Case study

Substance Use Disorder: A Case of Alcohol Withdrawal in a 40 Year Old man.

Abstract

Alcohol withdrawal syndrome (AWS) is the cluster of symptoms that can occur in an individual who is alcohol dependent following a reduction or a sudden cessation in alcohol use after a period of excessive use. The more people drink regularly, the more they are at risk to develop classical symptoms of alcohol withdrawal when they stop drinking. Mechanism of these symptoms are due to changes to a person's brain chemistry given to continued exposure to the chemicals in alcohol which is a depressant. Chronic alcohol use can cause complex changes in the brain, including to the neurotransmitters: dopamine and gamma-aminobutyric acid (GABA), which affect excitement and a person's sense of reward. The production of these neurotransmitters is affected when a person stops or significantly reduces alcohol intake. The brain has to re-adjust, which leads to withdrawal symptoms. The Management of AW depends upon the severity of symptoms. However, once comorbid illnesses have been excluded or adequately treated, the management of alcohol withdrawal is directed at allevaiting symptoms and identifying and correcting metabolic derangements.

Introduction

Substance use disorders (SUDs) according to the fifth edition of the diagnostic and statistical manual of mental disorders (DSM-5; American Psychiatric Association 2013) are inheritable psychiatric conditions predisposed by genetic and environmental components. The DSM-5 defines SUDs as recording a minimum of two of eleven criteria in a period of one year. The more the number of criteria recorded, the higher the severity; 2-3 is mild, 4-5 is moderated, while 6 and above is severe [1]. Examples of SUDs include alcohol use disorder (AUD), opioid use disorder, nicotine use disorder, cocaine use disorder, and cannabis use disorder. Previous and recent studies indicate that the probability of inheriting AUD is approximately 0.50-0.64 (Heath et al., 1997; Kendler 2001; Verhulst, Neale, & Kendler, 2015). The alcohol dehydrogenase 1B (ADH1B) and aldehyde dehydrogenase 2 (ALDH2) genes encoding the breakdown of alcohol (Edenberg & Mcclintick, 2018) influence the development of AUD [2]. Alcohol withdrawal occurs after a voluntary or involuntary discontinuation of consistent alcohol

intake and is seen in about 7% of AUD hospitalized patients [3]. In severe cases, the duration of in-hospital admission is prolonged and may require critical care. A complicated case of alcohol withdrawal manifests with seizures with or without delirium tremens, likely to be seen in 15% of AUD subjects [4,5]. Nonetheless, promptly detecting and administering appropriate care [6,7,8,9] significantly decreases mortality [10].

Case presentation

A 40 year old man is brought to the emergency unit by her daughter concerning her father's inability to sleep, falls, unexplained weight loss, loneliness, and anxiety over the previous year. Additionally, the patient started vomiting, hallucinating, perspiring profusely, and wanting to go back to his own house. The patient patient does not have history of medical abnormality. He is disheveled, confused, tremulous, and diaphoretic. His blood pressure is 164/110mmHg, pulse is 130, and temperature is 38.5°C. He blames his symptoms on being unable to have a cigarette. He also blames daughter's nagging. When asking about alcohol use, he says he has had a cocktail each evening since he retired from his job last year, and that this helps him to sleep

Discussion

The patient presents with clinical feature suggestive of alcohol withdrawal [11]. Hallucination, tremors, fever, sweating more than usual, tachycardia, hypertension, and vomiting, best describe the patient's current clinical condition [12]. However, the best approach to evaluating this patient for alcoholism is to find out what his family and friends say concerning his drinking. The defense mechanism of denial is firmly evident in alcohol use disorder that the best approach is to survey how alcohol affects his life, rather than his drinking behavior [13]. Detailed information from his relatives provide a trace to his problem. Laboratory investigations will not be relied upon to make the diagnosis [11]. The CAGE questionnaire is a concise and important screening tool. A positive answer to two or more questions is very sensitive and specific for an alcohol use disorder [6,10]. The CAGE evaluation can also help to discover if the patient is at risk of having peripheral neuropathy because it is associated with a long history of heavy drinking [11]. It is basically due to vitamin deficiencies and the direct impact alcohol has on nerve function. The treatment of choice is metabolic support and the tapering use of benzodiazepines to reduce physical distress and to prevent major withdrawal (e.g. delirium tremens) from occurring. However, giving alcohol can work to stop withdrawal symptoms, but it has a firmly short half-life, and it is not generally recommended to give alcohol to a patient with an alcohol use disorder. Magnesium, folate, thiamine, and other vitamin supplements are administered prophylactically, although they are not necessary, but they can help [11].

