Alcohol Withdrawal Syndrome

Jeffrey P Schaefer MSc MD FRCPC
GI Emergencies Update
October 14, 2007
http:dr.schaeferville.com

Objectives

- Alcohol Intoxication Take-Aways
  - diagnosis
  - avoid mis-diagnosis
  - management protocols

Case History

- **Chief Complaint**
  - A 48 yr old male presents to your hospital on Wednesday evening with an altered mental status.
- **History of Present Illness**
  - alcoholism for 5 years (~ 6 oz gin / day + binges)
  - binge drinking Fri-Sat-Sun, last drink Sunday night
  - Monday, seemed okay, maybe a little ‘shaky’
  - Tuesday, no one had seen him, called in sick
  - Wednesday, friend came over & called 911
    - confused → seeing monsters
    - agitated
    - unsteady gait

Examination

- G: agitated
- V: 170/110, 135, 28, 38'
- D: bruises
- H: neg
- C: clear
- C: tachycardic
- A: mild epigastric tenderness, no liver dx
- N: four point restraint, hallucinations, delirium yelling, all four limbs move well (too well)
- CT Scan: negative, chest radiograph negative, lab: normal enough

Q1: Most Likely Diagnosis?

A. Stroke
B. Multiple Sclerosis
C. Cerebral lymphoma
D. Thrombotic thrombocytopenia purpura
E. Hypertensive encephalopathy
F. Alcohol withdrawal syndrome

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Q2: List 4 conditions that may present with an agitated delirium & autonomic hyperactivity.

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1. thyrotoxicosis
2. amphetamine intoxication
3. anti-cholinergic medication intoxication
4. opiates or benzodiazepine withdrawal
5. heart failure with pulmonary edema
6. hypoxemia owing to any cause
7. schizophrenia & other psychoses
8. **hypoglycemia (non-health care worker)

Diagnostic Error Anecdotes

- Sepsis – Gram Positive bacteria
- Frontal Lobe Stroke
- Hyponatremia
- Central Pontine Myelinolysis
- Hepatic Encephalopathy
- Heart Failure – post-op

  - invalid alcohol history
  - alcohol use present, but not in withdrawal
  - under appreciation for co-disease
  - benzodiazepine loading prior to evaluation

Q3.Diagnostic criteria for Alcohol Withdrawal

A. Cessation or reduction of alcohol use that is heavy or prolonged.

B. Any two of the following:

   a) increased hand tremor
   b) ?
   c) ?
   d) ?
   e) ?
   f) ?
   g) ?
   h) ?

C. symptoms above are sufficient to cause physical or social impairment

D. no better medical explanation for the findings

Q3.Diagnostic criteria for Alcohol Withdrawal

A. Cessation or reduction of alcohol use that is heavy or prolonged.
B. Any two of the following:
    a) increased hand tremor
    b) autonomic hyperactivity (e.g. diaphoresis / HR > 100)
    c) insomnia
    d) nausea or vomiting
    e) transient hallucinations or illusions
    f) psychomotor agitation
    g) anxiety
    h) grand mal seizure
C. symptoms above cause impairment
D. no better medical explanation

Q4. Match the onset of each clinical sub-category to the time period after the last drink.

1. Delirium, tachycardia, hypertension, agitation, fever, diaphoresis.	**A. 6 to 36 hours**
2. Generalized, tonic-clonic seizures.	**B. 12 to 24 hours (resolves in 48 hr)**
3. Tremulousness, mild anxiety, headache, diaphoresis, palpitations, anorexia, GI upset.	**C. 12 to 48 hours**
4. Visual, auditory, and/or tactile hallucinations.	**D. 48 to 96 hours (peaks in 5 days)**

