Acute Alcohol Withdrawal and Delirium Tremens

This article focuses specifically on acute alcohol withdrawal and delirium tremens. The National Institute for Health and Care Excellence (NICE) has developed guidelines for the clinical management of alcohol use disorders and this article is based on these.[1]

See related separate articles Alcoholism and Alcohol Abuse - Recognition and Assessment, Alcoholism and Alcohol Abuse - Management and Alcohol-related Problems.

Epidemiology

- If untreated, 6% of alcohol-dependent patients develop clinically relevant symptoms of withdrawal, with up to 10% of those experiencing delirium tremens.[2]
- Up to one third of people experiencing significant alcohol withdrawal may experience an alcohol withdrawal seizure.[3]

Acute alcohol withdrawal

Acute alcohol withdrawal can be a complex issue. Some patients have mild symptoms and can be managed in the community depending on their clinical assessment at that time; others have more severe symptoms or a history of adverse outcomes and need close inpatient supervision.[4]

Problems associated with alcohol withdrawal can include:[4]

- Uncomfortable withdrawal symptoms.
- Delirium tremens.
- The Wernicke-Korsakoff syndrome.
- Seizures.
- Depression.
- Polysubstance abuse.
- Electrolyte disturbances.
- Complications due to associated liver disease.

Presentation

This may be in a number of different ways:[5]

- A patient may present in acute alcohol withdrawal.
- A patient may be admitted to hospital for another reason and thus an unplanned alcohol withdrawal may be precipitated. Alcohol-use disorders can complicate the assessment and treatment of other medical and psychiatric problems.
- A patient may present wishing to abstain from alcohol but be seen as at risk of acute alcohol withdrawal.
Withdrawal symptoms:

- Symptoms typically present about eight hours after a significant fall in blood alcohol levels. They peak on day 2 and, by day 4 or 5, the symptoms have usually improved significantly.

- Minor withdrawal symptoms (can appear 6-12 hours after alcohol has stopped):[6, 7]
  - Insomnia and fatigue.
  - Tremor.
  - Mild anxiety/feeling nervous.
  - Mild restlessness/agitation.
  - Nausea and vomiting.
  - Headache.
  - Excessive sweating.
  - Palpitations.
  - Anorexia.
  - Depression.
  - Craving for alcohol.

- Alcoholic hallucinosis (can appear 12-24 hours after alcohol has stopped):[6]
  - Includes visual, auditory or tactile hallucinations.

- Withdrawal seizures (can appear 24-48 hours after alcohol has stopped):[3, 6]
  - These are generalised tonic-clonic seizures.

- Alcohol withdrawal delirium or ‘delirium tremens’ (can appear 48-72 hours after alcohol has stopped):[6]

History

Ask about:

- Quantity of alcoholic intake and duration of alcohol use.
- Time since last drink.
- Whether previous alcohol withdrawals have been attempted.
- Medical history including psychiatric history.
- Drug history (including prescribed drugs and drugs of abuse and any drug allergies).
- Support network.

Note that many patients may not actually be trying to stop drinking. They may either have an intercurrent illness stopping them from drinking or problems with alcohol availability.

Management of alcohol withdrawal

The aim of medically assisted withdrawal is to prevent complications including seizures and delirium tremens, as well as making withdrawal more comfortable for the patient and providing an environment where interventions that can help maintain abstinence may be introduced.

Decide on whether the patient needs to be admitted to hospital

- Previous delirium tremens or alcohol withdrawal seizures or presence of autonomic overactivity or age <18 years are all associated with a higher risk of developing acute alcohol withdrawal and these patients should be admitted. Also, consider admission if there are concerns about the patient's safety - eg, living alone or with psychiatric problems. Patients who have failed detoxification at home should also be admitted and it should be considered in those who have other substance abuse.
- Patients with suspected Wernicke's encephalopathy need urgent admission for treatment with intravenous thiamine.
**Is medication always needed for detoxification?**

Medication may not be needed for detoxification if:

- A male patient is drinking <15 units/day or a female patient is drinking <10 units/day AND they do not report any recent withdrawal symptoms or recent drinking to prevent withdrawal symptoms.
- The patient has no alcohol on breath test and no withdrawal signs or symptoms.

