Alcohol withdrawal: Epidemiology, clinical manifestations, course, assessment, and diagnosis

AUTHOR: Christine Pace, MD, MSc
SECTION EDITOR: Murray B Stein, MD, MPH
DEPUTY EDITOR: Michael Friedman, MD

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INTRODUCTION

Minor manifestations of alcohol withdrawal include anxiety, agitation, restlessness, insomnia, tremor, diaphoresis, palpitations, headache, and alcohol craving, and often loss of appetite, nausea, and vomiting. Moderate and severe withdrawal syndromes can include hallucinations, seizures, or delirium tremens; the latter two can be life-threatening.

Most people with alcohol use disorder do not experience significant withdrawal when they stop or reduce drinking, but withdrawal is common among medical and surgical inpatients and in emergency departments.

This topic reviews the clinical manifestations, course, assessment and diagnosis of alcohol withdrawal. Ambulatory and inpatient management of alcohol withdrawal syndromes are reviewed separately. (See "Alcohol withdrawal: Ambulatory management" and "Management of moderate and severe alcohol withdrawal syndromes".)

The epidemiology, pathogenesis, clinical manifestations, course, screening, assessment, diagnosis, and treatment of risky drinking and alcohol use disorder are also reviewed separately. (See "Risky drinking and alcohol use disorder: Epidemiology, clinical features, adverse consequences, screening, and assessment" and "Alcohol use disorder: Psychosocial management" and "Alcohol use disorder: Pharmacologic management".)

EPIDEMIOLOGY

The prevalence of alcohol use disorder (alcohol abuse and dependence in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition [DSM-IV]) is estimated to be 14 percent in community-based samples in the United States [1] and 11 to 32 percent among inpatients in medical units [2,3]. Approximately half of patients with alcohol use disorder experience alcohol withdrawal when they reduce or stop drinking [4,5].

Predictors for the development of withdrawal in patients with alcohol use disorder include consumption of more drinks per occasion and the presence of more alcohol-related problems [4,6,7] and is likely to be related to greater physiologic dependence. Tools to assess for alcohol use disorder such as the Alcohol Use Disorders Identification Test and Alcohol Use Disorders Identification Test – (Piccinelli) Consumption (AUDIT-PC) can be used to identify these risk factors in a standardized fashion; for example, one study showed that an AUDIT-PC score of four or more was 91 percent sensitive and 89.7 percent specific for the development of alcohol withdrawal [6]. Patients who have not had any withdrawal symptoms more than 24 hours after cessation are unlikely to develop such symptoms.

Though alcohol withdrawal is usually mild, an estimated 20 percent of patients experience more advanced manifestations such as hallucinosis, seizures, and delirium tremens [8]. Seizures and delirium tremens, which are sometimes grouped as "severe alcohol withdrawal syndrome," are a frequent reason for both general inpatient and intensive care unit admissions; for example, alcohol withdrawal syndrome was found to account for more than 10 percent of intensive care unit admissions to a Detroit hospital [9]. The development of alcohol withdrawal contributes to the morbidity, mortality, and length of stay of patients admitted to the hospital for other primary medical or surgical indications [5,10,11].

Genetic polymorphisms predictive of alcohol withdrawal among patients with alcohol use disorder are under investigation [12].

PATHOPHYSIOLOGY

The pathophysiology of alcohol withdrawal syndrome is reviewed separately. (See "Management of moderate and severe alcohol withdrawal syndromes", section on 'Pathophysiology'.)

CLINICAL PRESENTATION AND COURSE

Without treatment, symptoms of alcohol withdrawal generally begin within 6 to 24 hours of the last drink or a sudden reduction in chronic alcohol drinking [13]. The onset and duration of withdrawal symptoms vary based on the severity of the syndrome (table 1). Symptoms may emerge before the blood alcohol level has returned to zero.

