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Wolters Kluwer

Alcohol withdrawal: Ambulatory management

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All topics are updated as new evidence becomes available and our peer review process is complete.

Literature review current through: **Oct 2023.**
This topic last updated: **Oct 06, 2022.**

INTRODUCTION

Individuals with alcohol use disorder may experience a withdrawal syndrome when they abruptly stop or sharply reduce consumption of alcohol. In some cases, these can progress to life threatening seizures or delirium tremens (DT). The goals of medically supervised withdrawal are to alleviate withdrawal symptoms, prevent worsening symptoms, and to prepare the individual for transition to the maintenance phase of treatment (ie, treatment of alcohol use disorder). (See "Alcohol withdrawal: Epidemiology, clinical manifestations, course, assessment, and diagnosis".)

Medically supervised alcohol withdrawal is indicated for patients with current symptoms of withdrawal or at risk of developing alcohol withdrawal. For many individuals with mild symptoms and no history of seizures or DT, supervised withdrawal can be safely and effectively managed in the ambulatory setting. Ambulatory management of alcohol withdrawal is reviewed here.

Individuals with more severe symptoms of withdrawal, or at risk for developing severe symptoms such as delirium or seizures require closer monitoring, typically in an inpatient setting. Management of individuals with moderate to severe withdrawal is reviewed separately. (See "Management of moderate and severe alcohol withdrawal syndromes".)

Other topics related to alcohol use and alcohol withdrawal are found elsewhere.

- (See "Risky drinking and alcohol use disorder: Epidemiology, clinical features, adverse consequences, screening, and assessment".)
- (See "Alcohol use disorder: Treatment overview".)
- (See "Alcohol use disorder: Pharmacologic management".)
- (See "Alcohol use disorder: Psychosocial management".)
- (See "Screening for unhealthy use of alcohol and other drugs in primary care".)
- (See "Alcohol withdrawal: Epidemiology, clinical manifestations, course, assessment, and diagnosis".)
- (See "Management of moderate and severe alcohol withdrawal syndromes".)

ALCOHOL WITHDRAWAL: DIAGNOSIS AND NEED FOR TREATMENT

We initiate management of alcohol withdrawal on most individuals with alcohol use disorder who have recently discontinued or sharply reduced their consumption. Exceptions include individuals who have been drinking for four weeks or less and those that exclusively binge drink three times or less per week. These individuals have an extremely low likelihood of alcohol withdrawal and typically do not warrant supervised withdrawal. For such patients, we encourage clinicians to instead assess for alcohol use disorder and consider treatment for it. The diagnosis of alcohol use disorder and its treatments are found elsewhere. (See "Risky drinking and alcohol use disorder: Epidemiology, clinical features, adverse consequences, screening, and assessment", section on 'Binge drinking' and "Alcohol use disorder: Treatment overview" and "Alcohol use disorder: Pharmacologic management" and "Alcohol use disorder: Psychosocial management".)

Symptoms of alcohol withdrawal typically begin within 6 to 24 hours of the last drink or sudden reduction in chronic alcohol use [1-4]. If withdrawal does not progress, symptoms generally resolve within 24 to 48 hours, often sooner. It is estimated that half of the individuals with moderate to severe alcohol use disorder experience withdrawal symptoms upon stopping or sharply reducing their intake [1,3]. The manifestations, assessment, diagnosis, and course of alcohol withdrawal can be found elsewhere (table 1). (See "Alcohol withdrawal: Epidemiology, clinical manifestations, course, assessment, and diagnosis".)

CANDIDACY FOR AMBULATORY MANAGEMENT

For all individuals who have been assessed for and found to need treatment for alcohol withdrawal, we start by confirming that they are appropriate candidates for treatment in the ambulatory setting. We do this in two steps: first, we assess for contraindications to ambulatory

management. If none exist, we further assess for complex comorbidities, unstable psychosocial factors, and pregnancy all of which might impact our decision.

Contraindications to ambulatory management — We consider a prior history of withdrawal delirium or seizures or a current symptom severity of modest or greater (ie, Clinical Institute Withdrawal Assessment for Alcohol, Revised [CIWA-Ar] score >15) to be contraindications to ambulatory management of alcohol withdrawal. (See 'History of withdrawal delirium or seizures' below and 'Modest or severe symptom severity' below.)