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Clinical sub-category		Time period
3. Tremulousness, mild anxiety, headache, diaphoresis, palpitations, anorexia, GI upset. *Mild Withdrawal – resolve 24-48 hr*	↔	**A. 6 to 36 hours**
4. Visual, auditory, and/or tactile hallucinations. *Alcoholic Hallucinosis – resolve 24-48 hr*	↔	**B. 12 to 24 hours (resolves in 48 hr)**
2. Generalized, tonic-clonic seizures. *Seizures – 3% among chronic alcoholics from which 3% status epilepticus*	↔	**C. 12 to 48 hours**
1. Delirium, tachycardia, hypertension, agitation, fever, diaphoresis. *Delirium Tremens*	↔	**D. 48 to 96 hours (peaks within 5 days)**

Alcoholic Hallucinosis versus Delirium Tremens

- Alcoholic Hallucinosis
  - hallucinate but have clear sensorium
- Delirium Tremens
  - hallucinations (primarily visual)
  - agitation
  - disorientation
  - associated with mortality of 1 – 5%

Q4. Which of the following biochemistry is NOT involved in the neuropathology of AWS

A. Gamma-aminobutyric acid
B. Dopamine
C. Norepinephrine
D. Serotonin

E. Who cares?

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Q4. Which of the following biochemistry is not involved in the pathology of AWS

A. Gamma-aminobutyric acid

- major inhibitory neurotransmitter in the brain
- decrease in alcohol withdrawal
- relates to benzodiazepine action

B. Norepinephrine

- elevated in the cerebrospinal fluid
- relate to a decrease in the alpha-2 receptor-mediated inhibition of presynaptic norepinephrine release
- some benefit associated with clonidine

C. Serotonin

- implicated in tolerance and craving for alcohol

Q5. Which of the following is NOT a risk factor for DT?

A. A history of sustained drinking.
B. A history of previous DTs.
C. Age less than 30 years.
D. Presence of concurrent illness.
E. Greater number of days since last drink.

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Delirium Tremens - factoids

- 1-5% mortality
  - dysrhythmia
  - complicating illnesses, esp pneumonia
  - volume depletion, hypo K, hypo Mg
  - mortality was 37% in early 1900s

- Risk for Death
  - age
  - pulmonary disease
  - temp > 104F
  - co-existing liver dx

Q6. Which of the following medications is LEAST indicated for Delirium Tremens?

A. Thiamine
B. Benzodiazepines
C. Haloperidol
D. Phenobarbitol
E. Propafol

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A. Thiamine

B. Benzodiazepines

C. Haloperidol – lowers seizure threshold; but use is reasonable in refractory psychosis

D. Phenobarbitol

E. Propafol

Prescribe Alcohol?

- Some use to prevent withdrawal but insufficient data for this or for treatment of withdrawal.

Mainstays of Therapy

- Thiamine 100 mg (30 – 80% deficiency)
- Hydration & Electrolyte
- Nutrition & *multivitamins (JPS)
- Quiet environment & Monitoring
- Reality Orientation & Reassurance
- Benzodiazepines
  - no liver dysfunction → longer acting
  - liver dysfunction → shorter acting
- Restraint, but be cautious!

Q7. What is ‘triggered’ benzodiazepine therapy?

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- Refer to handouts…

calgary health region

Site: ________

Alcohol Withdrawl Protocol: Part 2
Alcohol Withdrawl Order Set

<u>**Investigations:**</u>

1. **Baseline laboratory data:**
   Serum: CBC, Creatinine, Urea, INR, Ca, Albumin, Total Protein, GGT, Lipase, AST, bilirubin, Glucose, MG, Phosphate, Lytes Daily X7days
2. **Other:** ________________________________
   - ☐ **Serum:** Alcohol level
   - ☐ **Urine:** Drug Screen
   - ☐ **CT Head (non-infused);** Reason: ____________________