Mild withdrawal — Symptoms of early or mild alcohol withdrawal include anxiety, minor agitation, restlessness, insomnia, tremor, diaphoresis, palpitations, headache, and alcohol craving. Patients often experience loss of appetite, nausea, and vomiting. Physical signs include sinus tachycardia (heart rates may exceed 120 beats per minute), systolic hypertension, hyperactive reflexes, and tremor [8,13]. Symptoms of mild withdrawal resolve within one to two days.

Some patients with mild withdrawal will go on to develop additional manifestations of withdrawal, such as alcohol hallucinosis, withdrawal seizures, or withdrawal delirium (delirium tremens). The latter are sometimes considered together as "severe alcohol withdrawal syndrome." Patients can have withdrawal seizures or hallucinosis without manifesting symptoms of mild withdrawal.

Alcohol hallucinosis — Alcohol hallucinosis typically begins within 12 to 24 hours after the last drink and resolves in another 24 to 48 hours. The risk for alcohol hallucinosis may be related to genetic factors [14] and/or decreased thiamine absorption [15].

Alcoholic hallucinosis refers to hallucinations that are usually visual and commonly involve seeing insects or animals in the room; auditory and tactile phenomena may also occur. In contrast to withdrawal delirium, alcoholic hallucinosis is not associated with altered cognition such as disorientation, and vital signs are usually normal.

Withdrawal seizures — Alcohol withdrawal-related seizures occur within 6 to 48 hours after drinking either stops or is significantly reduced. Such seizures occur in 10 to 30 percent of patients in alcohol withdrawal [16-18]. Risk factors may include concurrent withdrawal from benzodiazepines or other sedative-hypnotic drugs; other risk factors include relatively low potassium and platelet levels [5]. It has been observed that the risk of seizures increases as patients undergo repeated withdrawals, which has been described as the "kindling effect." Genetic determinants are under investigation [19].

Seizures are typically generalized tonic-clonic convulsions, occurring singly or in clusters of two or three. In a study, 60 percent of patients with seizures related to alcohol cessation had

multiple seizures, and in 85 percent of these patients, the recurrence took place within the first six hours [20]. Though it is rare for alcohol withdrawal seizures to develop into status epilepticus, alcohol withdrawal is implicated in a sizable minority of status epilepticus cases [13,21]. The presentation and treatment of convulsive status epilepticus are reviewed separately. (See "Convulsive status epilepticus in adults: Classification, clinical features, and diagnosis" and "Convulsive status epilepticus in adults: Management".)

Withdrawal delirium — Withdrawal delirium (also known as delirium tremens or "DTs") is a rapid-onset, fluctuating disturbance of attention and cognition, sometimes with hallucinations, in the presence of alcohol withdrawal [22]. In its most severe manifestation, withdrawal delirium is accompanied by agitation and signs of extreme autonomic hyperactivity, including fever, severe tachycardia, hypertension, and drenching sweats.

Withdrawal delirium typically begins between 72 and 96 hours after the patient's last drink and has been reported to occur in 1 to 4 percent of patients hospitalized for alcohol withdrawal [23].

Genetic risk factors for delirium are under evaluation [24]. Retrospective studies have suggested the following clinical risk factors though not all are borne out consistently across data [5,23,25-29]:

- Prior withdrawal delirium.
- Specific signs of chronic alcohol intake, chronic illness including cirrhosis and/or malnutrition, including low or low-normal platelet, potassium, and magnesium levels.
- Development of alcohol withdrawal with a positive blood alcohol level.
- Clinical Institute Withdrawal Assessment Scale for Alcohol – Revised scores above 15 (especially in association with a systolic blood pressure >150 mm Hg or a heart rate >100 beats per minute).
- Increasing age.
- Recent misuse of other agents which depress the central nervous system, such as benzodiazepines.
- Concurrent illness, such as respiratory, cardiac, or gastrointestinal disease.