History of withdrawal delirium or seizures — We do not manage individuals with a prior history of withdrawal delirium or alcohol withdrawal seizure in the ambulatory setting. A prior history of either delirium tremens (DT) or a prior seizure related to alcohol withdrawal appears to predict a similar occurrence in future episodes. We consider these individuals to have a high risk for severe withdrawal complications. (See "Management of moderate and severe alcohol withdrawal syndromes".)

In a meta-analysis of six studies including 1637 subjects, individuals with a prior history of DT had a greater likelihood of recurrent DT as compared with individuals without a history of DT (odds ratio 2.6, 95% CI 1.4-4.7) [1]. Additionally, in two studies including 1143 subjects, individuals with a history of withdrawal seizures had a greater likelihood of recurrence of withdrawal seizures as compared with individuals without a prior history (odds ratio 2.8, 95% CI 1.1-7.2).

Modest or severe symptom severity — We confirm the individual's current level of symptoms is no higher than mild (ie, CIWA-Ar ≤15). We do this by administering the 10-question CIWA-Ar [5,6]. The CIWA-Ar scale and scoring parameters are on the table (table 2) (calculator 1).

- We refer individuals with a CIWA-Ar score of >15 (ie, modest or severe withdrawal) for inpatient treatment. We do not consider individuals with a score of >15 to be candidates for ambulatory withdrawal. (See "Management of moderate and severe alcohol withdrawal syndromes".)

- We consider individuals with CIWA-Ar score of ≤15 (ie, mild or very mild withdrawal) to be potential candidates for ambulatory management.

Other reasons to avoid ambulatory management — If complex comorbidities such as those listed below are not present and if the psychosocial factors are favorable, we treat individuals who are not pregnant in the ambulatory setting.

- **Complex comorbidity** – We manage individuals with complex chronic medical or psychiatric comorbidities in the inpatient setting. There is a lack of consensus about the individual risk factors that consistently contribute to severe alcohol withdrawal. Prediction of alcohol withdrawal is variable and few demographic, clinical, or biochemical parameters are consistently predictive [1,7]. Acute and chronic medical comorbidities can increase the risk of developing a severe alcohol withdrawal syndrome. (See "Alcohol withdrawal: Epidemiology, clinical manifestations, course, assessment, and diagnosis", section on 'Assessment'.)

  As examples, we do not treat alcohol withdrawal in the ambulatory setting in individuals with the following comorbidities:

  - Heart failure – Class II or higher heart failure. (See "Heart failure: Clinical manifestations and diagnosis in adults".)
  - Decompensated cirrhosis. (See "Cirrhosis in adults: Etiologies, clinical manifestations, and diagnosis".)
  - Individuals with chronic obstructive pulmonary disease who are oxygen dependent. (See "Chronic obstructive pulmonary disease: Diagnosis and staging".)
  - Kidney disease – Stage IV or higher kidney disease. (See "Definition and staging of chronic kidney disease in adults".)
  - Epilepsy or history of seizure of any cause.
  - Recent head injury with loss of consciousness or intracranial hemorrhage.
  - Unstable or active psychiatric illness causing active psychosis, mania, depression, or suicidal ideation.
  - Febrile illness.
  - Benzodiazepine use disorder – We do not treat individuals with comorbid active benzodiazepine use disorder or a history of benzodiazepine use disorder in the ambulatory setting. These individuals have a higher potential for severe withdrawal symptoms.

- **Unfavorable psychosocial factors** – We consider the individual's ability to accurately monitor and report their symptoms, to take medications as directed, and to attend to all follow-up visits in determining the most appropriate setting for treatment. In cases where

the individual is unable to do this, or if we question their ability to do so, we ask a reliable support person (eg, family member) to assist. If this is not possible, we treat the individual in the inpatient setting.

In many cases, if the individual or their support is reliable, alternating in-person and remote visits is an acceptable option. If a reliable individual (or an individual with a reliable support) is unable to attend any in-person visits we would consider seeing them through real-time audiovisual/remote means on a case-by-case basis. However, we discourage this option as it is less preferred. We do not treat individuals with no means to get to the appointments and no means for remote visits, or those with cognitive impairment and no supports, in the outpatient setting.

