Ambulatory Detoxification of Patients with Alcohol Dependence

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Detoxification from alcohol can be undertaken in ambulatory settings with patients who are alcohol-dependent and show signs of mild to moderate withdrawal when they are not drinking. An appropriate candidate for outpatient detoxification should have arrangements to start an alcohol treatment program and a responsible support person who can monitor progress, and should not have significant, acute, comorbid conditions or risk factors for severe withdrawal. Long-acting benzodiazepines, the preferred medications for alcohol detoxification, can be given on a fixed schedule or through "front-loading" or "symptom-triggered" regimens. Adjuvant sympatholytics can be used to treat hyperadrenergic symptoms that persist despite adequate sedation. Progress can be monitored with the use of a standard withdrawal-assessment scale and daily physician contact. Detoxification is not a stand-alone treatment but should serve as a bridge to a formal treatment program for alcohol dependence. (Am Fam Physician 2005;71:495-502,509-10. Copyright© 2005 American Academy of Family Physicians.)

▶ **Patient information:** A handout on alcohol detoxification, written by the author of this article, is provided on page 509.

See page 409 for definitions of strength-of-recommendation labels.

The lifetime prevalence of alcohol problems is thought to be between 13.7 and 23.5 percent, indicating that these problems are common in ambulatory patients.[1] Family physicians play an important role in identifying these patients and intervening to the degree appropriate for the severity of disease and the patient's willingness to change.

Patients who have alcohol dependence may require detoxification to prevent alcohol withdrawal syndrome (AWS). When clinically appropriate, detoxification can be initiated in the ambulatory setting.[2] Most ambulatory patients with alcohol dependence can be detoxified quickly and safely without the use of psychoactive drugs.

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Initial Evaluation

Screening to detect problem drinking is recommended in all adult and adolescent patients.[3] Direct questions about the quantity and frequency of alcohol consumption (to detect hazardous drinkers) and the four-item CAGE questionnaire[4] (to detect dependent drinkers) appear to be the most useful tools in primary care settings.[5,6] The CAGE questionnaire (feeling the need to ***C***ut down, ***A***nnoyed by criticism, ***G***uilty about drinking, and drinking in the morning to treat tremulousness or a hangover [***E***ye opener]) is the most popular tool to evaluate patterns of alcohol use.

At-risk drinking is defined as more than 14 drinks per week in men under age 65 and more than seven drinks per week in women and all adults aged 65 and older. One standard drink is equal to 12 oz of regular beer, 5 oz of wine, or 1.5 oz of distilled spirits. Heavy drinkers should receive a brief intervention designed to moderate their drinking.[7,8] These interventions are based on motivational interviewing techniques *(Table 1)*.[9] Approximately 5 percent of the patients in a typical adult primary care practice would be expected to have alcohol dependence.[10] In patients without acute medical or surgical problems, about one third would be expected to develop mild to moderate AWS (e.g., tremulousness, tachycardia), and only a small minority would be expected to develop severe AWS if they abruptly stopped drinking.[1,11-13] In one study[11] of 1,024 ambulatory patients undergoing detoxification without psychoactive drugs, 3.7 percent experienced hallucinations, 1.2 percent had alcohol withdrawal seizures, and 1 percent developed delirium tremens.

Patients who are at risk for AWS may benefit from pharmacotherapy. Outpatient

Strength of Recommendations

Key clinical recommendation	*Label*	*References*
All adult and adolescent patients should be screened to detect problem drinking.	B	3
Patients who screen positive for problem drinking should receive a brief intervention designed to moderate their drinking.	A	7,8
Patients with serious psychiatric involvement (e.g., suicidal ideation), concurrent acute illness, or severe AWS-related symptoms, or those who are at high risk for developing delirium tremens, are best detoxified in inpatient settings.	C	12, 16-20
Long-acting benzodiazepines are the drugs of choice for monotherapy in patients with AWS.	A	23, 24
A validated scale such as the CIWA-Ar should be used to monitor the response to therapy.	C	30

AWS = alcohol withdrawal syndrome; CIWA-Ar = Clinical Institute Withdrawal Assessment Scale for Alcohol, Revised.

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, opinion, or case series. See page 409 for more information.

TABLE 1
FRAMES: The Essentials of a Brief Intervention for Problem Drinking

Step	*Recommended action*
Feedback	Express your concern about drinking. Be specific. "I'm concerned about how your drinking has affected your liver."
Responsibility	Emphasize that change is the patient's responsibility. "Only you can make a decision to change and make your life better."
Advice	Tell the patient specifically what you want him or her to do. "I would like you to go to a treatment center for an evaluation."
Menu	Provide some alternatives to your recommendation. "You could just think about what I have said or go to an Alcoholics Anonymous meeting."
Empathy	Express empathy. "I know this may be hard for you to talk about."
Self-efficacy	Support self-efficacy. "You deserve better, and you can get better if you reach out for help."