Mortality rates from withdrawal delirium were historically as high as 20 percent. With appropriate medical management, the mortality rate is between 1 and 4 percent, depending on

the setting [13,23]. Death has been attributed to cardiovascular complications, hyperthermia, aspiration, and severe fluid and electrolyte disorders.

Severe alcohol withdrawal syndrome — Although definitions vary, withdrawal seizures and withdrawal delirium are often grouped together as severe alcohol withdrawal syndrome. A meta-analysis of studies examining predictors of seizures, withdrawal delirium, or either found that a prior episode of seizure or delirium tremens was predictive of the same complication developing later, a prior seizure did not consistently predict the occurrence of withdrawal delirium, and vice-versa. Other than these factors, only low or low-normal potassium and platelet levels were consistently predictive of the development of a manifestation of severe withdrawal across patient populations studied.

Evidence for other predictors was not borne out in the meta-analysis [5], though some predictors were studied in small samples only and the heterogeneity of studies limited conclusions. Similarly, although models to predict risk of severe withdrawal have been proposed, no tools for clinicians to predict risk have been validated across multiple populations or are in widespread use [26,27].

ASSESSMENT

Key goals in the assessment of a patient experiencing possible alcohol withdrawal are to:

- Evaluate for acute medical problems (eg, gastritis, pancreatitis, hepatitis, pneumonia) that could account entirely for their presentation, exacerbate symptoms of alcohol withdrawal, and/or explain why the patient ceased or reduced alcohol use.
- Determine the level of care needed for appropriate withdrawal management. Options include:
  - Outpatient management, with ambulatory visits as needed.
  - Inpatient management in an addiction treatment setting:
    - Nonmedically managed (described by the addiction treatment system as level III.2). Support is primarily social, by counselors or peers.
    - Medically managed (described as level III.7). Nurses are on site 24 hours per day to monitor patients. Clinicians provide consultation services, but are not on site 24 hours per day.

- Inpatient management in a medical (hospital) setting, where more intensive medical monitoring and clinician assessment are available, including:
  - General inpatient unit
  - Intensive care unit (ICU)
- Steps to determine the level of care are as follows:
  - Determine the likelihood of severe withdrawal, including seizures and delirium tremens; patients likely to experience these complications require withdrawal management in a hospital setting, either in a standard inpatient ward or the ICU depending on the clinical presentation and history (table 2). Hospital policies regarding ICU admissions for this patient population may vary based on the hospital setting, staffing model, and addiction expertise.
  - Evaluate for acute or chronic medical comorbidities that could increase the morbidity and mortality of alcohol withdrawal. Patients with complex chronic conditions, such as insulin-dependent diabetes or hypertension on multiple medications, require at the very least management in a medically managed detoxification program. Patients with unstable chronic conditions or acute conditions (such as pneumonia or pancreatitis) require additional medical monitoring in an inpatient hospital setting. ICU monitoring may be required (table 2).
  - Determine the likelihood of withdrawal from two or more substances. These patients require management in an inpatient medically managed setting, rather than an outpatient setting; however, if the two previous criteria do not apply, an acute treatment setting such as a level III.7 detoxification program may suffice, rather than a hospital setting.
  - Determine the degree of social support in the home. Patients with limited social support who do not need monitoring by a nurse or physician may benefit from inpatient withdrawal management in a nonmedically managed detoxification program.

Patient history — Key features of the history include:

- History of alcohol and other drug use, including substances used, the time of last use, the duration of use, the quantity and frequency of use, and the method of use (eg, oral, intravenous, inhaled, intranasal).

- For alcohol in particular, a detailed history of prior withdrawal experiences is important. A detailed alcohol history helps determine the expected timeframe for emergence of withdrawal symptoms and the potential for severe withdrawal syndromes.

- Substance use treatment history, including which treatments (such as inpatient or outpatient programs, 12-step programs such as Alcoholics Anonymous, or medications such as naltrexone or acamprosate) have been helpful or not helpful in the past. (See "Alcohol use disorder: Treatment overview".)

