the American Society of Addiction Medicine[74] include the presence of severe coexisting medical or psychiatric conditions, risk of harm to self or others, failure to respond to less intensive treatment, or a severely disrupted social or family environment that interferes with recovery. In addition to ensuring the safety of selected patients, inpatient treatment provides patients a supervised respite from drinking, during which treatment to prevent relapse can be initiated. Inpatient treatment may also be more intensive, although partial hospital and intensive outpatient services may now offer similar services at a lower cost.

What should generalist physicians expect when they refer patients for specialized alcohol treatment? All alcohol treatments must attend to similar core tasks, which include motivating patients to change, teaching patients coping skills, encouraging patients to engage in social activities that substitute for alcohol-related activities and reward abstinence, helping patients improve personal interactions, and promoting compliance with pharmacotherapy and medical care.[94] Cognitive and behavioral coping-skills treatment teaches patients to identify and avoid situations (people, places, or things) or emotional states that may trigger craving or alcohol use and strategies to cope with craving, and it also encourages patients to make lifestyle changes that reduce contact with drinkers and increase engagement in reinforcing activities unrelated to alcohol use.[95,96] Behavioral marital or family therapy that encourages family members to maintain consistent responses to the patient's drinking behavior (such as rewarding abstinence and not rewarding drinking) has also been shown to be effective in controlled trials.[97]

Pharmacologic Treatments to Prevent Relapse

Two medications are currently approved by the Food and Drug Administration (FDA) as adjunctive treatments to decrease the likelihood of relapse in alcohol-dependent patients: disulfiram and naltrexone. Other drugs, including acamprosate, which has been evaluated extensively in Europe, have also been stud-

ied (Table 2). Each functions as adjunctive treatment to psychological therapies provided in alcohol treatment programs.

Disulfiram prevents alcohol use by putting patients at risk for an adverse reaction (including flushing, nausea, vomiting, and diarrhea) to alcohol consumption mediated by the inhibition of acetaldehyde dehydrogenase. In a Veterans Administration multisite study, abstinence rates were no better in the disulfiram group than in controls, although a subgroup of socially stable older patients who relapsed drank less if they were assigned to the disulfiram group.[98] Because there is other evidence of its efficacy in decreasing alcohol intake,[99] disulfiram may be useful in carefully selected patients provided with appropriate counseling,[100] although adverse effects (such as hepatotoxicity and neuropathy) and potentially severe interactions with alcohol limit its widespread use.

Naltrexone, an opioid antagonist, is thought to decrease alcohol consumption by blunting the pleasurable effects of alcohol and the craving for alcohol in alcohol-dependent patients.[101] Approval from the FDA in 1994 was based in part on two short-term (12-week) randomized, placebo-controlled trials of naltrexone therapy (50 mg per day) in alcohol-dependent patients enrolled in alcohol treatment programs.[102,103] In one study,[102] subjects treated with naltrexone were more likely to abstain from alcohol, and those who did return to drinking during the 12-week study drank less than those who received placebo. In the other study[103] (also 12 weeks in duration), naltrexone had similar benefits in male veterans. In a combined analysis of these studies, 54 percent of the patients who received naltrexone remained abstinent, as compared with 31 percent of those who received placebo.[104] Both studies of naltrexone were performed in patients enrolled in alcohol treatment programs that provided specific psychological services. Therefore, naltrexone is indicated as adjunctive therapy for patients enrolled in alcohol treatment.[102,103] Further research is ongoing to clarify the longer-term efficacy of naltrexone and the range of settings and psychological approaches needed to maintain its efficacy. The side effects of naltrexone include self-limited nausea in about 10 percent of patients and, less frequently, headache or other symptoms. In addition, because dose-related hepatotoxicity has been reported with high doses of naltrexone, liver enzymes should be initially evaluated and monitored.[101] Naltrexone is contraindicated in patients with acute hepatitis or liver failure.

Acamprosate (calcium bisacetylhomotaurinate) has been evaluated as an adjuvant agent for treating alcohol dependence in European studies. The precise mechanism of action of acamprosate is uncertain, but it may be related to its effects on neuroexcitatory amino acids and the inhibitory γ-aminobutyric acid (GABA) system. In one randomized, placebo-controlled trial in 272 subjects, 43 percent of those who received acamprosate remained abstinent for 48 weeks, as compared with 21 percent of those who received placebo, and no difference in side effects was noted.[105] In another study of 455 patients, lower one-year abstinence rates were found overall, but abstinence rates were still significantly higher with acamprosate at doses of up to 2 g per day than with placebo (18 percent vs. 7 percent).[106] Similarly, Paille et al.[107] found that patients who received high-dose acamprosate (2 g per day) had higher six-month abstinence rates (32 percent) than those in the low-dose (1.3 g per day) group (27 percent) and the placebo group (19 percent).

A variety of other medications have been studied for the prevention of relapse in disorders of alcohol use, including selective serotonin-reuptake inhibitors, serotonin antagonists, other serotonergic agents, GABAergic agents, and dopaminergic agents. However, their role in patient treatment remains to be determined.[82] The search for effective pharmacologic treatments for alcohol dependence will continue to focus on the development of new agents, the refinement of the use of existing agents, and the clarification of the appropriate role of psychological treatments that accompany pharmacologic therapies.

THE ROLE OF PHYSICIANS IN CARING FOR PATIENTS WITH ALCOHOL PROBLEMS

Very few physicians are experts in alcohol problems, and very few patients with alcohol problems are enrolled in alcohol treatment programs. The majority of these patients will interact with physicians who are not alcohol specialists. The medical literature supports the concept that generalist physicians should take an active role in the identification and care of patients with alcohol problems. At a minimum, because alcohol use can be an important contributor to many of the problems that motivate patients to see physicians, ignoring alcohol use can result in failure to provide appropriate management for presenting problems. In addition, the management of underlying problem drinking is likely to have benefits to both physical and emotional well-being far beyond alleviating the presenting problem.

Recommendations on how physicians can approach alcohol problems in their practice settings have been made by the Institute of Medicine,[3] key federal agencies,[1,4,108] and various experts in the field.[2,5,6,64,109,110] The basic roles identified for physicians in treating these patients include undertaking universal screening for alcohol problems, performing a detailed assessment of problem drinkers, providing an appropriate level of advice and counseling such as brief interventions for those with at-risk drinking, referring patients with more advanced problems (such as those who are alcohol-dependent) to appropriate specialty services, and managing and

monitoring (either directly or by referral) alcohol-related medical, behavioral, psychiatric, and social problems. Given the complexity of these issues, a multidisciplinary approach involving generalist and specialist physicians, along with physicians and other professionals with expertise in behavioral medicine and substance-abuse treatment, is often indicated. Perhaps the most important role generalist physicians can have in the care of patients with alcohol problems is to provide compassionate longitudinal care during the natural course of alcohol problems, which will often include remission as well as relapse. In the evolving health care environment, these roles for generalist physicians need to be recognized in order to support their involvement in patient care.[111]

Many critical research questions in the management of alcohol problems remain unanswered. The most effective screening process is uncertain, as is the ideal frequency of applying it. Although brief interventions appear to reduce drinking problems, especially in nondependent drinkers, the duration of their effect, their long-term influence on alcohol problems, and their need for booster sessions are unknown. In addition, a universally effective approach to treating alcohol dependence remains elusive. Future research needs to refine these methods and identify patients for whom they are most useful so that their effectiveness can be maximized.

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