IRISH ASSOCIATION FOR EMERGENCY MEDICINE

IAEM Clinical Guideline

Management of Acute Alcohol Withdrawal Syndrome in the Emergency Department

Version 1

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GLOSSARY OF TERMS

AWS	Acute Withdrawal Syndrome
CDU	Clinical Decision Unit
DTs	Delirium Tremens
ED	Emergency Department
FDR	Fixed-dose regimen
GI	Gastrointestinal
GP	General Practitioner
STT	Symptoms-triggered treatment
WE	Wernicke's Encephalopathy
ICD-11	International Classification of diseases, the 11th revision
WHO	World Health Organization

PARAMETERS

Target audience All healthcare professionals who provide clinical care to patients who present in the acute setting with symptoms of alcohol withdrawal.

Patient population Adults (> 16 year old) who present to the **ED** or **CDU** in acute alcohol withdrawal (tremor, agitation, nausea/vomiting) and/or autonomic hyperactivity (sweating, tachycardia).

Patients not in withdrawal but with a clear history (cessation of alcohol following drinking >10 units per day, previous withdrawal or delirium tremens) are also considered.

Exclusion criteria:

- Age less than 16.
- Patients with dependency on other drugs in addition to alcohol.
- Patients with severe liver impairment, respiratory failure or other major physical illness.
- Patients who are either “non-verbal”, unable to communicate or give verbal consent.
- Haemodynamically unstable patients or patients with delirium Tremens (DTs), Wernicke’s Encephalopathy and Korsakoff’s syndrome, who would require inpatient admission.

In patients with history of benzodiazepine dependency, use alternative fixed-dose regime with Chlordiazepoxide.

Management of acute Alcohol Withdrawal Syndrome in the Emergency Department

INTRODUCTION

The management of alcohol misuse and alcohol-related morbidity places a significant burden on our acute hospitals. Alcohol misuse contributes to 20-25% of all hospital admissions and is a risk factor for many serious conditions including cancers, heart disease, stroke, accidents and suicide[1]. Ireland has become the 4th heaviest drinking nation in terms of quantity consumed and ranked joint third for binge-drinking in a World Health Organisation (WHO) analysis[2]. Nearly 200,000 people (4% of the population) are dependent drinkers and most drinking is done through binge drinking[2]. In 2015, alcohol was responsible for 14% of all poisoning deaths and implicated in 31%[3]. More than 50% of adults drink in a hazardous way[2].

In the general hospital setting, alcohol misuse is often undetected with up to 30% of inpatients demonstrating evidence of 'hazardous drinking' when systematically screened. The number of people discharged from hospital whose condition was wholly attributable to alcohol rose by 82% (9,420 to 17,120) between 1995 and 2013 [4]. There has also been an increase in the average length of stay in hospital from 6.0 to 10.1 days over this time, suggesting that patients are becoming more complex[4].

The cost of alcohol-related discharges from hospital in 2012 was 1.5 billion euro – that is equal to €1 for every €10 spent on public healthcare in the same year. This excludes the cost of emergency cases, General Practitioner (GP) visits, psychiatric admissions and alcohol treatment services. **Early detection and appropriate management of Alcohol Withdrawal Syndrome (AWS) ensures an uneventful withdrawal, with shorter hospital stay, and reduced re-admission rates[4].**

ALCOHOL SCREENING IN THE EMERGENCY DEPARTMENT

All patients presenting to the ED should be screened for alcohol misuse. The goals of screening for alcohol consumption are to identify those with evidence of an active problem and to estimate the patient's level of risk. This screening paves the way for further assessment, definitive diagnosis, and a treatment plan.

"Risky use" or "hazardous use" is defined (in a non-alcohol-dependent person or one with no alcohol-related consequences) as more than 7 standard drinks per week or more than three per occasion for women, and more than 14 standard drinks per week or more than four per occasion for men.

In Ireland, one standard drink/ unit of alcohol has about 10gram of pure alcohol in it, e.g. a half pint of 3.5% beer or lager, or one 25 ml pub measure of spirits.