- Mental health history. Comorbid mental illness may impact the patient's withdrawal presentation. Additionally, patients with mental illness may benefit from integrated treatment post-withdrawal care that is focused on the dual diagnosis population. (See "Pharmacotherapy for co-occurring schizophrenia and substance use disorder", section on 'Integrated treatment'.)

- Social history. Identification of social supports (such as a supportive family member who can encourage abstinence and potentially dispense withdrawal medication) and barriers (such as homelessness) in the patient's life can also help determine the most appropriate further treatment (for example, inform a decision between residential versus outpatient programs).

- Recent physical symptoms. A careful review of systems is important to identify medical problems that could contribute to the patient's presentation or worsen the morbidity of withdrawal. Once patients are preoccupied by uncomfortable withdrawal symptoms or develop altered mental status related to their withdrawal, they may not readily volunteer these symptoms.

Physical examination — The patient should receive a comprehensive physical examination to evaluate for concurrent or alternative medical diagnoses that contribute to their clinical presentation, assess for any chronic complications of alcohol use disorder, and determine the severity of the withdrawal. It should include a thorough examination of the cardiovascular, pulmonary, and gastrointestinal systems, with additional attention to any signs of cirrhosis; it should also include as a mental status examination and complete neurologic examination. The neurologic examination must include assessment of gait and oculomotor function to rule out concurrent Wernicke encephalopathy, which requires specific treatment. (See "Wernicke encephalopathy".)

Laboratory and other testing — Laboratory testing typically includes:

- A complete blood count.

- Serum electrolytes, including potassium, magnesium, and phosphate.
- Glucose.
- Creatinine.
- Liver function tests.
- Amylase and lipase.
- Blood alcohol level.
- Urine drug testing, which should include testing for benzodiazepines, cocaine, and opioids. The opioid test should include not only opiates, which include heroin, codeine and morphine, but also buprenorphine, oxycodone, methadone, and fentanyl, all of which are of increasing importance in the current opioid epidemic.
- Urine human chorionic gonadotropin test for premenopausal women.

An electrocardiogram (ECG) is suggested for patients over 50 years or if there is a history of cardiac problems.

Imaging — A head computerized tomography (CT) scan to rule out contributing or alternative pathology is indicated for patients who present with a first seizure or for a presentation that is different from prior presentations or from a typical withdrawal seizure. Mental status changes in patients with suspected alcohol withdrawal may or may not require head imaging; imaging is important if the mental status changes are not typical for those associated with alcohol withdrawal (for example, if the patient is sedated) and/or if there is any suspicion for head trauma.

A chest radiograph may be indicated for patients with chronic respiratory problems, respiratory symptoms, an abnormal lung examination, or sedated mental status. An abdominal ultrasound or CT scan may be indicated in patients reporting abdominal pain or with abnormal pancreatic or liver function tests.

CIWA-Ar scale — Although several symptom severity scales exist for alcohol withdrawal, the Clinical Institute Withdrawal Assessment Scale for Alcohol – Revised (CIWA-Ar) has been the most studied and is the most widely used (table 3) (calculator 1).

The CIWA-Ar scale can help determine the need for medically supervised withdrawal management. Patients with an alcohol use disorder who have not had a drink for five days or more and have a CIWA-Ar score of less than 10 will in most cases not need management.

For patients with a history of recent alcohol use who are able to communicate symptoms to their medical providers, the CIWA-Ar scale can be used to guide symptom-triggered treatment. Randomized clinical trials have shown that use of the scale in the treatment of withdrawal reduced the total amount of benzodiazepines needed and shortened duration of treatment [30,31]. (See "Management of moderate and severe alcohol withdrawal syndromes".)