As examples, if an individual has cognitive limitations and is without an appropriate support we encourage inpatient treatment. Additionally, if an individual cannot make it to any visits and has no means of contact (eg, no phone, homeless) we treat them in the inpatient setting.

We agree to treat individuals in the ambulatory setting if they decline inpatient treatment despite a CIWA-Ar >15. We treat these individuals in the ambulatory setting after a detailed discussion of the risks associated with ambulatory management of moderate or severe withdrawal (eg, seizure, delirium). We discuss these with the individual and the appropriate support. We carefully document the discussion including our preference for inpatient treatment, and the reason the individual declined inpatient treatment (ie, childcare needs, prior negative experiences). We do not withhold treatment for individuals who are withdrawing from alcohol due to inability to engage with treatment setting recommendations.

- **Pregnancy** – We confirm pregnancy status of all appropriate individuals of childbearing age. We treat all pregnant individuals for alcohol withdrawal in the inpatient setting. (See "Substance use during pregnancy: Screening and prenatal care".)

BENEFITS OF AMBULATORY MANAGEMENT

Medically supervised alcohol withdrawal can be safely and effectively administered to appropriately selected individuals in the ambulatory setting [8]. The ambulatory setting appears to be associated with decreased treatment duration and lower cost than inpatient treatment [9-11].

For example, in retrospective studies totaling more than 1000 individuals, the rates of successful completion of supervised withdrawal in the ambulatory setting were between 82 and 94 percent [9,10]. In one study of 517 individuals with mild to moderate withdrawal, 453 individuals completed the treatment while maintaining abstinence (based on breath alcohol testing) [10]. Additionally, only 25 patients (5 percent) experienced worsening symptoms during treatment and were referred for inpatient treatment.

In another trial examining the cost and duration of alcohol withdrawal, 164 individuals with mild to moderate symptoms of withdrawal but no recent seizure or impending delirium tremens were randomized to receive either outpatient or inpatient supervised withdrawal followed by initiation of rehabilitation treatment [11]. The mean duration of treatment was shorter for outpatients compared with inpatients (6.5 versus 9.2 days). While more inpatients completed the treatment than outpatients (95 versus 72 percent), at six-month follow-up, similar findings on the 18-item Addiction Severity Index, a measure of functioning related to substance use, was reported. There were no serious medical complications in either group. Costs were greater for inpatients versus outpatients ($3319 to 3665 versus $175 to 388 per patient).

AMBULATORY MANAGEMENT

Our preferred choice of medication and method for monitoring individuals in the ambulatory setting are discussed below and on the associated algorithms (algorithm 1 and algorithm 2).

Dose regimens and medication dispensing — We prefer to treat all individuals in the ambulatory setting with a fixed-dose regimen. Although there is literature suggesting that symptom-triggered management can be implemented in the ambulatory setting, fixed-dose regimens allow for less subjectivity and variability in dose administration and implementing withdrawal scales can be challenging [12,13]. However, overestimating total dose may lead to oversedation and underestimating doses may lead to more withdrawal symptoms.

For simplicity, we typically tell the patient to begin treatment as soon as they wake up, before they have taken any alcohol.

Additionally, we give all individuals five doses of medication to take as needed (ie, symptom-triggered doses) for tremulousness, anxiety, diaphoresis, or palpitations that are present or emerge despite the fixed-dose schedule. We provide education concerning the symptoms that should prompt taking an additional dose and the risks that are associated with additional

medications. We prescribe the same medication and dose that is being prescribed for each scheduled dose (ie, fixed dose) during days 2 through 4 of their fixed-dose taper. We provide these extra doses in addition to the medications being given for the fixed-dose regimen. We provide five doses of symptom-triggered medication in the four-day taper as in some cases, residual symptoms warrant extending the taper by a day. For example, in an individual who is being treated with chlordiazepoxide, we would prescribe 15 tablets of chlordiazepoxide (50 mg each) in a single prescription (10 doses for fixed taper, 5 extra symptom-triggered doses). (See 'Choosing among benzodiazepines' below.)

