Managing Alcohol Withdrawal
Zachary Hartsell, MHA, PA-C
Clinical Associate Professor

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Objectives

1. Explain the pathophysiology of alcohol withdrawal including the kindling effect
2. Recognize the signs and symptoms of alcohol withdrawal
3. Utilize the CIWA protocol to guide the treatment of alcohol withdrawal
4. Identify the long term complications of alcohol abuse
Alcohol Abuse/Dependence in the US

- 2nd most abused drug (nicotine 1st)
- Lifetime prevalence 9-17% of population
  - 2004 Primary care survey
  - Dependence 2-9% of population
  - Harmful 0-10%

Alcohol Abuse/Dependence in the US

- Becomes a problem when
  - Complicates the management of other health problems
  - Causes or elevates the risk for alcohol related problems

"At risk" patients are defined by NIAAA as:

- More than 7 drinks per week or more than 3 drinks per occasion for women
- More than 14 drinks per week or more than 4 drinks per occasion for men

Alcohol Use Disorder

Binge Drinkers:

- More than 5 drinks on one occasion in past month
- 15.4% of adults
- Alcohol impaired driving
- More likely to suffer injury while drinking
Not All Alcohol is Equal

Alcohol Withdrawal Syndrome

• 0 to 25% of alcohol abusers developed AWS
• Can affect up to 25% of medical inpatients
• Associated with 3x mortality
• DT’s are associated with 5% mortality rate

A Blind Eye…..

Bostwick, JM. Seaman, JS. Hospitalized Patients and alcohol: who is being missed. General Hospital Psychiatry 2004
Pathophysiology

- Precise mechanism of withdrawal not understood. GABA inhibition theory remains the most widely accepted theory.
- Other neurotransmitters also play a role
- Chronic alcoholics adapt by increasing neural mechanisms to counteract alcohol’s effects

Kindling

Alcohol Withdrawal Classification

Spectrum of Alcohol Withdrawal Syndrome

- Tremulousness (6-8 hrs)
- Hallucinosis (10-30 hrs)
- Seizure (6-40 hrs)
- Delirium Tremens (2-3 days)

Minor
Major/Severe
Who Withdrawals from Alcohol

Pattern
- Genetic predisposition
- Irregular drinking pattern
- High degree of alcohol dependence
- More fatty liver, less cirrhosis

Signs and Symptoms

Autonomic hyperactivity

Alcohol Withdrawal

Minor
- Usually starts 6-10 hours after last drink
- Main symptoms autonomic hyperactivity
  - (hypertension, tremor tachycardia, insomnia)
- Usually requires only supportive care
Alcohol Withdrawal

Major/Severe
- Symptoms more severe
- Associated with complication
  - Alcoholic Hallucinosis
  - Withdrawal Seizures
  - Delirium Tremens

Alcoholic Hallucinosis

- Occurs in 10-25% of hospitalized alcoholics
- Usually are visual, tactile, or auditory
- Clear sensorium (differentiates from DT)

Withdrawal Seizures

- Occur in approximately 25% to 33% of alcoholics
- Generalized and self-limited
- Occur early in the course of withdrawal (8 to 24 hours).
Delirium Tremens (Rum Fits)

- Medical Emergency

- Signs of DTs usually are extreme autonomic hyperactivity with delirium.

- Mortality: Approx 5% with treatment
  20% + w/o treatment

Delirium Tremens (Rum Fits)

- Occurs in approximately 1-5% of alcohol withdrawal patients

- Mainly seen in heavy and long standing drinkers

- Also seen in patients with prior detoxifications, seizures or DT's (Kindling effect)

The underlying unopposed hyperadrenergic activity leads to mortality in AWS, not necessarily the hallucinations, agitation, or seizures
CIWA
(Clinical Institute Withdrawal Assessment for Alcohol)

- Score > 15 or lower score with a history of withdrawal seizures/DT, begin treatment
- High reliability
- Easily reproducible
- Validated
- Rapid Administration

Additional Testing

- CAGE
- Blood Alcohol Level
- CMP and Magnesium
  - Gamma-glutamyl transferase (GGT)
  - AST > ALT by 2:1 ratio (MOST COMMON)
- CBC
  - Mean corpuscular volume (MCV), an index of red blood cell size, increases with excessive alcohol intake after 4 to 8 weeks
- CXR
- ECG (EKG if in the US)
- U/A

Treatment

- Inpatient vs. Outpatient
- General
- Pharmacological
- Metabolic
- Nutrition
- Psychiatric
Inpatient vs. Outpatient Treatment