The CIWA-Ar should not be used to diagnose alcohol withdrawal; the scale does not include the prerequisite of heavy or prolonged alcohol use and the constellation of symptoms it tracks are nonspecific. CIWA-Ar should not be used to guide treatment when an alcohol history has not been obtained and/or the patient cannot communicate symptoms; this could lead to inappropriate and potentially risky use of benzodiazepines to treat manifestations of illnesses other than withdrawal [32].

DIAGNOSIS

DSM-5 diagnostic criteria — DSM-5 diagnostic criteria for alcohol withdrawal are as follows [22]:

- A. Cessation of (or reduction in) alcohol use that has been heavy and prolonged.
- B. Two (or more) of the following, developing within several hours to a few days after the cessation of (or reduction in) alcohol use described in criterion A:
  - 1. Autonomic hyperactivity
  - 2. Increased hand tremor
  - 3. Insomnia
  - 4. Nausea or vomiting
  - 5. Transient visual, tactile, or auditory hallucinations or illusions
  - 6. Psychomotor agitation
  - 7. Anxiety
  - 8. Generalized tonic-clonic seizures
- C. The signs or symptoms in criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- D. The signs or symptoms are not attributable to another medical condition and are not better explained by another mental disorder, including intoxication or withdrawal from another substance.

Differential diagnosis — Alcohol withdrawal has a broad differential diagnosis depending on the clinical presentation.

Early withdrawal symptoms — The differential diagnosis for symptoms associated with mild withdrawal includes a wide range of conditions associated with central nervous system and/or autonomic hyperactivity. In a patient with a history of recent heavy alcohol use, alcohol withdrawal is a leading diagnosis, but a broad differential is important both in cases when patients are not able to give a reliable history and in cases were comorbid medical conditions exacerbate the presentation of withdrawal. The differential should include:

- Infection, such as pneumonia, meningitis, encephalitis, or spontaneous bacterial peritonitis – The presence of a fever should prompt the clinician to assume that an infection is present until proven otherwise. A history of focal symptoms such as a cough, sweats, rigors, or abdominal pain, a physical examination with signs of possible infection, such as abnormal breath sounds, and the presence of leukocytosis on a complete blood count are clues that an infection may be the cause of a patient's symptoms. When suspected, imaging, blood cultures, and other testing can help identify an infectious source. (See "Approach to infection in the older adult".)

- Acute coronary syndrome – The patient's history and cardiac risk factors are clues to the presence of acute coronary syndrome. An ECG and testing for cardiac biomarkers are important initial testing when acute coronary syndrome is suspected. (See "Overview of the acute management of non-ST-elevation acute coronary syndromes".)

- Pulmonary embolus – Pulmonary embolus is an important consideration in hospitalized or postoperative patients who develop unexplained tachycardia. History should probe for dyspnea, pleuritic pain, cough, or symptoms of a deep venous thrombosis. A physical examination should look for dyspnea, abnormal lung sounds, jugular venous distention, or limb swelling. Oxygen saturation and ECG testing should be performed; further testing is based on the pretest likelihood of pulmonary embolus. (See "Clinical presentation, evaluation, and diagnosis of the nonpregnant adult with suspected acute pulmonary embolism".)

- Hyperthyroidism – The history may give clues as to the likelihood of hyperthyroidism, rather than alcohol withdrawal; symptoms of hyperthyroidism will usually have a more prolonged time course than alcohol withdrawal (ie, weeks to months) and may be associated with other symptoms such as menstrual abnormalities or weight loss. The examination may show typical features of hyperthyroidism such as lid lag. A low thyroid-

stimulating hormone level is diagnostic of hyperthyroidism. (See "Overview of the clinical manifestations of hyperthyroidism in adults".)

- Anxiety and/or panic disorder – Anxiety and/or panic disorder can be difficult to distinguish from alcohol withdrawal in patients with a history of heavy alcohol use. Anxiety about withdrawal symptoms can intensify the presentation of alcohol withdrawal. The patient's history and course are the most helpful in distinguishing the conditions when they are not comorbid; in particular, panic attacks are of shorter duration than symptoms of alcohol withdrawal, typically lasting up to an hour rather than days, and gastrointestinal symptoms may be less dominant.