Picture 1: Definition of one standard drink in Ireland (Image from drugs.ie)

Screening tools can be used for alcohol screening in the ED. The most commonly used are the AUDIT-C and CAGE questionnaires (Appendix 1). The AUDIT-C questionnaire has been found not only to have a high sensitivity and specificity for identifying alcohol dependence, but also to be more sensitive than the CAGE questionnaire (85% vs 75%) for identifying harmful drinking, hazardous drinking, and at-risk drinking[9].

Definition of AWS and severe symptoms of alcohol misuse such as DTs and Wernicke's Encephalopathy are discussed in Appendix 2. Risky or hazardous use of alcohol will benefit from a brief intervention by ED staff (Appendix 3). They will benefit from oral thiamine as long as their drinking continues, referral to the Local Alcohol Treatment / Addiction Liaison Services (if available) and GP follow up.

SYMPTOM-TRIGGERED DETOXIFICATION

CIWA-Ar (Clinical Institute Withdrawal Assessment for Alcohol Withdrawal, revised version) has been shown to be a useful tool in objectively measuring the severity of alcohol withdrawal (Appendix 4). It is a 10-item scale that can be used to monitor a patient's symptoms during hospital admission. Scoring guides whether medication is required at any point in time. More importantly, the scores are reproducible between scorers, with a high inter-rater reliability[1]. The evaluation is simple and takes less than 2 minutes to perform.

The aim of this guideline is to use a ***'Symptom-triggered treatment'*** **(STT) approach** in comparison to a 'Fixed-dose regimen' (FDR), which is more commonly used in the wards in acute hospitals. STT involves more frequent monitoring of withdrawal symptoms and involves earlier prescribing of benzodiazepines in most cases. Because of this, STT detoxification has a more favorable outcome than FDR[5]. This has been shown to reduce hospital length of stay[1,6,7,8], the number of re-admissions[1,7], the overall dose of benzodiazepine required[5,9], and the severity of withdrawal symptom

sequelae (i.e. seizures, agitation, hallucinations)[1]. Furthermore, STT reduces the likelihood of under or over-treating a patient in AWS when compared to FDR[1,5]. In general, FDR is more suitable for out-patient treatment where monitoring is not available[10].

Benzodiazepines are proven to reduce withdrawal severity and incidence of both seizures and DTs [5,11,12]. While any benzodiazepine can be used (chlordiazepoxide, lorazepam), diazepam is preferred in this guideline. Diazepam has the shortest time to peak effect, which facilitates rapid control of symptoms. It's long elimination half-life mediates a smoother withdrawal with a reduction in rebound and breakthrough symptoms[11].

MANAGEMENT OF PATIENTS ADMITTED TO CDU WITH ALCOHOL WITHDRAWAL SYNDROME (Figure 1)

1. Regular vital signs and neurological observation every 90 minutes.
2. Routine blood investigations including FBC, U&E, Liver profile, Glucose and Coagulation test (if liver disease is suspected)
3. Prophylaxis against Wernicke-Korsakoff syndrome should be given to all alcohol-dependent patients in ED/ CDU as follows
    - Pabrinex (1&2) once a day IV for 3 days (or for the duration of their stay)
4. In patients with signs of **Wernicke-Korsakoff syndrome** (delirium, ataxia, gaze palsy)
    - Give IV thiamine prior to glucose if possible
    - Give therapeutic dose of Pabrinex 2 pairs (1&2) TDS IV
5. Regular CIWA-Ar scoring performed at ***90 minutes intervals***. Treat alcohol withdrawal with **Diazepam** based on CIWA-Ar score.