We occasionally give fewer doses at a time in individuals who may be at risk for incorrectly taking medication. In these individuals we typically give day-to-day dosing and require closer follow-up. In some cases, we avoid day-to-day dosing by asking the support person to hold and administer all doses.

Choosing medication — Our choice of medication for treatment of ambulatory withdrawal is based on the current symptom severity as measured by the Clinical Institute Withdrawal Assessment for Alcohol, Revised (CIWA-Ar) (algorithm 1 and table 2).

For mild withdrawal (CIWA-Ar 10 to 15) — We prefer to use benzodiazepines rather than other medications such as anticonvulsants (eg, gabapentin, carbamazepine) for treatment of mild withdrawal (CIWA-Ar 10 to 15) in the ambulatory setting. Our preference is based on their extensive history of well-documented effectiveness in the treatment of alcohol withdrawal including lessening the occurrence of seizures and delirium [14-19].

Choosing among benzodiazepines — We prefer to use long-acting benzodiazepines (such as chlordiazepoxide or diazepam) rather than short-acting benzodiazepines (such as oxazepam) in the treatment of alcohol withdrawal in the ambulatory setting. Among long-acting benzodiazepines, our choice is based on clinician familiarity with the agent and patient preference.

We typically use longer-acting agents despite their potential for increased accumulation and decreased clearance in some individuals (ie, liver disease, older adult). Our preference for long-acting benzodiazepines is based on their having the advantage of providing a steady level of symptom control due to their half-life and active metabolites. These allow for a “self-tapering” effect and a smoother decline in plasma level [20]. In principle, this property lessens the chance of breakthrough or rebound withdrawal symptoms. Additionally, the risk of misuse is lower with longer-acting benzodiazepines. Benzodiazepine kinetics and half-life are displayed on the table (table 3).

However, based on indirect comparisons there is no strong evidence that any one particular benzodiazepine is more effective than any other in the treatment of alcohol withdrawal [14].

For diazepam our four-day taper is as follows:

- Day 1: 10 mg orally every 6 hours (40 mg total daily dose)
- Day 2: 10 mg orally every 8 hours (30 mg total daily dose)
- Day 3: 10 mg orally every 12 hours (20 mg total daily dose)
- Day 4: 10 mg once at night (10 mg total daily dose)

For chlordiazepoxide our taper is as follows:

- Day 1: 50 mg orally every 6 hours (200 mg total daily dose)
- Day 2: 50 mg orally every 8 hours (150 mg total daily dose)
- Day 3: 50 mg orally every 12 hours (100 mg total daily dose)
- Day 4: 50 mg once at night (50 mg total daily dose)

Our preferred regimen is shown on the associated algorithm (algorithm 1).

Misuse and adverse effects — We are cautious about the use of benzodiazepines for ambulatory management of alcohol withdrawal. Benzodiazepines are subject to risks of misuse and development of physiologic dependence, particularly with shorter-acting benzodiazepines or diazepam (due to rapid onset). Additionally, symptomatic withdrawal can occur if benzodiazepines are abruptly stopped [21,22]. This is a particular consideration if shorter-acting benzodiazepines are used. (See 'Choosing among benzodiazepines' above.)

Benzodiazepines can induce respiratory depression, especially if taken in excessive amounts or if combined with other central nervous system depressants, including alcohol. (See "Benzodiazepine use disorder" and "Benzodiazepine poisoning and withdrawal".)

Data supporting use of benzodiazepines — Benzodiazepines are effective in reducing withdrawal symptoms compared with placebo [14,18,19,23].

As examples, in a meta-analysis of three trials including 324 individuals with symptoms of alcohol withdrawal, individuals treated with benzodiazepines had a decreased incidence of withdrawal-related seizures versus individuals treated with placebo (relative risk 0.16, 95% CI 0.04-0.69) [14]. In another meta-analysis of three trials including 112 individuals with alcohol withdrawal symptoms, individuals treated with benzodiazepines showed greater reductions in CIWA-Ar scores within the first two days of treatment than individuals treated with placebo (odds ratio 3.28, 95% CI 1.3-8.28) [18].

