EM CASE OF THE WEEK.
BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE

BROWARD HEALTH
Care Warriors

Author: Michelle Trieu | Editor: Ajith Susai D.O.

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Delirium Tremens

A 55-year-old male presents to the ED following a motor vehicle accident. He is found to have multiple fractures and a ruptured spleen. He requires immediate surgery. Seven hours after surgery, he develops tremors and irritability and complains that he cannot sleep. On his 2nd day post-op he states that he sees pink elephants in the corner of the room and yells at his nurse to stop the madness. He shakes violently. His blood pressure is 180/100 and has a temperature of 100.5 °F. In addition to thiamine, IV fluids, and dextrose, what pharmacologic treatment should be given first?

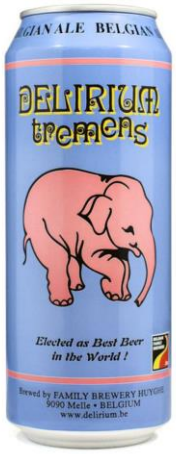
A. Anti-psychotics

B. Benzodiazepines

C. Naloxone

D. Flumazenil

E. Alpha-adrenergic and beta-adrenergic blockers



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Delerium Tremens is the most severe form of alcohol withdrawal in which patients present with rapid-onset confusion. Symptoms also include hypertension, tachycardia, tremors, diaphoresis, and anxiety. They may also have hallucinations (usually visual), seizures, and autonomic instability.

EM Case of the Week is a weekly "pop quiz" for ED staff.

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

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Department of Emergency Medicine
1625 SE 3rd Avenue
Fort Lauderdale, FL 33316

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The correct answer is B, Benzodiazepines.

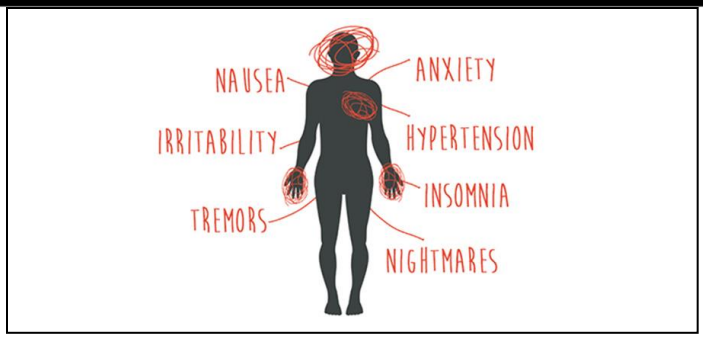
Benzodiazepines calms the patient down and decreases psychomotor agitation from the alcohol withdrawal. It would have also prevented the patient's minor symptoms into developing to major ones. It can also stop seizure episodes.

Delirium tremens occurs in 5% of patients who undergo alcohol withdrawal and mortality is 5%.

Discussion

Delirium tremens comes from a natural progression from alcohol withdrawal syndrome, which frequently involves insomnia, anxiety, hand tremors, irritability, nausea, and vomiting. Ethanol receptor sites are found on the GABA receptor complex, which is activated by GABA, the major inhibitory neurotransmitter in the brain. When GBA receptors become insensitive to GABA neurotransmitter or ethanol secondary to chronic alcohol use, people develop a tolerance to GABA. This requires more GABA to have a depressant effect. When such patients stop drinking alcohol, they experience decreased inhibition, resulting in the hyperactive symptoms seen in alcohol withdrawal syndrome. Because benzodiazepines also act on and perpetuate GABA receptor activity, they promote inhibition to counteract alcohol withdrawal syndrome. Benzodiazepines act on a different site on the GABA receptor, so do not directly compete with alcohol, allowing for effective inhibition.

Diagnosis is clinical. It occurs in the context of alcohol withdrawal and patients have symptoms of hallucinations, disorientation, tachycardia, hypertension, hyperthermia, agitation, and diaphoresis, typically within 48-96 hours since the last drink. Risk factors include history of chronic drinking, previous history of DT, age greater than 30, and presentation of alcohol withdrawal over two days since last drink. Death may be due to arrhythmia, rhabdomyolysis, electrolyte abnormalities, and uncontrolled seizure activity.



(via http://www.alcoholrehab.com/2017/11/alchol-withdrawal-symptoms)

Treatment

Benzodiazepines are the mainstay of treating delirium tremens. They control psychomotor agitation and progression of withdrawal symptoms, most notably seizures. IV fluids, thiamine and other nutritional supplementation, glucose, and maintaining electrolyte balance are all important in the context of chronic alcohol use to prevent Wernicke's encephalopathy.

The most commonly used benzodiazepines are diazepam, lorazepam, and chlordiazepam and long-acting benzodiazepines result in lower chance of recurrent withdrawal or seizures. In patients with cirrhosis or alcoholic hepatitis, lorazepam and oxazepam may be used as they are less likely to be processed by the liver.

A symptom-trigger approach is preferred. This depends on systematic assessment such as the Clinical Institute Withdrawal Assessment for Alcohol Scale (CIWA) given at a set interval. Benzodiazepines are given when CIWA is above a certain threshold.

For patients with history of seizures or delirium tremens, they can be treated prophylactically with oral chlodiazepoxide.

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Alcohol Withdrawal Symptoms

Severity	Timeline	Symptoms
Mild	6-24 hours	Irritability, tremor, insomnia
Moderate	24-48 hours	Diaphoresis, hypertension, tachycardia, fever, disorientation
Severe	48-96 hours	Delirium tremens, tonic-clonic seizures, hallucinations

DSM-5 Diagnostic Criteria of Alcohol Withdrawal Symptoms

1) Cessation of prolonged and heavy alcohol use
2) Developing two or more of the following within hours to days after alcohol cessation
    a. Autonomic hyperactivity
    b. Increased hand tremor
    c. Insomnia
    d. Nausea or vomiting
    e. Transient visual, tactile, or auditory hallucinations or illusion
    f. Psychomotor agitation
    g. Anxiety
    h. Generalized tonic-clonic seizures

Take Home Points

Always get a history of drug and alcohol use in the ER

Benzodiazepines are the choice of treatment and prevention for alcohol withdrawal and delirium tremens

Delirium tremens is a clinical diagnosis. If you notice increased agitation compared to baseline over several days or hours from inpatient stay, suspect an underlying organic cause

Delirium tremens can be fatal. Give supportive treatment as early as possible.

ABOUT THE AUTHOR

This month's case was written by Michelle Trieu. Michelle is a 4th year medical student from FIU HWCOM. She did her emergency medicine rotation at BHMC in September 2018. Michelle plans on pursuing a career Psychiatry after graduation.

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