Alcohol withdrawal

Clinical features

- Severity increase with amount consumed; uncommon with < 6 drinks per day.
- Predictable pattern: patients with previous withdrawal seizures are at high risk for recurrence.
- Begins 6–12 hours after last drink.
- Usually resolves within 2–3 days, may last up to 7 days.
- Most reliable signs: sweating, postural or intention tremor (not resting).
- Other signs: tachycardia, reflexia, ataxia, disorientation.
- Symptoms: anxiety, nausea, headache, tactile/auditory/visual disturbances.

Baseline investigations

- CBC, electrolytes, magnesium, calcium, phosphorus
- Hepatic transaminases, bilirubin, albumin, INR
- BAL
- ECG

Clinical Institute Withdrawal Assessment for Alcohol, revised (CIWA-AR) scale

NAUSEA AND VOMITING Ask "Do you feel sick to your stomach? Have you vomited?" Observation 0 no nausea and no vomiting 1 2 3 4 intermittent nausea with dry heaves 5 6 7 constant nausea, frequent dry heaves and vomiting	**AGITATION** Observation 0 normal activity 1 somewhat more than normal activity 2 3 4 moderately fidgety and restless 5 6 7 paces back and forth during most of the interview, or constantly thrashes about
TREMOR Arms extended and fingers spread apart Observation 0 no tremor 1 not visible, but can be felt fingertip to fingertip 2 3 4 moderate, with patient's arms extended 5 6 7 severe, even with arms not extended	**TACTILE DISTURBANCES** Ask "Have you any itching, pins and needles sensations, any burning or numbness, or do you feel bugs crawling on 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

PAROXYSMAL SWEATS Observation 0 no sweat visible 1 barely perceptible sweating, palms moist 2 3 4 beads of sweat obvious on forehead 5 6 7 drenching sweats	**AUDITORY DISTURBANCES** Ask "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 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
ANXIETY Ask "Do you feel nervous?" Observation 0 no anxiety, at ease 1 mildly anxious 2 3 4 moderately anxious, or guarded, so anxiety is inferred 5 6 7 equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions	**VISUAL DISTURBANCES** Ask "Does the light appear to be too bright? Is its colour different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things you know are not there?" Observation 0 not present 1 very mild sensitivity 2 mild sensitivity 3 moderate sensitivity 4 moderately severe sensitivity 5 severe hallucinations 6 extremely severe hallucinations 7 continuous hallucinations
HEADACHE, FULLNESS IN HEAD Ask "Does your head feel different? Does it feel like there is a band around your head?" Do not rate for dizziness or light-headedness. Otherwise, rate severity. Observation 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** Ask "What day is this? Where are you? Who am I?" Observation 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 calendar days 4 disoriented for place and/or person

Management

1. Replace electrolytes, glucose as needed
2. Administer IV fluids as needed
3. Benzodiazepines (see below)
4. Thiamine 300mg PO or 100mg IM

Diazepam	**Preferred agent** due to long half-life. 10–20 mg PO q 1–2 H for CIWA-Ar ≥ 10. If patient cannot take diazepam orally **or** if patient is in severe withdrawal, give diazepam 10–20 mg IV q 1–2H. In patients with clear signs and symptoms of alcohol withdrawal **and** a history of withdrawal seizures, minimum loading dose of diazepam 20 mg PO q 1H x 3, regardless of CIWA-Ar score. Avoid diazepam and use small doses (e.g., 0.5–2 mg) of lorazepam if: • Intoxication (estimated BAC > 30-40 mmol/l) • Liver dysfunction and failure • Low serum albumin • Elderly • On opioids or methadone • Pneumonia or COPD
Lorazepam	**Second choice agent** due to short half-life. 2–4 mg PO, SL, IM, IV q 1–2 H for CIWA-Ar ≥ 10. In patients with clear signs and symptoms of alcohol withdrawal **and** a history of withdrawal seizures, minimum loading dose of lorazepam 4 mg PO q 1H x3, regardless of CIWA-Ar score.
Indications for admission	• **Marked tremor, sweating worsening/not improving** despite 80 mg diazepam or 16 mg lorazepam • Two or more seizures • QT interval > 500 msec, not resolving • Repeated vomiting, dehydration, electrolyte imbalance • Impending or early DTs: confusion, disorientation, delusions, agitation • Suspected Wernicke's encephalopathy: opthalmoplegia, ataxia, confusion • Serious concurrent medical or psychiatric illness (e.g., pneumonia)