Inpatient:  
- Poor social support
- Compliance
- Outpatient infrastructure not available
- High CIWA score
- Medical comorbidities
- Acute illness
- Previous withdrawal
- ICU

Outpatient:  
- Good social support
- Reliable
- Infrastructure for outpatient detox/rehab
- Low CIWA score
- Few comorbidities
- No acute illness
- No withdrawal

Treatment

- General
  - Environmental
    - Quiet
    - Calm environment
    - Subdued lighting
    - Minimal interpersonal contact
  - Staff
    - Reassuring
    - Frequent reorientation/ Positive reinforcement
    - Maintain safety

Pharmacologic

- Benzodiazepines - 1st Line Therapy
- Other Therapies
  - B-Blockers
  - Clonidine
  - Neuroleptics (antipsychotics)
  - Seizure medications
  - Barbiturates
  - Baclofen
  - ETOH
Benzodiazepines

- 1st line drug treatment for alcohol withdrawal syndrome
- Meta-Analysis of 4,051 patients found statistically significant reduction in symptoms
- 3 main actions:
  - Acts on inhibitory GABA mediators to replace alcohol's depressant effects
  - Controls autonomic hyperactivity
  - Prevents alcohol withdrawal seizures

Cochrane 2005

Benzodiazepines

Adapted from McRae AL, Medical Clinics of North America, May 2001

Benzodiazepines

Symptom-triggered verse fixed dosing
- Symptom-triggered group has
  - No significant increase in complication
  - No difference in comfort level
- Did have:
  - Decrease in mean duration of treatment
  - Decrease in mean quantity of medication

Daeppen et al. 2002
Benzodiazepines Outpatient Regimens

Benzodiazepine Toxicity
Lorazepam & Diazepam toxicity:
- Propylene glycol solvent used for delivery
- Causes severe gap metabolic acidosis
- High doses documented
- Caution is advised with high, intravenous doses given for long durations

Adjunct Therapies
**Adjunct Medications**

**Beta Blockers**
- Never to be used alone, only in conjunction with benzodiazepines.
- Reduces *cardiac* autonomic manifestations
- Reduces arrhythmias
- May mask overall worsening autonomic dysfunction

**Clonidine**
- Treatment of choice for withdrawal hypertension
- Available in both patch and oral
  - Patch takes 72 hours to take peak effect
- Like Beta Blockers, do not use alone

**Neuroleptics**
- Evidence mixed on use
- Sometimes needed for additional behavior control.
- Does not reduce autonomic dysfunction like Benzodiazepines and therefore, *never use alone*
- *Reduces* seizure threshold (therefore ↑ seizure risk)
- Risk of torsades in patients with low Mg++
Adjunct Medications

ETOH

- Historically favored agent
- Still on most hospital formularies
- Support mainly through case reports
- 2008 RCT-No advantage over benzodiazepines with worse side effect profile

Metabolic

- K+ and Magnesium levels often low
  - Should be replaced
- Patients usually dehydrated
  - Ample IVF Administration
- Vitamin Deficiency
  - Folic acid
  - Multivitamin
  - Thiamine
Psychiatric Issues

- Denial
- Counseling should ideally be started in hospital
- ETOH may be masking other psychiatric illness
- Total abstinence is the goal

Brief Interventions

- Most of the early data was from primary care based studies
- Principles carried over
- Studies on inpatient populations have not shown benefit
- Often still utilized

Mortality in Severe AWS

Short term “Severe” withdrawal 2-7%
- Infection and CV complications main causes

5 yr. mortality in patients with ETOH use 7%

5 yr. mortality in pts. with ETOH use and AWS 30%
- Liver and or kidney disease independent predictors
Wernicke's Encephalopathy

- Triad of confusion, ataxia, and ophthalmoplegia
- Caused by Thiamine Deficiency
- If left untreated------> Korsakoff's Psychosis
- Treated with Thiamine 100mg PO/IV

Korsakoff's Psychosis

- Characterized by antegrade and retrograde amnesia
- Confabulation
- Responds to treatment only 50% of the time

Take Home Points

1. Early identification is important
2. Benzodiazepines are drug of choice
3. Use CIWA to guide therapy
4. Screen patients for alcohol abuse and refer for proper post hospital treatment
References

- Campos. Long Term Mortality of patients admitted to the hospital with AWS. Alcoholism clinical research. 2011. 35.6
- Finn. Hospitalist and Alcohol withdrawal: Yea give Ethrol’s but is that the whole story. Journal of Hospital Medicine. 2011: 8.6

References