<u>**Standard Treatment:**</u>

3. **Thiamine** 100 mg now and then daily x 2 days starting tomorrow: ☐ IM or ☐ IVPB
   [to be given prior to any dextrose infusions]
4. **Multivitamins** daily: ☐ 1 amp IV or ☐ 1 tab po
5. **Social work consult** re: Alcohol abuse/available resources ____
6. **IV** with solution: ____________ at rate of: ________________________
7. **Diet:** ☐ Wellness or ☐ ________________________
8. **Use CHR Alcohol Withdrawal Assessment Form (CIWA-Ar):**

<u>**Physician:**</u> **Please check one of the following drugs, and indicate dose on chart below:**

☐ **Lorazepam** (drug of choice for elderly, severe liver disease and/or severe COPD)
or
☐ **Diazepam** (long half life may be doubled in the presence of liver disease and increased in the elderly)

Benzodiazepine antagonist: Flumazenil (Anexate).
(Fluazenil should <u>only</u> be given by physicians experienced with its administration and preferably in ICU.)

CIWA -Ar Score	**Lorazepam (Ativan)** Intermed. ½ life (10-15 hrs.)	**Diazepam (Valium)** Long ½ life (20-50 hrs.)	**Reassess CIWA-AR score**
0-9	No medication	No medication	Q4H x 12 hours then once daily until discontinued by MD
10-19	☐ 2 mg ☐ 3 mg ☐ 4 mg PO/SL/IV/IM q1hour	☐ 10 mg ☐ 20 mg PO q1hour	Q1hour until score less than 10 x 3 consecutive times
20 or greater	☐ 4 mg ☐ 6 mg ☐ 8 mg PO/SL/IV/IM q1hour	☐ 20 mg ☐ 30 mg PO q1hour	Q1hour until score is less than 20 call physician if 20 or greater x 4 consecutive times (or if concerned about the patient)
Max. Dose (Call Dr. if max dose ineffective)	32mg/8hrs	120mg/8hr.	

***hold medication and call physician if respiratory rate is less than 8/min**

<u>**Adjunctive Treatment:**</u> (check order to be implemented):

☐ **Haloperidol** ☐ 2.5 - 5.0 mg PO q4h prn or 1.0 - 2.5 mg IM/IV/SC q2-4h prn for intractable hallucinations
(Max: 15 mg PO or 7.5 mg injectable / 24 hrs)
or ☐ 1.0 - 2.0 mg po q4h prn or .25 - 1.0 mg IM/IV/SC q3-4h prn for intractable hallucinations **for the elderly patient (Max. 8mg/24 hours)**

OR

☐ **Risperidone** ☐ 1-2 mg PO q8h prn for intractable hallucinations **(Max: 6 mg/24 hours)**
or ☐ 0.5 mg PO q12 prn for intractable hallucinations **(Max. 2 mg/24 hours) for the elderly patient**

☐ **Folic acid** 5 mg PO daily x 5 days
☐ **Diovol** 15-30 ml po q6h prn for GI upset
☐ **Dimenhydrinate** 25-50 mg IVPB/IM/PO q4-6 hour prn
☐ **Physical Restraints** PRN (as per CHR Nursing Policy R-1)
☐ **Nicotine patch**

Physician's signature: ______________________________ Date: ______________

102634 ID R(2006/03)

Triggered vs Fixed Benzo Therapy

- Study 1 Intensive Care Med 2003 Dec;29(12):2230-8
  - P-2XB-R-C-T in surgical ICU   n = 44
  - “as-needed" vs “scheduled” → benzo, clonidine, haloperidol
  - **6 day shorter ICU stay + less pneumonia (26% vs. 43%)**

- Study 2 JAMA 1994 Aug 17;272(7):519-23.
  - P-2XB-R-C-T in VA hospital detox unit   n = 101
  - “chlordiazepoxide qid with additional prn” vs “symptom triggered”
  - **duration: 9 hr vs 68 hr   dose: 425 mg vs 100 mg**
  - **outcome: no difference in severity x time**

- Study 3 Arch Intern Med 2002 May 27;162(10):1117-21.
  - P-2XB-R-C-T   n=117 Switzerland
  - ‘symptom triggered oxazepam’ vs ‘fixed schedule’
  - **number treated: 39% vs 100%**
  - **Dose: 37.5 mg vs 231.4 mg   Duration 20.0 hr vs 62.7 hours**
  - **Efficacy: 1 seizure in trigger vs 0, no diff re comfort**

Q8. Name the CAGE Questions?