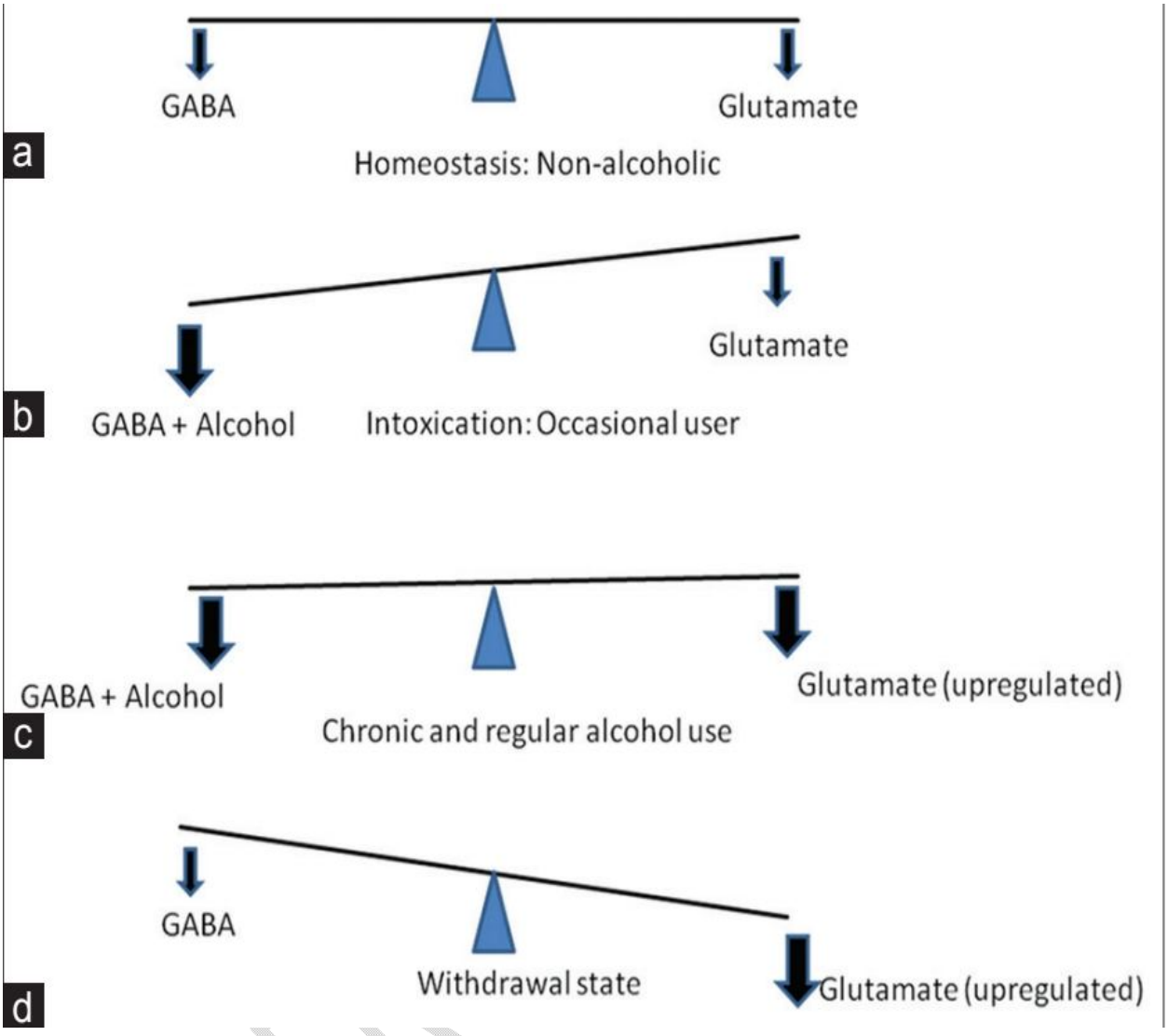

Fig. 1. Neurochemistry of alcohol withdrawal [14].

