Alcohol Withdrawal

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Disclosures

- No financial disclosures
- In this lecture, will be using the term "Alcohol" to mean ethanol and ethanol-containing beverages.

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Outline

- Case
- Epidemiology of alcohol use
- Spectrum of disease severity: alcohol withdrawal syndrome (AWS)
- Identifying patients at risk of alcohol withdrawal
- Case wrap up

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Case 1

- A 53 year old female with pmh of hypertension presents to UPMC Mercy as a level 2 trauma. She was a passenger in a motor vehicle accident and injury complex includes:
  - R 4th -7th rib fractures
  - R distal radius fracture
  - L2 compression fracture with minimal height loss
- Social history: Patient reports drinking "several" glasses of wine per day

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How can we predict the patient's risk of developing alcohol withdrawal syndrome?

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Case 1 continued

- Patient is admitted for pain control of her rib fractures.
- Despite nerve blocks, acetaminophen, oxycodone PRN patient has severe pain with deep inspiration and has difficulty participating in incentive spirometry.
- On hospital day 3 patient is noted to be tachycardic with a temperature of 38.1C
- The trauma resident evaluates the patient and notes that she is shaking in bed at rest. She is awake and alert, but ill-appearing. Her heart rate is 130 bpm. She is diaphoretic and flushed.

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Is this alcohol withdrawal?

What aspects of physical exam might help you differentiate between AWS and other causes of fever and tachycardia?

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Epidemiology of alcohol use

- 85.6% of Americans age >18 report drinking alcohol at some point in their lifetime.
- 54.9% of Americans drink at least monthly
- In 2019, 14.5 million Americans met criteria for diagnosis of Alcohol use Disorder. Less then 10% of people with AUD received treatment.
- Alcohol consumption increased substantially during the COVID-19 pandemic
  - Approximately 29% increase in quantity of drinks per day between February and April 2020

Sources: National Institute on Alcohol Abuse and Alcoholism of the NIH

Barbosa, C., Cowell, A. J., & Dowd, W. N. (2020). Alcohol consumption in response to the COVID-19 pandemic in the United States. Journal of Addiction Medicine, 15(4), 341–344. https://doi.org/10.1097/adm.0000000000000767

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Epidemiology of Alcohol withdrawal

- Up to 50% of patients with heavy, long-term alcohol use will develop some symptoms of alcohol withdrawal.
- 10% of patients with symptomatic AWS (or 5% of patients with long-term heavy alcohol use) will develop withdrawal-related seizures
- Without treatment, 1/3 of patients with alcohol withdrawal seizures progress to delirium tremens
  - 3.3% of patients with symptomatic AWS progress to DTs
  - 1.5% of patients with heavy, long-term alcohol use progress to DTs
  - DTs occurs in 3-5% of patients who are hospitalized for management of AWS.

Wood, E., Albarqouni, L., Tkachuk, S., Green, C. J., Ahamad, K., Nolan, S., McLean, M., & Klimas, J. (2018). Will this hospitalized patient develop severe alcohol withdrawal syndrome? JAMA, 320(8), 825. https://doi.org/10.1001/jama.2018.10574

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Alcohol withdrawal pathophysiology basics

- State of heightened neuroexcitatory tone
- Decreased inhibitory tone (GABA)
- Increased excitatory/ glutamatergic tone (NMDA)

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DSM-V criteria for Alcohol Withdrawal

A. Cessation of (or reduction in) alcohol use that has been heavy and prolonged

B. Two (or more) of the following, developing within several hours or to a few days after Criterion A
   - Autonomic hyperactivity
   - Increased hand tremor
   - Insomnia
   - Nausea and vomiting
   - Transient visual, tactile, or auditory hallucinations
   - Psychomotor agitation
   - Anxiety
   - Generalized tonic-clonic seizure(s)

The signs or symptoms in Criterion B cause clinically significant distress or impairment in social, occupational, or other important areas of functioning

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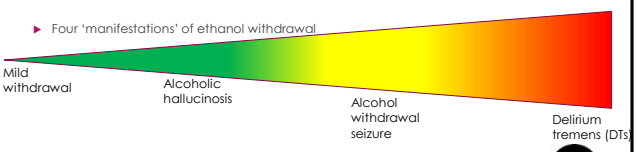
Ethanol Withdrawal

- Four 'manifestations' of ethanol withdrawal



- Not necessarily a progression
- Withdrawal peaks ~72 hours after last alcohol consumption

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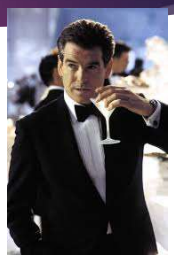
Uncomplicated Alcohol Withdrawal