Studies comparing the efficacy and safety of individual benzodiazepines in the treatment of alcohol withdrawal have been inconclusive. For example, a meta-analysis comparing the efficacy and safety of individual benzodiazepines for outcomes such as withdrawal seizures, withdrawal delirium, and global assessment of efficacy measures did not report meaningful differences between them [14]. However, trends toward greater efficacy were noted for diazepam versus lorazepam in the prevention of delirium [24] and chlordiazepoxide versus alprazolam for prevention withdrawal seizures [25].

Very mild withdrawal (CIWA-Ar <10) — We prefer to treat individuals with very mild symptoms of alcohol withdrawal (ie, CIWA-Ar <10) with an anticonvulsant medication rather than a benzodiazepine (algorithm 1).

Gabapentin as first choice for very mild withdrawal — Our preference is to treat individuals with very mild withdrawal (CIWA-Ar <10) with gabapentin rather than benzodiazepines (or other anticonvulsants). However, for individuals being treated with gabapentin for another indication we typically use a benzodiazepine.

Our preference for treatment of individuals with very mild withdrawal (CIWA-Ar <10) with gabapentin is based on the following:

- **Established efficacy in appropriately screened individuals** – Gabapentin has been shown to have efficacy comparable to benzodiazepines for reducing symptoms of alcohol withdrawal (other than seizures or the development of delirium tremens [DT]) in the outpatient setting (see 'Data supporting use of gabapentin' below). Seizures and DT are relatively rare events in individuals appropriately screened to undergo supervised withdrawal in the ambulatory setting. As an example, an observational study described the supervised withdrawal of 1024 individuals with chronic alcohol use who were referred for ambulatory “detoxification” [26]. The treatment utilized only behavior approaches and no psychoactive medications. Twelve individuals (1.2 percent) experienced seizures and a single patient (0.1 percent) developed DT.

  Gabapentin, as an anticonvulsant, is believed to counteract the “kindling process” that can occur with repeated episodes of alcohol withdrawal. The kindling hypothesis proposes that long-term alcohol dependence and repeated episodes of withdrawal may cause neuronal and neurochemical changes in the brain which leads to an intensification of alcohol withdrawal symptoms with each successive episode [20,27,28]. (See "Alcohol withdrawal: Epidemiology, clinical manifestations, course, assessment, and diagnosis", section on 'Withdrawal seizures'.)

- **Favorable side effect profile** – Gabapentin is associated with less sedation [29,30], and in our clinical experience, less cognitive and psychomotor impairment than benzodiazepines.

- **Lower potential for misuse and the development of addiction** – There are no data directly comparing rates of misuse between gabapentin and benzodiazepines. Based on the limited data available, and in our clinical experience, while still potentially a medication that is subject to misuse, gabapentin is less subject to misuse than benzodiazepines for individuals treated for substance use disorder [31-35].

- **Efficacy in treatment of alcohol use disorder** – Gabapentin is a favorable choice for treatment of very mild alcohol withdrawal when the clinician plans to use it as maintenance in the treatment of alcohol use disorder. Efficacy of gabapentin in the treatment of alcohol use disorder is discussed elsewhere. (See "Alcohol use disorder: Pharmacologic management", section on 'Gabapentin'.)

- **Ease of use versus comparable anticonvulsant (ie, carbamazepine)** – We prefer to use gabapentin over the anticonvulsant carbamazepine in the treatment of very mild alcohol withdrawal. Gabapentin, as compared with carbamazepine, is associated with fewer drug-drug interactions [36,37] and fewer adverse effects. Additionally, treatment with gabapentin does not require checking of therapeutic levels or other laboratory monitoring and appears to be safe in individuals with impaired liver function [17,36]. (See 'Other options for very mild withdrawal (CIWA-Ar <10)' below and "Antiseizure medications: Mechanism of action, pharmacology, and adverse effects".)

Gabapentin taper — We treat most individuals with very mild withdrawal (CIWA <10) with a gabapentin taper. Our taper is as follows:

- Day 1: 300 mg orally every 6 hours (1200 mg total daily dose)
- Day 2: 300 mg orally every 8 hours (900 mg total daily dose)
- Day 3: 300 mg orally every 12 hours (600 mg total daily dose)
- Day 4: 300 mg once at night (300 mg total daily dose)

Our preferred regimen is shown on the associated algorithm (algorithm 1).

In addition, we give five extra tablets to be used for symptom-triggered dosing (see 'Dose regimens and medication dispensing' above).