Information from reference 9.

detoxification is an effective, safe, and low-cost treatment for patients with mild to moderate symptoms of AWS.[14] An appropriate candidate is a patient who meets the criteria for alcohol dependence as defined by the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed. (DSM-IV)[15] and is at low to moderate risk for AWS *(Tables 2*[16-20] *and 3*[15]). Patients with serious psychiatric involvement (e.g., suicidal ideation), concurrent acute illness, or severe AWS-related symptoms, or those who are at high risk for develop-

ing delirium tremens, are best detoxified in inpatient settings.[12,16-20] Because polysubstance abuse is common in patients with alcohol dependence,[21] physicians may wish to consider performing urine toxicology tests when the history or physical examination indicates that such screening may be helpful. Patients who are dependent on opioids or benzodiazepines may require detoxification from these substances as well.

Alcohol Withdrawal Syndrome

The goal of detoxification is to control the symptoms of AWS and to prevent alcohol withdrawal seizures, withdrawal delirium, and deaths from complications of AWS. Ultimately, the purpose of outpatient detoxification is to facilitate the patient's entry into an alcohol rehabilitation program.

AWS represents the unmasking of the adaptation that the brain makes to the chronic presence of alcohol. The symptoms and signs of AWS fall into three main categories: central nervous system (CNS) excitation (e.g., restlessness, agitation, seizures); excessive function of the autonomic nervous system (ANS) (e.g., nausea, vomiting, tachycardia, tremulousness, hypertension); and cognitive dysfunction.

STAGES OF WITHDRAWAL

AWS can be divided into three stages. Patients in stages 1 and 2 can be treated as outpatients unless contraindicated *(Table 2)*. Those who progress to stage 3 should be transferred to an inpatient setting and evaluated for the cause of the delirium.[13]

Stage 1, "minor withdrawal," usually begins five to eight hours after the last drink and is characterized by anxiety, restlessness, agitation, mild nausea, decreased appetite, sleep disturbance, facial sweating, mild tremulousness, and fluctuating tachycardia and hypertension. Patients are coherent, but they may have mild cognitive impairment.

Stage 2, "major withdrawal," occurs 24 to 72 hours after the last drink and is characterized by marked restlessness and agitation, moderate tremulousness with constant eye movement, diaphoresis, nausea, vomiting, anorexia, and diarrhea. Patients often have marked tachycardia (i.e., greater than 120 bpm) and systolic blood pressure greater than 160 mm Hg. "Alcoholic hallucinosis," which consists of auditory or visual hallucinations, may be present. The patient may be disoriented and appear confused, but reorientation often is possible. Seizures—typically grand mal—may occur but are not always preceded by other symptoms. They usually are single seizures that last less than

TABLE 2
Selecting Patients for Alcohol Withdrawal Outpatient Treatment

Indications
Alcohol dependence with evidence of tolerance and withdrawal
Contraindications
Coexisting acute or chronic illness requiring inpatient treatment
Current severe alcohol withdrawal, especially with delirium
No possibility for follow-up
No reliable contact person to monitor the patient
Pregnancy
Seizure disorder or history of severe alcohol withdrawal seizures
Suicide risk
Relative contraindications
Coexisting benzodiazepine dependence
History of unsuccessful outpatient detoxification
High risk for severe alcohol withdrawal or delirium tremens[16-20]
Age > 40 years
Heavy drinking > 8 years
Drinking > 100 g of ethanol daily (e.g., about one pint of liquor or eight 12-oz cans of beer)
Symptoms and signs of withdrawal when not drinking
Random blood alcohol concentration > 200 mg per dL
Elevated mean corpuscular volume
Elevated blood urea nitrogen
Cirrhosis

Some information from references 16 through 20.

Patients with stages 1 and 2 alcohol withdrawal syndrome can be treated as outpatients unless contraindicated.

TABLE 3
DSM-IV Criteria for Substance Dependence

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five minutes, but some patients have seizures in salvos of two or three. Status epilepticus is not associated with alcohol withdrawal and indicates another problem.

Stage 3, "delirium tremens," can occur from 72 to 96 hours after the last drink. It is associated with fever, severe hypertension and tachycardia, delirium, drenching sweats, and marked tremulousness. Causes of death during this stage include head trauma, cardiovascular complications, infections, aspiration pneumonia, and fluid and electrolyte abnormalities.

BASIC TREATMENT

Nonpharmacologic interventions are important in the management of AWS and include frequent reassurance, reality orientation, and nursing care.[22] Patients seem to do best when they are kept in an evenly lit, quiet room, and dark shadows, bright lights, loud noises, and other excessive stimuli are avoided. Liberal intake of noncaffeinated fluids can help prevent dehydration.