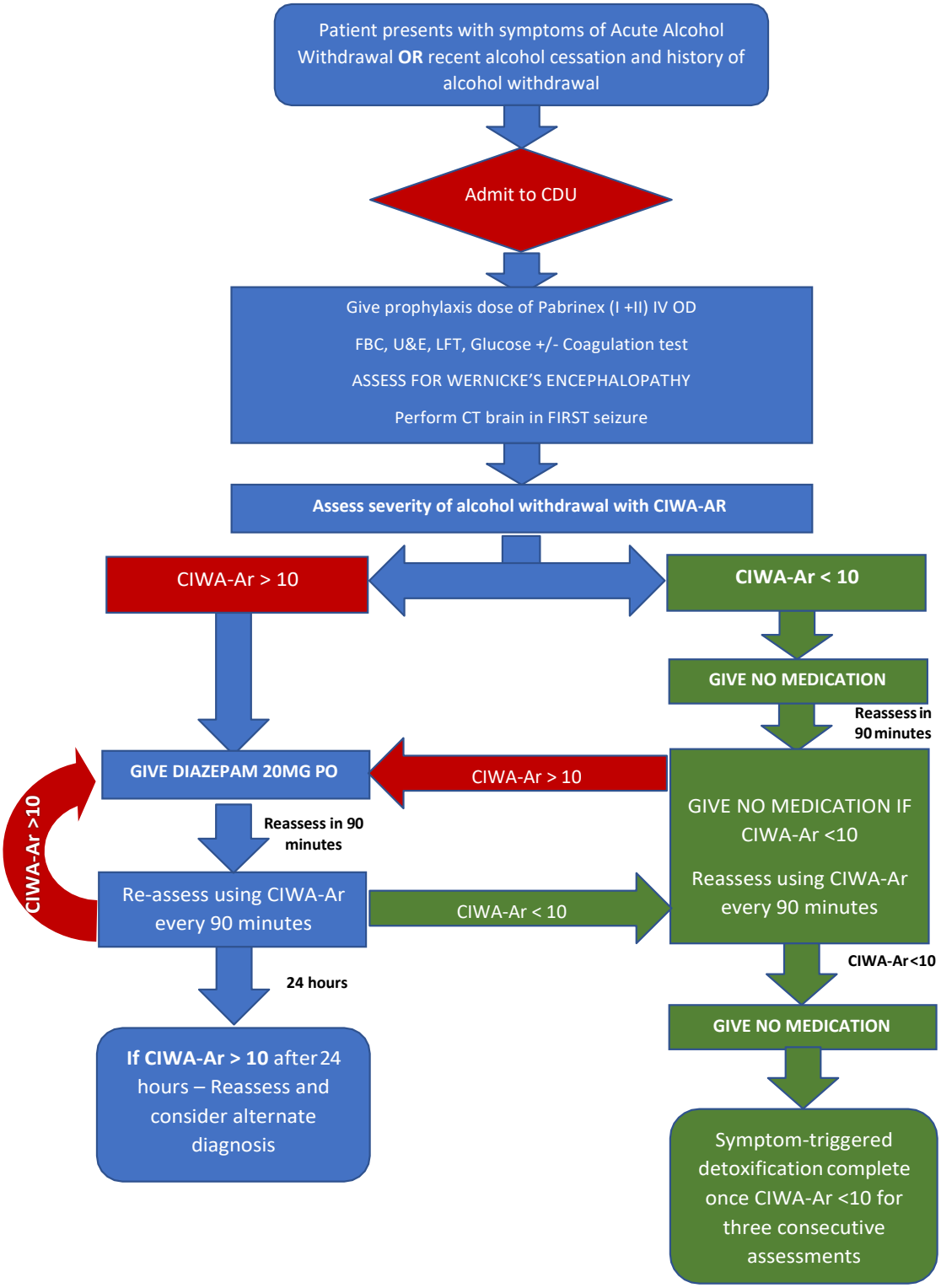
- Absent to minimal withdrawal (score of 0-9): No treatment indicated, repeat CIWA-Ar in 90 min
- Mild to moderate withdrawal (score of 10-19): Diazepam 20mg stat PO, repeat CIWA-Ar in 90 min
- Severe withdrawal (score > 20): Diazepam 20mg stat PO, repeat CIWA-Ar in 90 min. CIWA-Ar can be repeated every 30-60 minutes in severe withdrawal.

6. Look for deranged LFTs and for stigmata of chronic liver disease; consider Gastroenterology/Hepatology referral.
7. Perform CT brain in FIRST seizure in patient with AWS. Recurrent withdrawal seizures can be treated with lorazepam/ phenytoin IV.
8. **If CIWA-Ar>10 after 24 hours**, then
    - Reassess and consider other diagnoses such as benzodiazepine dependency, drug seeking behavior, organic agitation as part of delirium or other cause.
    - Consider other drug treatment strategies and, if necessary, investigate further.
    - SST can be extended after 24 hours after review by senior clinician.