Side effects of gabapentin include dizziness, drowsiness, ataxia, diarrhea, weakness, and nausea and vomiting.

Data supporting use of gabapentin — Gabapentin, a gamma-aminobutyric acid analog, appears to be a safe and effective alternative to benzodiazepines for the treatment of very mild alcohol withdrawal in the ambulatory setting [29,30]. However, based on limited data, it is unclear if anticonvulsants as a group, or gabapentin in particular, provides the same degree of protection against alcohol withdrawal seizures and alcohol-related delirium as benzodiazepines do [38-41].

Gabapentin may lower craving for alcohol during the course of the treatment while being associated with fewer side effects. As examples, in a clinical trial, 100 individuals with symptoms of alcohol withdrawal (CIWA-Ar ≥10) were randomized to receive one of three different four-day tapers (gabapentin starting at 1200 mg/day, gabapentin starting at 900 mg/day, or lorazepam starting at 6 mg/day) [29]. Individuals had access to additional symptom-triggered doses of the assigned medication. Withdrawal-symptom severity, as measured by CIWA-Ar, decreased over time in all groups. Over the course of the treatment, individuals in the higher dose gabapentin group (1200 mg) had a lower average CIWA-Ar scale then the lorazepam group (3.1 versus 4.3). Additionally, treatment with either target dose of gabapentin appeared to result in less craving and less anxiety (as measured by the Zung Anxiety Scale) during the treatment period. There was a tendency towards less sedation in individuals in the gabapentin treated group versus those in the lorazepam treated group. Furthermore, individuals in the gabapentin treated groups had a lower probability of drinking during the seven-day follow-up.

In another trial including 26 individuals with symptoms of alcohol withdrawal (CIWA-Ar >5) individuals were randomized to receive a six day taper of either gabapentin or chlordiazepoxide [30]. CIWA-Ar scales were reduced similarly in both groups. However, at treatment end, individuals treated with gabapentin experienced less daytime sleepiness on the Epworth sleepiness scale (ESS) and a trend towards reduced craving on the Penn Alcohol Craving scale (PACS) than individuals treated with chlordiazepoxide (mean difference ESS -3.7, 95% CI -7.2 to -0.2; mean difference PACS -6.1, 95% CI -12.8 to 0.7).

Other options for very mild withdrawal (CIWA-Ar <10) — For individuals with a history of adverse effects to gabapentin or in whom gabapentin has previously been ineffective, carbamazepine is another option for treatment.

Carbamazepine — We occasionally use carbamazepine for the treatment of very mild withdrawal (CIWA-Ar <10) in individuals that are unable to take or have had adverse effects with gabapentin.

While carbamazepine appears to be efficacious in reducing symptoms of alcohol withdrawal, data are insufficient to support its efficacy in preventing withdrawal seizures or delirium [38,42].

We prescribe carbamazepine at the following doses according to a fixed-dose regimen for all individuals that we are treating for very mild withdrawal. We also give five extra doses for symptom-triggered dosing. (See 'Dose regimens and medication dispensing' above.)

- Day 1: Carbamazepine 200 mg orally every 6 hours (800 mg total daily dose)
- Day 2: Carbamazepine 200 mg orally every 8 hours (600 mg total daily dose)
- Day 3: Carbamazepine 200 mg orally every 12 hours (400 mg total daily dose)
- Day 4: Carbamazepine 200 mg orally at night (200 mg total daily dose)

In a meta-analysis of three trials (two inpatient, one outpatient) including 262 patients, carbamazepine reduced symptoms of alcohol withdrawal (as measured by CIWA-Ar score) similarly compared with benzodiazepines (mean difference -1.04, -1.89 to -0.20) [38]. Additionally, in one trial including 136 individuals with moderate alcohol withdrawal, individuals were randomized to five days taper of either lorazepam or carbamazepine from comparable initial doses (ie, 600 to 800 mg carbamazepine; 6 to 8 mg lorazepam) [43]. While both treatment arms were effective in reducing alcohol withdrawal symptoms, individuals in the carbamazepine group appeared to have a lower risk of rebound withdrawal symptoms at the conclusion of treatment and a lower risk of return to drinking in the immediate posttreatment period. Clinician-rated side effects (eg, dizziness, incoordination, light-headedness, and drowsiness) were more common in individuals treated with lorazepam compared with those treated with carbamazepine (23 versus 7 percent).