A scale has also been suggested to assess the severity of the alcohol withdrawal syndrome: the revised Clinical Institute Withdrawal Assessment for Alcohol scale (CIWA-Ar). [8]

**Medications for acute alcohol withdrawal**

**Benzodiazepines**[7]

- Benzodiazepines are the recommended drugs for detoxification. They have a slower onset of action and therefore are less likely to lead to abuse. A reducing dose of chlordiazepoxide over 5-7 days is commonly used. [9]
- Ideally, see the patient daily and dispense the medication daily.
- Diazepam is an alternative.
- You can check for alcohol on the breath or use a breathalyser to confirm that the patient is abstinent.
- Stop the benzodiazepine once detoxification is complete or if the patient relapses and starts drinking again during detoxification.
- A British Medical Journal (BMJ) review has suggested the following regimen for moderate alcohol dependence in the community or as an inpatient:
  - Day 1: 20 mg chlordiazepoxide four times daily.
  - Day 2: 15 mg chlordiazepoxide four times daily.
  - Day 3: 10 mg chlordiazepoxide four times daily.
  - Day 4: 5 mg chlordiazepoxide four times daily.
  - Day 5: 5 mg chlordiazepoxide twice daily.

  - Dose depends on factors including level of alcohol dependence, sex, weight and current liver function. Smaller doses may be needed for mild dependence and larger doses for severe dependence. People at high risk of seizures or delirium tremens may need a longer period of treatment (maximum of two weeks).
  - For mild/moderate alcohol detoxification in secondary care, some hospitals have a system whereby regular reducing doses of chlordiazepoxide are not given due to concerns about sedative effects. They have a point score where nurses regularly make an assessment and, depending on the patient's score, they are given a certain dose of benzodiazepine (usually diazepam).
  - The patient should not drive whilst undergoing benzodiazepine detoxification.

**Thiamine**

- Thiamine deficiency is common in people who are alcohol-dependent, due to their poor diet, the presence of gastritis which can affect its absorption and also the fact that it is a coenzyme in alcohol metabolism.
- Deficiency can cause Wernicke's encephalopathy, which if left untreated, can lead to Korsakoff's syndrome.
- Oral thiamine is poorly absorbed in dependent drinkers. For this reason, all those undergoing detoxification in the community should be considered for admission for parenteral high-potency B complex vitamins (Pabrinex®) as prophylactic treatment. However, because of the risk of anaphylaxis, resuscitation facilities need to be available at the time of administration. The risk of anaphylaxis is lower if the drug is given intramuscularly (IM).
- As prophylactic treatment, one pair of ampoules of Pabrinex® should be given IM or intravenously (IV) once a day for three to five days. A pair of ampoules contains 250 mg of thiamine.
- If the patient is healthy and well-nourished and alcohol dependence is uncomplicated then an alternative is oral thiamine at a minimum dose of 300 mg per day during detoxification (given as divided doses).
- Ongoing prescription of lower doses of thiamine is suggested if there is concern about chronic deficiency after this. NICE Clinical Knowledge Summaries (NICE CKS) recommends that 50 mg daily be taken. [10]

**Other drugs**[8]

- Clomethiazole may be better than benzodiazepines in preventing alcoholic delirium but it is more likely to lead to dependence and there is also a problem with toxicity if there is significant hepatic impairment. It is suggested that it be reserved for second-line use in an inpatient setting.
- Carbamazepine isn’t recommended for routine use but it may be useful if there is a history of withdrawal seizures.
- Antipsychotic drugs should not be routinely used.

Patients may also need to be referred to other specialities - eg, hepatologists, psychiatrists.

**Delirium tremens**

This is a medical emergency. A hyperadrenergic state is present.