Diazepam 10 mg = chlordiazepoxide 25mg = lorazepam 1mg

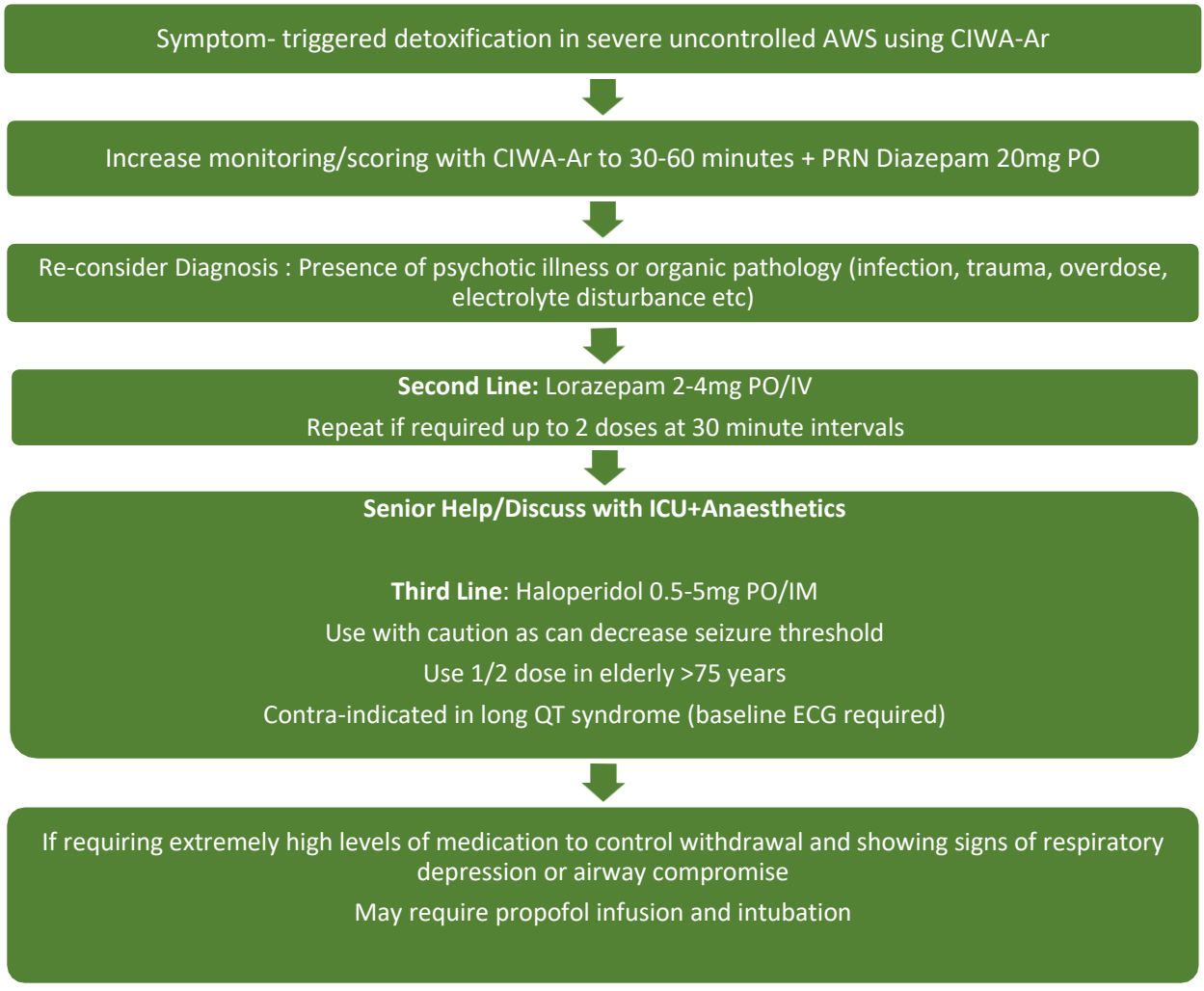
SST aims at more frequent monitoring and scoring of withdrawal symptoms. By identifying moderate/severe symptoms earlier than would be indicated in a 'Fixed dose' treatment plan, patients benefit from a smoother and shorter withdrawal period. Patients in severe withdrawal may require PRN doses of Diazepam well before the next review/scoring period of 90 minutes. After patients have completed three successive assessments with a CIWA-Ar score of <10, the withdrawal period is deemed to be complete.

