ALCOHOL WITHDRAWAL by Nick Mark MD & Mark Ramzy DO

ONE
onepagericu.com
@MRamzyDO
@Nickmmark
Link to the most current version →

BACKGROUND/DEFINITIONS:

Ethanol is the most common drug of abuse in the world, by far the most costly in lives lost and dollars spent. 5% of Americans are **heavy drinkers** (≥8 drinks/wk for ♀ or ≥15 drinks/wk for ♂) and 50% of heavy drinkers experience alcohol withdrawal. Despite the frequency, alcohol withdrawal (or AWS) is frequently misdiagnosed (and under-treated) in the ICU. Heavy drinking for as little as 15 days is sufficient to precipitate EtOH W/D.

PATHOPHYSIOLOGY:

Consumption of large quantities of EtOH leads to constitutive GABAergic signaling and compensatory upregulation of NMDA and other excitatory neurotransmitters. Removal of EtOH & its inhibitor effects leads to over-excitation of neurons. This causes a range of syndromes over hours to days.

SCORING ALCOHOL WITHDRAWAL SYNDROME (AWS):

Use of a structured tool for assessing severity of AWS can facilitate diagnosis, track severity, and directly trigger treatment. Several exist:

PAWSS:
- Validated 10 item questionnaire divided into 3 parts combines interview, blood EtOH level, Sx
- Screening tool used to identify patients at risk for severe withdrawal (Se = 93% & Sp = 99.5%)
- Requires pt participation, limited by AMS
- Score ≥ 4 = HIGH RISK for moderate to severe withdrawal

CIWA-Ar
- Validated 10-item tool based on observations + participation
- Determines severity as sx are actively being experienced
- Can't differentiate b/w DTs & delirium from other causes
- Requires participation, limited by altered mental status
- Variability in scoring can limit accuracy by several points
- *Scores 0 – 9 = Absent/minimal · Scores 10 – 19 = Mild/moderate · Scores ≥ 20 = Severe w/d (high risk for impeding DTs)*
- **LIMITED BY EXCLUSION OF VITAL SIGNS**

AWS:
- Developed from CIWA-Ar to cover entire spectrum of withdrawal
- Operationalized 6 objective findings + 5 psych/behavioral symptoms
- Max score of 34 (17 for each of the two sections)
- Less reliant on patient's responses
- *Score 0 – 5 = Absent to minimal withdrawal*
- *Score 6 – 9 = Moderate withdrawal*
- *Score ≥ 20 = Severe withdrawal*

WORKUP

Labs:
CBC, BMP, Mg, Phos, LFTs, EtOH level, TSH
Consider toxic alcohol panel

HEAD CT:
Helps differentiate alternative causes

EEG:
For new onset seizure & status epilepticus
May see ↓ amplitude of theta/delta waves

DDx to Consider
- Hypoglycemia
- Serotonin Syndrome
- Hyponatremia
- Thyrotoxicosis
- Head Injury / ICH
- Other intoxications
- Hepatic Encephalopathy

NUTRITION & FLUIDS

Thiamine: cofactor in glucose metabolism
- Consider 100 mg IV or IM prophylaxis (avoid giving PO)
- Concern for Wernicke's Encephalopathy: 500mg IV/IM q8h
- earlier initiation, faster the recovery

Folate: Deficiency causes megaloblastic anemia
- Consider 1 mg q24 hours

Electrolytes: Hypokalemia common & requires repletion
- Hypomagnesemia & Hypophosphatemia may also be seen

Fluids: Typically high insensible losses; consider replacement

CLINICAL MANIFESTATIONS:

Symptoms and clinical syndromes of EtOH W/D very by time after last drink

<6 - 12 Hours	12 - 24 Hours	<24 - 48 Hours	> 72 Hours

MINOR WITHDRAWAL Symptoms:
- **6– 36 hours**
- tremulousness, anxiety, h/a, diaphoresis, palpitations, N/V, **w/ normal mentation**

WITHDRAWAL SEIZURES
- **6– 48 hours**
- 1-3 usually generalized seizures
- Status epilepticus occurs in 3%
- High risk of progression to DTs

ALCOHOLIC HALLUCINOSIS
- **12– 48 hrs**
- visual, auditory, & tactile hallucinations, with intact orientation & **normal sensorium**,
- with **normal vital signs**

DELIRIUM TREMENS
- **48-96 hrs** (rarely up to 7 days)
- Fluctuating cognition & attention, **altered sensorium (hallucinations)**
- **Autonomic instability** (low grade fever, tachycardia, hypertension, diaphoresis)