- Intoxication – Intoxication with stimulants such as cocaine, methamphetamine, amphetamines, or synthetic cathinones (such as "bath salts") can resemble aspects of alcohol withdrawal, including the agitation, tachycardia, hypertension, and in some cases, hallucinations. Physical examination of patients with stimulant intoxication may reveal mydriasis and stereotyped behaviors such as picking, which are less common in early alcohol withdrawal. The patient's substance use history and urine drug testing can distinguish the conditions, though notably many synthetic cathinones are not detectable in standard drug testing.

- Withdrawal from other sedating substances – Withdrawal from benzodiazepines, opioids, and other sedating substances may resemble mild alcohol withdrawal. Benzodiazepine withdrawal in particular can be virtually indistinguishable from alcohol withdrawal, although tachycardia and hypertension are typically more pronounced in the latter.

  Opioid withdrawal may be associated with mild hypertension, tachycardia, tremor, diaphoresis, nausea, and vomiting, but on examination, patients have pronounced mydriasis, piloerection, and rhinorrhea, which are absent in alcohol withdrawal. Most patients with opioid withdrawal are also particularly troubled by muscle and abdominal cramps, which are less pronounced in alcohol withdrawal. (See "Opioid withdrawal: Clinical features, assessment, and diagnosis" and "Opioid withdrawal: Medically supervised withdrawal during treatment for opioid use disorder".)

  To rule out withdrawal from another substance, the patient's history, urine drug testing, and sometimes adjunctive information such as a review of a state controlled substance database for benzodiazepine prescriptions, are essential. The clinician should be aware that the patient may have several different withdrawal syndromes concurrently, each necessitating a different treatment strategy.

Alcohol withdrawal seizures — The differential diagnosis for an alcohol withdrawal seizure includes epilepsy and seizures provoked by conditions such as hypoglycemia, hyponatremia, medication, substance intoxication, or substance withdrawal (particularly benzodiazepines); following a patient's first seizure, a thorough evaluation including the patient's history, laboratory testing, and imaging are required to distinguish between possible etiologies (table 4 and table 5). Subsequent seizures that follow the reduction or cessation of alcohol use, and do not have new features such as head trauma or fever, do not require the same degree of evaluation. (See "Evaluation and management of the first seizure in adults".)

Alcohol hallucinosis — Visual hallucinations are present in a variety of conditions including retinal pathology, visual loss, psychiatric disease such as schizophrenia, and delirium. The visual hallucinations in alcohol withdrawal are usually (though not always) distinctive because they are associated with other signs and symptoms of withdrawal such as tremor, tachycardia, hypertension, and diaphoresis. In contrast to hallucinations associated with delirium (whether related to alcohol withdrawal or other medical conditions), the patient generally has normal attention and orientation. (See "Approach to the patient with visual hallucinations".)

Withdrawal delirium — In contrast to alcohol withdrawal-associated hallucinosis or seizures, withdrawal delirium always follows earlier manifestations of withdrawal. Thus, in many patients with withdrawal delirium, the etiology is quite clear. Notable exceptions are the postoperative setting, or following a period of intubation and sedation for a medical condition in the ICU; in these contexts, patients' first evident symptom of withdrawal may be delirium. Here, a broader array of etiologies must be considered. (See "Identification and management of unhealthy alcohol use in the perioperative period", section on 'Alcohol withdrawal syndrome'.)

Patients with withdrawal delirium may or may not have autonomic instability. Particularly when this autonomic instability is absent or minor, the differential diagnosis encompasses most causes of delirium (table 6). (See "Diagnosis of delirium and confusional states".)