Figure 1: Management of patient admitted to CDU with acute Alcohol Withdrawal Syndrome



MANAGEMENT OF UNCONTROLLED ALCOHOL WITHDRAWAL SYNDROME

In some patients who are undergoing severe withdrawal, oral Diazepam may not be enough to control symptoms of withdrawal, such as seizures or extreme agitation. In this instance, patients should be reviewed and scored at 30 or 60 minute intervals rather than 90 minute. Any dose of breakthrough benzodiazepine prescribed on a PRN basis should be the same as the regularly prescribed dose, i.e. Diazepam 20mg PO. Also consider second line agent (Lorazepam) and third line agent (Haloperidol) in patients who aren't settling with Diazepam. For refractory cases, seek senior help. Consider anaesthesiology review, and some patients may require a propofol infusion and intubation. **Think of other differential diagnoses such as infection, benzodiazepine dependency, subdural haematoma/intracerebral hemorrhage etc.**



CRITERIA FOR ADMISSION TO CDU

Criteria for STT in CDU:

1. Patient in the ED
2. Patient in obvious acute withdrawal i.e. hand tremor, agitation; CIWA-Ar score>10 (see Appendix 4 for scoring details); autonomic hyperactivity (ie sweating, pulse>100).
3. Patient not in withdrawal but high risk of withdrawal and related complications (drinking >10 units per day, previous withdrawal delirium or withdrawal seizures)

Please refer to local guideline for CDU admission criteria.

Criteria for Medical Admission

1. Haemodynamically unstable patients.
2. Patients who are unlikely to be fit for discharge within 24 hours.
3. Complex medical/surgical problems such as diabetic keto-acidosis, pyrexia of unknown origin.
4. Patients with DTs/ Wernicke's Encephalopathy or Korsakoff's syndrome are not suitable for CDU admission, therefore will benefit from inpatient admission under medical team.

SPECIAL PATIENT POPULATIONS

There are 3 groups of patients that need special consideration when considering detoxification with benzodiazepines, due to physiological differences and altered pharmacokinetics. The first group are those with **liver disease**, the second are **the elderly** as liver metabolism is altered[7] and the third are those who are **pregnant**.

It has been shown that benzodiazepine oxidation is decreased in people with liver disease and the elderly, resulting in accumulation of unwanted metabolites. Administration of Chlordiazepoxide and Diazepam can ultimately result in excessive sedation and respiratory depression[13.] It is thus recommended to use half the dose of Diazepam/Chlordiazepoxide or to use Lorazepam due to its shorter half-life[14]. In severe cases where a pregnant woman is at great risk, monitored detoxification with foetal monitoring should be considered. Mothers that require detoxification beyond 36 weeks will need close monitoring of the neonate after delivery to detect/avoid floppy baby syndrome or benzodiazepine withdrawal syndrome[14,15].

Patient Population	**Advice**
Liver Impairment/disease	Patient with abnormal liver enzyme but no clinical evidence of liver failure with normal bilirubin and albumin & Prothrombin time are suitable for chlordiazepoxide **Moderate liver disease** - half dose of Diazepam/ chlordiazepoxide or use Lorazepam (shorter ½ life) **Decompensated liver disease** - close monitoring, Lorazepam preferred as metabolism is not impaired *monitor for over-sedation and encephalopathy*
Elderly (>75 years or >65 years with frailty)	Vulnerable to over-sedation and respiratory depression Reduce usual doses by half Dosage intervals can be increased if necessary Consider Lorazepam as alternative (shorter half-life)
Pregnant patients	Inpatient management under Obstetrics Continuous monitoring of fetus (especially in later pregnancy) Preference for Chlordiazepoxide as lower teratogenic risk If close to delivery, close monitoring of baby as risk of floppy baby syndrome and benzodiazepine withdrawal syndrome

COMPANION DOCUMENTS

1. Link to alcohol section on the Cork University Hospital Clinical Guideline

   http://emed.ie/Toxicology/Alcohol/Index.php

2. Appendix 1: Screening tool for alcohol misuse
3. Appendix 2:Alcohol presentation to the ED/ definitions
4. Appendix 3: Brief intervention for risky/ hazardous drinkers
5. Appendix 4: CIWA-Ar
6. References