Due to the need for therapeutic monitoring and the drug-drug interactions associated with carbamazepine, we use it for treatment of very mild withdrawal only after a trial of gabapentin. We are cautious in prescribing carbamazepine due to adverse effects such as blood dyscrasias and hepatotoxicity. Other side effects include dizziness, drowsiness and pruritus [43,44].

Other options for individuals who cannot take gabapentin or carbamazepine include long-acting benzodiazepines. (See 'Choosing among benzodiazepines' above.)

Medication with limited data to support their use — Limited data support the use of the following medications in the treatment of alcohol withdrawal. Further research is needed before their clinical use can be recommended.

- **Oxcarbazepine** – Carbamazepine's 10-keto analog, oxcarbazepine, may have equivalent benefits in alcohol withdrawal, with milder side effects and fewer drug interactions [45].

- **Pregabalin, levetiracetam, and** valproic acid – Data on the safety and efficacy of other anticonvulsants such as pregabalin [46], levetiracetam [47-49], and valproic acid [50] are insufficient to recommend their use in treating alcohol withdrawal.

- **Baclofen, clonidine, and gamma hydroxy butyrate** – Other medications such as baclofen, clonidine, and gamma hydroxy butyrate have been suggested as being efficacious for the ambulatory treatment of alcohol withdrawal [16,51-54]. However, further studies are needed to confirm their benefits.

Monitoring in the ambulatory setting — An algorithm describes our practice for monitoring individuals being treated for alcohol withdrawal in the ambulatory setting (algorithm 2).

Frequency — We are in contact with individuals undergoing supervised withdrawal on a daily basis with either in-person or remote visits. We prefer to see all individuals in person daily. We ask the individuals (with the help of their support where needed) to monitor symptoms throughout the day.

Symptom review and scales — Prior to initiating treatment, and at each patient contact, whether in-person or remote, we review the symptoms of alcohol withdrawal and ask about the presence or worsening of withdrawal symptoms including:

- Anxiety or nervousness
- Tremor
- Sweating
- Nausea or vomiting
- Auditory, tactile, or visual disturbances
- Headache
- Disorientation
- Agitation

If the individual reports an increase in intensity or the emergence of one or more new symptoms either in person or between visits, we ask them to take a single dose of symptom-triggered medication. If symptoms persist, we see them in an in-person visit at the earliest time possible and complete a CIWA-Ar (table 2) (calculator 1).

Individuals needing higher level of care — We refer individuals for inpatient treatment (after they have begun treatment in the ambulatory setting) for any of several reasons. These include:

- Presence of withdrawal seizure or delirium
- Worsening medical or psychiatric condition (eg, metabolic syndrome, psychosis, mania, suicidal or homicidal ideation)
- The individual has used more than one symptom-triggered dose in any 24-hour period to address emergent or worsening symptoms (see 'Dose regimens and medication

dispensing' above)

- CIWA-Ar increases to >15

We refer individuals that are nonadherent to treatment, divert or misuse medication, return to use of alcohol or other substance, to an inpatient or an addiction treatment center.

Nutritional support — We offer daily multivitamins with thiamine and folate to all individuals being treated for alcohol withdrawal in the ambulatory setting. Individuals with sustained heavy drinking who consume most of their calories from alcohol often develop nutritional deficiencies. Thiamine deficiency is common in this population and can result in Wernicke encephalopathy or Korsakoff syndrome [27,55,56]. (See "Nutritional status in patients with sustained heavy alcohol use" and "Wernicke encephalopathy" and "Overview of the chronic neurologic complications of alcohol".)

Transition to maintenance treatment for alcohol use disorder — We offer explicit plans for follow-up care prior to discharge from the ambulatory treatment setting. We typically refer for ongoing treatment for alcohol use disorder through a specialized alcohol treatment program or the individuals primary care. Our approach to treating alcohol use disorder is reviewed separately. (See "Alcohol use disorder: Treatment overview".)