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1. Have you ever felt you should *cut* down on your drinking?
2. Have people *annoyed* you by criticizing your drinking?
3. Have you ever felt bad or *guilty* about your drinking?
4. Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (*eye*-opener)?

CAGE

- 1 or more positive → further inquiry
- 2 or more → Sens 74% Spec 91%

- 0 7%
- 1 46%
- 2 72%
- 3 88%
- 4 98%

- Ann Intern Med 1991 Nov 15;115(10):774-7.

Australian Government
Department of Veterans' Affairs

Alcohol Screen (AUDIT)

Light beer	Full strength beer	Wine	Fortified wine	Spirits	Full strength can or bottle
425 mL (14 oz) 2.9% alcohol	285 mL (3 oz) 4.9% alcohol	100 mL (4 oz) 12% alcohol	60 mL (2 oz) 20% alcohol	30 mL (1 oz) 40% alcohol	375 mL (12 oz) 4.9% alcohol

The guide above contains examples of **one standard drink.** A full strength can or bottle contains **one and a half standard drinks.**

Introduction
Because alcohol use can affect health and interfere with certain medications and treatments, it is important that we ask you some questions about your use of alcohol. Your answers will remain confidential, so please be as accurate as possible. Try to answer the questions in terms of **'standard drinks'**. Please ask for clarification if required.

AUDIT Questions Please tick the response that best fits your drinking.

Question						Score	Sub totals
	Never	*Monthly or less*	*2-4 times a month*	*2-3 times a week*	*4 or more times a week*		
1. How often do you have a drink containing alcohol?	☐ Go to Q's 9 & 10	☐	☐	☐	☐	☐	
	1 or 2	*3 or 4*	*5 or 6*	*7 to 9*	*10 or more*		
2. How many standard drinks do you have on a typical day when you are drinking?	☐	☐	☐	☐	☐	☐	
	Never	*Less than monthly*	*Monthly*	*Weekly*	*Daily or almost daily*		
3. How often do you have six or more standard drinks on one occasion?	☐	☐	☐	☐	☐	☐	☐
4. How often during the last year have you found that you were not able to stop drinking once you had started?	☐	☐	☐	☐	☐	☐	
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	☐	☐	☐	☐	☐	☐	
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?	☐	☐	☐	☐	☐	☐	☐
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	☐	☐	☐	☐	☐	☐	
8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?	☐	☐	☐	☐	☐	☐	

Question	*No*	*Yes, but not in the last year*	*Yes, during the last year*	Score	Sub totals
9. Have you or someone else been injured because of your drinking?	☐	☐	☐	☐	
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	☐	☐	☐	☐	☐
				TOTAL ☐	

Supplementary Questions

	No	*Probably not*	*Unsure*	*Possibly*	*Definitely*
Do you think you presently have a problem with drinking?	☐	☐	☐	☐	☐

	Very easy	*Fairly easy*	*Neither difficult nor easy*	*Fairly difficult*	*Very difficult*
In the next 3 months, how difficult would you find it to cut down or stop drinking?	☐	☐	☐	☐	☐

- AUDIT
  - less ethnic bias
  - less gender bias
  - longer

How to score and interpret the AUDIT

The World Health Organization's Alcohol Use Disorders Identification Test (AUDIT) is a very reliable and simple screening tool which is sensitive to early detection of risky and high risk (or hazardous and harmful) drinking. It has three questions on alcohol consumption (**1 to 3**), three questions on drinking behaviour and dependence (**4 to 6**) and four questions on the consequences or problems related to drinking (**7 to 10**).