**Clinical features**
Delirium tremens usually begins 24-72 hours after alcohol consumption has been reduced or stopped.\(^{[11]}\)

The symptoms/signs differ from usual withdrawal symptoms in that there are signs of altered mental status. These can include:\(^{[12]}\)

- Hallucinations (auditory, visual, or olfactory).
- Confusion.
- Delusions.
- Severe agitation.

Seizures can also occur.

Examination may reveal signs of chronic alcohol abuse/stigmata of chronic liver disease. There may also be:

- Tachycardia.
- Hyperthermia and excessive sweating.
- Hypertension.
- Tachypnoea.
- Tremor.
- Mydriasis.
- Ataxia.
- Altered mental status.
- Cardiovascular collapse.

**Risk factors\(^{[6]}\)**

- Previous history of delirium tremens.
- Previous history of alcohol withdrawal seizures.
- Co-existing infection or medical problems including pancreatitis or hepatitis.
- Recent higher-than-normal levels of alcohol intake.
- Older age.
- Abnormal liver function.
- More severe withdrawal symptoms on presentation.
**Investigations**

This is a clinical diagnosis and there is often a known history of alcohol misuse/dependence.

- Blood tests can help to assess other medical problems. Dehydration and electrolyte disturbance may be present. Tests can include:
  - FBC.
  - LFTs.
  - Clotting.
  - Arterial blood gases (to look for metabolic acidosis).
  - Glucose.
  - Blood alcohol levels.
  - U&Es and creatinine.
  - Amylase.
  - Creatine phosphokinase (especially if the patient was unconscious for a long time, due to risk of rhabdomyolysis).
  - Blood cultures (if there are concerns about infection).

- CXR should be considered if there are signs of respiratory distress. Co-existing pneumonia is common. There is also the possibility of aspiration, especially if reduced consciousness or seizures have occurred.
- CT scan of the head may be needed if there are seizures or there is evidence of a recent head injury.
- ECG may show an arrhythmia.

**Management**

- This should be in a hospital setting. Intensive care may be needed for very unwell patients.
- It should first include assessment and management of ‘Airway, Breathing and Circulation (ABC)’.
- Any hypoglycaemia should be treated.
- Sedation with benzodiazepines is suggested. Diazepam has a rapid onset of action.
- Addition of barbiturates may also be necessary in those refractory to benzodiazepine treatment and may reduce the need for mechanical ventilation in very unwell patients in the intensive care unit.[13, 14]
- Patients with delirium tremens may also have Wernicke’s encephalopathy and should be treated for both conditions.[7]
  - At least two pairs of ampoules of Pabrinex® (500 mg thiamine) should be given IV three times daily for three days.
  - If the patient does not respond, treatment should be discontinued.
  - If signs or symptoms respond to treatment, continue with two ampoules of Pabrinex® once daily for five days or for as long as improvement continues.
- Magnesium may also protect against seizures and arrhythmias.

**Prognosis**

- The mortality rate can be up to 35% if untreated but is less than 2% with early recognition and treatment.[15]

**Follow-up after detoxification and acute alcohol withdrawal**

- Close follow-up is needed.
- Counselling, self-help and groups including Alcoholics Anonymous may be helpful.
- In those discharged from secondary care, involvement of the patient’s GP (with their permission) should be encouraged.
- Drugs can be used in abstinence to help prevention of relapse. These are discussed in the separate Alcoholism and Alcohol Abuse - Management article.
- Any co-existing medical and psychological problems should also be addressed.
Prevention of acute alcohol withdrawal and delirium tremens

- If problem drinking is identified early, it may mean that complications, including severe alcohol withdrawal and delirium tremens, are avoided.
- Patients admitted to hospital should also be screened for alcohol dependence.

Further reading & references

- Alcohol withdrawal syndrome: how to predict, prevent, diagnose and treat it; Prescriber Int. 2007 Feb;16(67):24-31.
- Alcohol - problem drinking; NICE CKS, July 2013 (UK access only)

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