Medically supervised withdrawal manages the patient through the withdrawal symptoms, but does not treat alcohol use disorder. Patients completing withdrawal who do not receive further treatment are at high risk of returning to regular heavy alcohol consumption [57].

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "Society guideline links: Alcohol use disorders and withdrawal".)

SUMMARY AND RECOMMENDATIONS

- **Need for treatment** – We initiate management of alcohol withdrawal on most individuals with alcohol use disorder who have recently discontinued or sharply reduced their consumption. Exceptions include individuals who have been drinking for four weeks or less and those that exclusively binge drink three times or less per week. (See 'Alcohol withdrawal: Diagnosis and need for treatment' above.)

- **Candidacy for ambulatory management** – For all individuals who have been assessed for and found to need treatment for alcohol withdrawal, we assess for contraindications to ambulatory management. If none exist, we further assess for the presence of complex comorbidities or other unfavorable psychosocial factors for ambulatory management treatment. (See 'Candidacy for ambulatory management' above.)

  - **Contraindications to ambulatory management** – Individuals with the following are at risk for severe withdrawal and are not treated in the ambulatory setting. If neither are present, we further assess for complex comorbidities, and other factors. (See 'Contraindications to ambulatory management' above.)

    - **History of withdrawal delirium or seizures** – We manage individuals with a prior history of withdrawal delirium or alcohol withdrawal seizure in the inpatient setting. (See 'History of withdrawal delirium or seizures' above.)

    - **Modest or severe symptom severity** – We treat individuals a Clinical Institute Withdrawal Assessment for Alcohol, Revised (CIWA-Ar) score of >15 in the inpatient setting. (See 'Modest or severe symptom severity' above.)

  - **Other reasons to avoid ambulatory management** – If complex comorbidities are not present and if the psychosocial factors are favorable, we treat individuals who are not pregnant in the ambulatory setting. (See 'Other reasons to avoid ambulatory management' above.)

    - **Complex comorbidities** – We manage individuals with complex chronic medical or psychiatric comorbidity in the inpatient setting.

    - **Psychosocial factors** – We treat individuals with favorable psychosocial factors such as ability to monitor and administer medications reliably in the ambulatory setting.

    - **Pregnancy** – We check all appropriate individuals for pregnancy status. We treat all pregnant individuals in need of supervised withdrawal in the inpatient setting.

- **Dose regimens** – We treat all individuals with a fixed-dose regimen in the ambulatory setting. We provide a limited amount symptom-triggered doses to take as needed. (See 'Dose regimens and medication dispensing' above.)

- **Choosing medication** – An algorithm describes our practice for monitoring individuals being treated for alcohol withdrawal in the ambulatory setting (algorithm 1).

- **Mild withdrawal (CIWA-Ar 10 to 15)** – We suggest treatment of all individuals with a CIWA-Ar score of 10 to 15 with benzodiazepines as compared to other medications (**Grade 2C**). (See 'For mild withdrawal (CIWA-Ar 10 to 15)' above.)

- **Very mild withdrawal (CIWA-Ar <10)** – We suggest treatment of all individuals with very mild symptoms of alcohol withdrawal (ie, CIWA-Ar <10) with the anticonvulsant, gabapentin as compared with other medications (**Grade 2C**). (See 'Very mild withdrawal (CIWA-Ar <10)' above.)

- **Monitoring** – We are in contact with patients on a daily basis throughout supervised alcohol withdrawal. We refer individuals with seizures, delirium, worsening medical or psychiatric symptoms, increase in CIWA-Ar to >15, or the use of more than one symptom-triggered dose in a 24-hour period, for inpatient treatment (algorithm 2). (See 'Monitoring in the ambulatory setting' above.)

- **Subsequent care** – We offer explicit plans for follow-up maintenance treatment for alcohol use disorder during the supervised withdrawal. Individuals completing withdrawal who do not receive further treatment are at high risk of returning to regular heavy alcohol consumption. (See 'Transition to maintenance treatment for alcohol use disorder' above.)

ACKNOWLEDGMENTS

The UpToDate editorial staff acknowledges Richard Saitz, MD, MPH, FACP, DFASAM (deceased), Joseph R Volpicelli, MD, PhD, and Scott A Teitelbaum, MD, who contributed to an earlier version of this topic review.

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Topic 7801 Version 37.0

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