The **Supplementary Questions** do not belong to the AUDIT and are **not** scored. They provide useful clinical information associated with the client's perception of whether they have an alcohol problem and their confidence that change is possible in the short-term. They act as an indication of the degree of intervention required and provide a link to counselling or brief intervention following feedback of the AUDIT score to the client.

Scoring the AUDIT

- The columns in the AUDIT are scored from left to right.
- **Questions 1 to 8** are scored on a five-point scale from **0, 1, 2, 3,** and **4**.
- **Questions 9 & 10** are scored on a three-point scale from **0, 2,** and **4**.
- Record the score for each question in the **"score"** column on the right, including a zero for question **2 to 8** if 'skipped'.
- Record a total score in the **"TOTAL"** box at the bottom of the column. The maximum score is 40.

Consumption score

Add up **questions 1 to 3** and place this sub-score in the adjacent single box in the far right column (maximum score possible = 12). A score of 6 or 7 may indicate a risk of alcohol-related harm, even if this is also the total score for the AUDIT (eg, consumption could be over the recommended weekly intake of 28 for men and 14 for females in the absence of scoring on any other questions). Drinking may also take place in dangerous situations (eg, driving, fishing/boating). Scores of 6 to 7 may also indicate potential harm for those groups more susceptible to the effects of alcohol, such as young people, women, the elderly, people with mental health problems and people on medication. Further inquiry may reveal the necessity for harm reduction advice.

Dependence score

Add up **questions 4 to 6** and place this sub-score in the adjacent single box in the far right column (maximum score possible = 12). In addition to the total AUDIT score, a secondary 'dependence' score of 4 or more as a subtotal of questions 4 to 6, suggests the possibility of alcohol dependence (and therefore the need for more intensive intervention if further assessment confirms dependence).

Alcohol-related problems score

Any scoring on **questions 7 to 10** warrants further investigation to determine whether the problem is of current concern and requires intervention.

AUDIT Total score	*Dependence score*	*Risk level*	*Possible interventions*
0-7	below 4	**Low-risk**	• Use 'Right Mix' materials to reinforce low-risk drinking, particularly for those who previously had alcohol problems or whose circumstances may change. • Harm reduction advice may be appropriate for those in susceptible groups (see 'Consumption Score' above).
8-15	below 4 4 or more	**Risky** or **hazardous level**. Moderate risk of harm. May include some clients currently experiencing harm (especially those who have minimised their reported intake and problems). Assess for dependency	• Brief intervention - feedback of AUDIT and harm reduction advice may be sufficient Ideally also: - setting goals and limits - a motivational interview - self-monitoring of drinking - use of "The Right Mix" self-help guide • Counselling may be required.
16-19	below 4 4 or more	**High-risk** or **harmful level**. Drinking that will eventually result in harm, if not already doing so. May be dependent. Assess for dependency	• Brief intervention (all components) is a minimum requirement. • Assessment for more intensive intervention. • Counselling using CBT principles and motivational interviewing in individual sessions and/or groups. • Follow-up and referral where necessary.
20 or more	below 4 4 or more	**High-risk.** Definite harm, also likely to be alcohol dependent. Assess for dependence. **Almost certainly dependent.** Assess for dependency.	• Further assessment preferably including family and significant others. • More intensive counselling and/or group program. • Consider referral to medical or specialist services for withdrawal management. • Pharmacotherapy to manage cravings. • Relapse prevention, longer-term follow-up and support.

Case Resolution

- admitted
  - thiamine
  - rehydration
  - MgSO 2 gram IV od x 3
  - clear fluids
  - CIWA protocol is ordered

  - patient improves over 7 days
  - social work and addiction consulted
  - discharged against medical advice

Summary

- Please be confident of the diagnosis.
- Time course
  - mild withdrawal
  - alcohol hallicinosis
  - seizure
  - delirium trements
- Supportive care
- Benzodiazepines is main therapy
- CAGE vs AUDIT