TREATMENT

BZDs & Phenobarbital (PHB) are the commonly used treatments. Neither is superior. The goal is to treat symptoms & prevent life threatening complications (seizures & autonomic instability.) Remember scene safety: AWS/DTs can be dangerous to staff

BENZODIAZEPINES (BZDs)

- Common 1st Line therapy, ↑ frequency of GABA-receptor opening
- **Symptom triggered therapy** is preferable to scheduled (less sedation, shorter treatment duration; however patients with severe AWS may require frequent re-dosing.
- Lorazepam may accumulate less than diazepam in hepatic dysfunction.
- **THERE IS NO MAX DOSE ;** Duration of Action & elimination variable

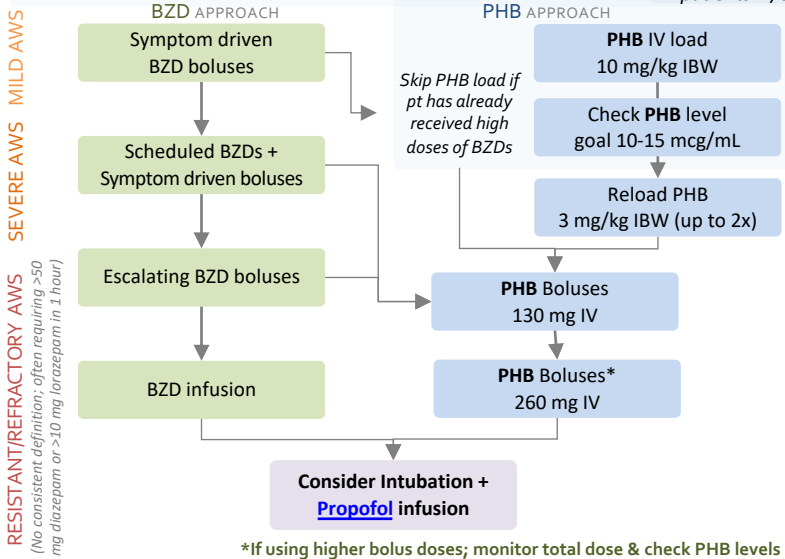
	Dose (mg)	Route	Onset (min)	Duration (hrs)
Midazolam	2 – 4	IM, IV	1 – 5	<2
Diazepam	10 – 20 q5-10 min	PO, PR, IM, IV	1 – 3	<1
Lorazepam	2 – 4 q15-30 min	PO, IM, IV	5 – 10	6 – 8
Chlordiazepoxide	50 – 100 q60 min	PO	> 30	24 – 48

Chlorodiazepoxide may be useful adjunct for patients at high risk for eloping

BARBITUATES

- ↑ duration of GABA-receptor channel opening; also decreases glutamate signaling; can be used as a loading dose or boluses.
- Used early as monotherapy; equivalence to benzos in some studies
- Also used in conjunction with benzos for refractory DTs

PHENOBARBITAL (PHB)
- *Dosing: 130 – 260 mg IV q 15-20 min until symptoms controlled*
- *Onset of action: 5 minutes, peaks at 15 – 30 minutes*
- *Infusion: 10-15 mg/kg IV*
- ***Duration: 10-12 hrs** (elimination half life is days) longer in cirrhosis*
- *In patients w/o cirrhosis, consider a taper 1 mg/kg PO once*



*If using higher bolus doses; monitor total dose & check PHB levels

Consider PHB Monotherapy if
- Definite AWS; history of DTs or at high risk for delirium (e.g. PAWSS >4), prior ICU admission for AWS
- No other neurological problems (hepatic encephalopathy)
- Not on meds that interact with phenobarb (HIV meds)
- Has not received high doses of BZDs already
- No history of AIP or on chronic PHB already

ADJUNCTS

DEXMETOMIDINE infusion: Possible BZD adjunct reduces BZD dose, may reduce need for intubation, & may ↑ or ↓ hospital LOS. Monitor for bradycardia.

CLONIDINE 0.1 – 0.2 mg PO: Used to reduce autonomic symptoms of withdrawal. Max 1.2 mg/day.

HALOPERIDOL 2.5 – 5 mg IV/IM q 4 hrs: Used for persistent agitation. Does **not** replace BZD or PHB. Use with caution as can lower seizure threshold & impair heat dissipation. Check ECG prior and monitor QTc.

BACLOFEN & KETAMINE - theoretic benefits; limited literature to support their use. Avoid.