PHARMACOTHERAPY

Medications are used to prevent or treat the various clinical manifestations of AWS: sedatives for CNS excitation; sympatholytics for excessive ANS activity not controlled by sedatives alone; and neuroleptics as adjunctive therapy for cognitive dysfunction.[13]

Thiamine supplementation is essential in malnourished patients for the prevention of Wernicke's encephalopathy. Although most candidates for outpatient detoxifica-

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TABLE 4
Treatment Regimens for Alcohol Withdrawal

Regimen	*Agents*
Symptom triggered	FDA-approved: chlordiazepoxide (Librium); initial dose of 50 to 100 mg, followed by repeated doses as needed until agitation is controlled, up to 300 mg per day.
	Off-label: chlordiazepoxide; 25 to 100 mg every hour when CIWA-Ar score > 8.[27]
Front loading	FDA-approved: diazepam (Valium); 10 mg 3 or 4 times in first 24 hours, then 3 or 4 times daily as needed.
	Off-label: diazepam; 20 mg every 1 to 2 hours at first sign of withdrawal until symptoms are improved.[26]
Fixed schedule	Off-label: chlordiazepoxide; 50 mg every 6 hours for four doses, then 25 mg every 6 hours for eight doses.[13]
Short-acting benzodiazepine*	FDA-approved: oxazepam (Serax); 15 to 30 mg 3 or 4 times daily.
	Off-label: lorazepam (Ativan); 0.5 to 1 mg 3 or 4 times daily on a scheduled basis, plus 1 mg every 4 hours if needed for mild symptoms (e.g., CIWA-Ar score between 8 and 14) or 2 mg every 2 hours if needed for moderate symptoms (e.g., CIWA-Ar score > 15).

NOTE: *Medications should be withheld if the patient becomes oversedated.*

FDA = U.S. Food and Drug Administration, CIWA-Ar = Clinical Institute Withdrawal Assessment for Alcohol-revised.

**—A short-acting benzodiazepine can be used in elderly patients and in patients with significant liver disease that would impair the metabolism of chlordiazepoxide or diazepam.*

Information from references 13, 26, and 27.

tion probably would not have a thiamine deficiency, the supplement can be given routinely because there are no adverse effects or contraindications to its use.

Long-acting benzodiazepines are the agents of choice for monotherapy in patients with AWS.[23,24] The three most common treatment regimens for prevention of AWS are symptom triggered,[25] front loading,[26] and fixed schedule.[27] Dosages for these regimens are given in *Table 4*.[13,26,27] In clinical practice, the effective dosage can vary greatly from one patient to another. Long-acting benzodiazepines such as chlordiazepoxide (Librium) and diazepam (Valium) are preferred because they are the most effective in preventing alcohol withdrawal seizures and delirium. A short-acting benzodiazepine (such as oxazepam [Serax]) that does not have any active metabolites can be used in elderly patients, those in whom oversedation absolutely must be avoided, and those with significant liver disease that might impair their ability to metabolize a long-acting agent.

Some physicians use phenobarbital with great success in patients with AWS. However, barbiturates have not been evaluated clinically as thoroughly as benzodiazepines, have a narrow therapeutic window, may interact with many other medications, and have not been approved by the U.S. Food and Drug Administration for the treatment of patients with AWS.

Well-designed studies have found that clonidine (Catapres) and atenolol (Tenormin) are effective as adjuvant therapy in the treatment of AWS symptoms related to excessive ANS activity, but these studies have not been of adequate size to indicate what effect the agents have on the rate of delirium or seizures.[13]

A short-acting benzodiazepine can be used in elderly patients and patients with significant liver disease.

There is some evidence to suggest that neuroleptics such as haloperidol (Haldol) are useful in the treatment of delirium in AWS.[22] However, because neuroleptics lower the seizure threshold, these agents should be