When autonomic instability accompanies withdrawal delirium, the differential is narrowed somewhat; considerations include sepsis, encephalitis, meningitis, hyperthermia, or drug induced processes such as neuroleptic malignant syndrome, anticholinergic toxicity, or intoxication with certain stimulants or dissociative anesthetics. Drugs to consider include cocaine, methamphetamine, phencyclidine, ketamine, or synthetic cathinones.

Obtaining history from family and/or close contacts familiar with the patient's patterns of alcohol use is pivotal in establishing alcohol withdrawal as a likely cause, particularly if the patient presents with delirium and other features of withdrawal, such as seizures, were not

witnessed; in many cases, comprehensive laboratory and drug testing with or without imaging will be needed to rule out other possible etiologies. (See 'Laboratory and other testing' above.)

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".)

INFORMATION FOR PATIENTS

UpToDate offers two types of patient education materials, “The Basics” and “Beyond the Basics.” The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on “patient info” and the keyword(s) of interest.)

- Basics topic (see "Patient education: Alcohol withdrawal (The Basics)")

SUMMARY AND RECOMMENDATIONS

- **Predictors of withdrawal** – Predictors for the development of withdrawal in patients with alcohol use disorder include consumption of more drinks per occasion and the presence of more alcohol-related problems and is likely to be related to greater physiologic dependence.

  Approximately half of patients with alcohol use disorder experience alcohol withdrawal when they reduce or stop drinking. Patients who have not had any withdrawal symptoms more than 24 hours after cessation are unlikely to develop alcohol withdrawal. (See 'Epidemiology' above.)

- **Clinical presentation and course** – Without treatment, symptoms of alcohol withdrawal generally begin within 6 to 24 hours of the last drink or a sudden reduction in chronic alcohol drinking (table 1). (See 'Clinical presentation and course' above.)

  - **Mild withdrawal** – Mild withdrawal symptoms include anxiety, agitation, restlessness, insomnia, tremor, diaphoresis, palpitations, headache, and alcohol craving, and often loss of appetite, nausea, and vomiting. Physical signs include tachycardia hypertension, hyperactive reflexes, and tremor. (See 'Mild withdrawal' above.)

  - **Severe alcohol withdrawal syndrome** – Severe manifestations of alcohol withdrawal occur in an estimated 20 percent of patients who experience withdrawal symptoms, such as hallucinations, seizures, and delirium tremens. Withdrawal seizures and delirium are sometimes grouped as part of severe alcohol withdrawal syndrome. (See 'Alcohol hallucinosis' above and 'Withdrawal seizures' above and 'Withdrawal delirium' above.)

    A prior episode of seizure or delirium tremens appears to be predictive of the same complication developing later. However, a prior seizure does not consistently predict the occurrence of withdrawal delirium, and vice-versa. (See 'Severe alcohol withdrawal syndrome' above.)

- **Assessment** – We complete a comprehensive substance use evaluation in all individuals at risk for alcohol withdrawal. This includes assessment of recent use, last use, and previous treatment history, physical examination, laboratory tests, and serial monitoring of the withdrawal severity rating score using the Clinical Institutes Withdrawal Assessment Scale for Alcohol (table 3). (See 'Assessment' above.)

  Determining the level of care needed for appropriate withdrawal management is a key goal of the assessment of individuals with alcohol withdrawal. Steps for determining the level of care include determining the likelihood of severe withdrawal syndrome, evaluating for acute or chronic medical comorbidities, and determining the degree of support at home. Individuals likely withdrawing from two or more substances may require management in an inpatient setting.

- **Diagnosis** – Diagnosis of alcohol withdrawal can be made using the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) diagnostic criteria. Alcohol withdrawal has a broad differential diagnosis depending on the clinical presentations of early withdrawal symptoms, withdrawal seizures, hallucinations, and/or delirium, so clinicians should be alert for coexisting serious acute medical conditions. (See 'Diagnosis' above.)

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