Discharge	• Treatment completed with CIWA-Ar < 8 on two consecutive measurements, with minimal tremor. • Thiamine 300 mg PO OD x 1 month. • Patient should not be discharged until their withdrawal has **fully resolved**. Discharging patient early reduces length of stay, but relapse is highly likely if patient leaves hospital still in withdrawal. Reduce length of stay by dispensing benzodiazepines every hour. • Benzodiazepines should **not** be prescribed on discharge: they are unnecessary if withdrawal is fully resolved, they increase risk of harm (e.g., aspiration, trauma) if patient relapses, and patients with alcohol use disorders are at high risk for developing benzodiazepine co-dependency. • **Refer to rapid access addiction medicine clinic** for treatment of alcohol use disorder. • Refer to withdrawal management services if withdrawal not fully resolved, lacks social supports, or in crisis. • See family doctor in 1–2 days.
Sample orders	• CBC, electrolytes, Ca, Mg, PO4, BUN, creatinine, glucose, AST, ALT, GGT, albumin, bili, INR • ECG • CIWA-Ar q 1 H • Diazepam 20 mg PO q1–2 h if CIWA-Ar ≥ 10 • Hold if drowsy • D/C CIWA-Ar when score < 8 x 2, and patient has minimal tremor • Thiamine 300 mg PO or 100 mg IM

Complications of withdrawal

Seizures	Grand mal, non-focal, brief. Usually occurs 2–3 days after last drink.	Diazepam 20 mg PO q 1–2 H or lorazepam 2–4 mg SL/PO/IM/IV for at least 3 doses for patients with Hx of withdrawal seizures. Phenytoin ineffective Investigate if first seizure > 40 years; focal features; outside time frame; or head trauma
Tachyarrhythmia	Increased risk with age, cardiomyopathy, severe withdrawal, low K^+, Mg^+, cocaine use, other substances or conditions that prolong QT interval.	ECG in all patients with prolonged QT interval If QTc > 500 msec, consider monitored bed, or serial ECG measurement every 1–2 hours Treat withdrawal aggressively: diazepam 20 mg q 1H or lorazepam 4 mg q 1H until tremor and QT prolongation have resolved Correct electrolyte imbalance
Hallucinations without delirium	Usually tactile but may be auditory or visual. Patient oriented, knows hallucinations are unreal.	Continue benzodiazepine treatment per protocol Avoid antipsychotics – can prolong QT interval

Co-occurring conditions

Decompensated cirrhosis	Firm liver, spider nevae. History of ascites, portal hypertension, esophageal varices. High bilirubin, low albumin, high INR.	Benzodiazepines can trigger hepatic encephalopathy Do not treat mild withdrawal Use lorazepam 0.5–1 mg for moderate withdrawal DC treatment when tremor improved May require hospital admission
On methadone or opioids	Benzodiazepines can cause sedation and respiratory depression, even if patient is on stable methadone/opioid dose.	Use lorazepam 0.5-1mg DC treatment when tremor improved

Alcohol withdrawal delirium (delirium tremens)

Clinical features	More common with acute medical illness (e.g., pneumonia, post-surgery). Starts day 3–5, preceded by severe withdrawal symptoms, including seizures. Autonomic hyperactivity with agitation, sweating, tremor, tachycardia, fever. Disorientation, delusions, vivid hallucinations. Often marked sundowning. Death can occur from QT prolongation and fatal arrhythmias. Also risk of flight and violence.
Non-medication orders	Telemetry or serial ECGs, especially if QT interval prolonged. Daily CBC, Na^+, K^+, CO_2, creatinine, magnesium. O_2 sat monitoring. Restraints, sitter as needed.
Lorazepam load	Early and aggressive use of lorazepam will shorten duration and intensity of DTs. CIWA-Ar protocol is not useful. • Lorazepam 4 mg SL/PO q ½ H x 4, then reassess. • Continue 4-dose lorazepam cycle until symptoms resolve. Then continue lorazepam 2 mg q 2 H as standing order, taper dose over next few days. Consider more gradual load (e.g., lorazepam 0.5–1 mg q 1 H) if: • Liver failure with ascites, etc. • Methadone patients • The frail elderly • Active pneumonia • COPD with compromised respiratory function
Phenobarbital	Consider in patients in severe DTs who are not responding to high doses of lorazepam.
Antipsychotics	Both typical and atypical antipsychotics should be avoided during DTs as they can prolong QT interval. Manage agitation with benzodiazepines, phenobarbital.
Indications for ICU admission and propofol, midazolam	Patient remains agitated and delirious despite 48 mg of lorazepam over six hours, **OR** aggressive loading contraindicated.