Clinical Institute Withdrawal Assessment Scale for Alcohol, Revised

Symptom	*Score*
Nausea and vomiting "Do you feel sick to your stomach? Have you vomited?" Observation. 0 = no nausea and no vomiting; 1 = mild nausea with no vomiting; 4 = intermittent nausea with dry heaves; 7 = constant nausea, frequent dry heaves, and vomiting	_____
Tremor Arms extended and fingers spread apart. Observation. 0 = no tremor; 1 = no visible tremor, but can be felt fingertip to fingertip; 4 = moderate tremor with patient's arms extended; 7 = severe tremor, even with arms not extended	_____
Paroxysmal sweats Observation. 0 = no visible sweating; 1 = barely perceptible sweating, palms moist; 4 = beads of sweat obvious on forehead; 7 = drenching sweats	_____
Anxiety "Do you feel nervous?" Observation. 0 = no anxiety, at ease; 1 = mildly anxious; 4 = moderately anxious or guarded, so anxiety is inferred; 7 = acute panic states as seen in severe delirium or acute schizophrenic reactions	_____
Agitation Observation. 0 = normal activity; 1 = somewhat more than normal activity; 4 = moderately fidgety and restless; 7 = paces back and forth during most of the interview, or constantly thrashes about	_____
Tactile disturbances "Have you any itching, pins-and-needles sensations, any numbness or do you feel bugs crawling on or under your skin?" Observation. 0 = none; 1 = very mild itching, pins and needles, burning or numbness; 2 = mild itching, pins and needles, burning or numbness; 3 = moderate itching, pins and needles, burning or numbness; 4 = moderately severe hallucinations; 5 = severe hallucinations; 6 = extremely severe hallucinations; 7 = continuous hallucinations	_____
Auditory disturbances "Are you more aware of sounds around you? Are they harsh? Do they frighten you? Are you hearing anything that is disturbing to you? Are you hearing things that you know are not there?" Observation. 0 = not present; 1 = very mild harshness or ability to frighten; 2 = mild harshness or ability to frighten; 3 = moderate harshness or ability to frighten; 4 = moderately severe hallucinations; 5 = severe hallucinations; 6 = extremely severe hallucinations; 7 = continuous hallucinations	_____
Visual disturbances "Does the light appear to be too bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things that you know are not there?" Observation. 0 = not present; 1 = very mild sensitivity; 2 = mild sensitivity; 3 = moderate sensitivity; 4 = moderately severe hallucinations; 5 = severe hallucinations; 6 = extremely severe hallucinations; 7 = continuous hallucinations	_____
Headache, fullness in head "Does your head feel different? Does it feel like there's a band around your head?" (Do not rate for dizziness or lightheadedness. Otherwise, rate severity.) 0 = not present; 1 = very mild; 2 = mild; 3 = moderate; 4 = moderately severe; 5 = severe; 6 = very severe; 7 = extremely severe	_____
Orientation and clouding of sensorium "What day is this? Where are you? Who am I?" 0 = oriented and can do serial additions; 1 = cannot do serial additions or is uncertain about date; 2 = disoriented for date by no more than 2 calendar days; 3 = disoriented for date by more than 2 calendardays; 4 = disoriented for place and/or person	_____
Total score: (Sum of all item scores—maximum score = 67	_____

Figure 1. Assessment scale for monitoring patients during detoxification.

Reprinted from Sullivan JT, Sykora K, Schneiderman J, Naranjo CA, Sellers EM. Assessment of alcohol withdrawal: the revised clinical institute withdrawal assessment for alcohol scale (CIWA-Ar). Br J Addict 1989;84:1357.

used only after sedation has been achieved with adequate doses of a benzodiazepine.

Carbamazepine (Tegretol) is used extensively in Europe for treatment of AWS, but a recent systematic literature review[23] concluded that the evidence to support its use is less than the evidence to support the use of benzodiazepines. There is no evidence of efficacy for phenytoin (Dilantin) in the prevention and treatment of alcohol withdrawal seizures. Treatment with intravenous lorazepam (Ativan) is associated with a significant reduction in the risk of recurrent seizures in patients who develop an alcohol withdrawal seizure.[28]

Although magnesium may be administered to patients who are deficient, there is no evidence that routine administration of magnesium sulfate is of any benefit unless AWS is accompanied by cardiac arrhythmias.[29]

MONITORING RESPONSE TO THERAPY

A responsible person should monitor the patient undergoing detoxification and watch for signs and symptoms of worsening AWS. *Figure 1*[30] presents an assessment scale that can be used by persons with little or no medical training to monitor the patient. Medical personnel should reevaluate patients on a daily basis if they score more than eight points on this scale despite treatment, experience a seizure, or develop delirium.[12] In patients without complications, detoxification usually is complete in four to five days.

Follow-up Care

Outpatient detoxification alone is not adequate treatment for alcohol dependence: it must be linked to involvement in a formal alcohol rehabilitation program. Many authorities believe that long-term involvement with self-help programs such as Alcoholics Anonymous also is an important part of a patient's long-term recovery.

After sobriety has been achieved, extreme caution should be used in prescribing mood-altering drugs and controlled substances to recovering patients, if they are prescribed at all. Benzodiazepines, in particular, are contraindicated, as they frequently are abused. If there is a clear clinical indication, opioid agonists may be prescribed, but appropriate use should be closely monitored. Antidepressants, especially the sedating tricyclic anti-depressants, can be abused by patients with alcohol dependence. Most patients in the early stages of recovery will have depression; this generally responds to counseling without medication. However, some carefully selected patients may benefit from judicious use of antidepressants. Examples include patients who have a well-documented depressive disorder that predates alcohol dependence and responded to antidepressant treatment, and patients with depressive symptoms that persist despite ongoing psychotherapy for alcohol dependence.

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