- Alcoholic tremulousness
- Tachycardia mild to moderate
- Presence of severe tachycardia, diaphoresis, or agitation suggest more severe symptoms
- Patient with mild symptoms are candidates for ED DISCHARGE
  - Not all patients with withdrawal require admission…



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Alcoholic Hallucinosis

- Typically visual or tactile (formication) hallucinations
- Auditory hallucinations should raise concern for primary psychiatric disorder
- MUST distinguish between DTs
- Orientation is intact (as opposed to DTs)

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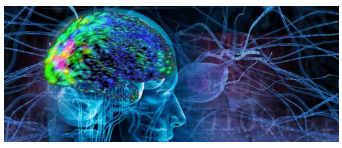
Alcohol Withdrawal Seizures

- Typically self-limited
- Repeated seizures or status epilepticus should raise concern for alternative explanation
- Generalized



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Delirium Tremens

- Most severe manifestation of AWS
- Mortality 2-3% (historical 50%)
  - Death typically from complications of hospitalization (PE, pneumonia, etc…)
- Presence of delirium is mandatory for diagnosis
- Vast majority exhibit autonomic hyperactivity and severe tremor
- Admission to Toxicology or ICU

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How do you predict who will develop complicated AWS?

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The Prediction of Alcohol Withdrawal Severity Scale (PAWSS)

Part A: Threshold criteria:
Have you consumed any amount of alcohol (i.e., been drinking) within the last 30 days OR did the patient have a +BAL upon admission?

Part B: Based on patient interview:
1. Have you ever experienced previous episodes of alcohol withdrawal?
2. Have you ever experienced alcohol withdrawal seizures?
3. Have you ever experienced delirium tremens or DT?
4. Have you ever undergone alcohol rehabilitation treatment? (i.e., in-patient or out-patient treatment programs or AA attendance)
5. Have you ever experienced blackouts?
6. Have you combined alcohol with "downers" like benzodiazepines or barbiturates during the last 90 days?
7. Have you combined alcohol with any other substance of abuse during the last 90 days?

Part C: Based on clinical evidence:
8. Was the patient's blood alcohol level (BAL) on presentation > 200?
9. Is there evidence of increased autonomic activity (e.g., HR > 120 bpm, tremor, sweating, agitation, nausea)

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Using the PAWSS

- Score of <4 indicates a lower risk of alcohol withdrawal.
- PAWSS likely the best of currently available prediction scores, but is far form perfect and additional studies are needed.
- Best predictor of severe withdrawal:
  - A history of previous delirium tremens
  - BAC >200 (LR 3.5) increases the risk of withdrawal

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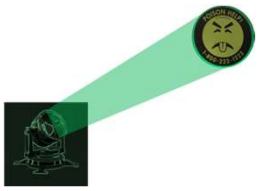
A Brief note about basics of treating AWS

- Mainstays of treatment: GABA Agonists!
  - Benzos: lorazepam (Ativan), diazepam (Valium), chlordiazepoxide (Librium)
  - Barbiturates: phenobarbital
  - Others: Propofol
- Symptom-triggered benzos shown to reduce total dose of medication given and length of stay compared to fixed dose/set taper benzos
- Fixed dose barbs vs symptom triggered benzos vs symptom-triggered barbs still an open debate
- Adjuncts: NMDA Antagonists
  - Ketamine!



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How can we predict the patient's risk of developing alcohol withdrawal syndrome?

Could consider evaluation with PAWSS Score OR
Was BAC >200mg/dl on arrival? Any history of DTs?

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Case 1 continued

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Is this alcohol withdrawal?

- Physical exam:
  - Tremor with movement/ intention tremor
    - Ask the patient to drink from a cup of water
    - Tremor/shaking from alcohol withdrawal will get WORSE with intentional movement
- Timeline
  - AWS will typically gradually worsen over days 1-3 post last drink
- Talk to the patient!
  - Are they feeling very anxious/restless? Any hallucinations?
- Think critically about the fever
  - Fever from AWS is typically from psychomotor agitation.
  - If the patient is calm and febrile, it's not AWS
  - Fever from AWS does NOT improve with antipyretics.

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Is this alcohol withdrawal?

- Rule out other causes: Concurrent eval for non AWS causes
- Consider a trial of medication/ evaluation of response
  - If the patient goes to sleep after one dose of GABA agonist but remains febrile and tachycardic, it's likely not AWS!

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Questions?

- Feel free to email:
  - malleyck@upmc.edu
- Patient questions? Call TOXIC
- Toxicology on call SR pager: 86942 (TOXIC)

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