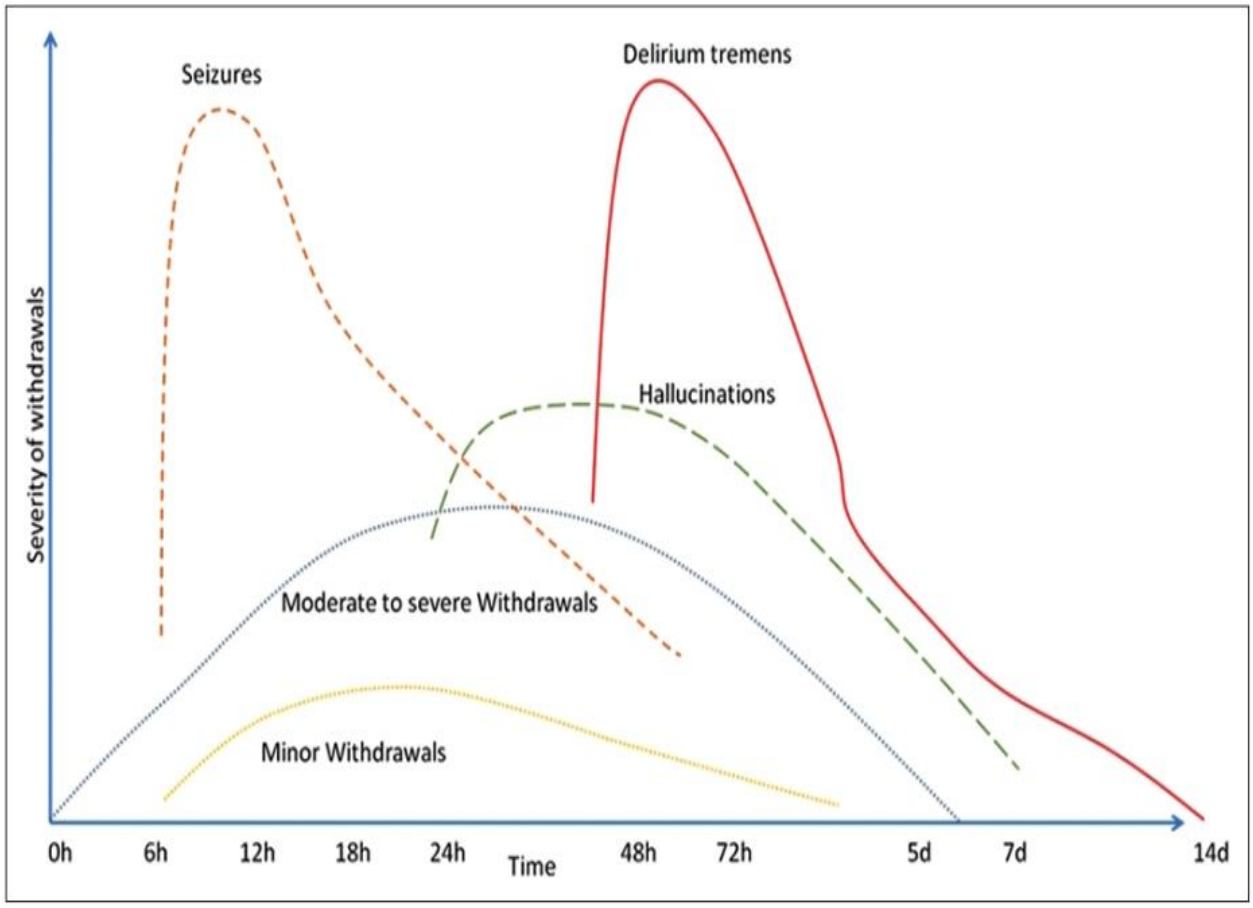

Fig. 2. Graph depicting the time course of acohol wthdrawal symptoms [14].

Fig. 3. The Drinkers by Jean Béraud depicting a disheveled man pouring another drink of alcohol as a cigarette dangles from his mouth. The woman looks directly at us as she appears ready to leave with her handbag on the seat. She is dressed for a night out and appears to have expected more than sitting in a booth as her male partner drinks himself into oblivion. Painted in France in 1908 but touches us even today, as alcoholism is a worldwide and universal human issue [15].

AUDIT

PATIENT: Because alcohol use can affect your health and can interfere with certain medications and treatments, it is important that we ask some questions about your use of alcohol. Your answers will remain confidential, so please be honest.

For each question in the chart below, place an X in one box that best describes your answer.

NOTE: In the U.S., a single drink serving contains about 14 grams of ethanol or "pure" alcohol. Although the drinks below are different sizes, each one contains the same amount of pure alcohol and counts as a single drink:

Questions	0	1	2	3	4	
1. How often do you have a drink containing alcohol?	Never	Monthly or less	2 to 4 times a month	2 to 3 times a week	4 or more times a week	
2. How many drinks containing alcohol do you have on a typical day when you are drinking?	1 or 2	3 or 4	5 or 6	7 to 9	10 or more	
3. How often do you have 5 or more drinks on one occasion?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
4. How often during the last year have you found that you were not able to stop drinking once you had started?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
5. How often during the last year have you failed to do what was normally expected of you because of drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
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?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
7. How often during the last year have you had a feeling of guilt or remorse after drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
8. How often during the last year have you been unable to remember what happened the night before because of your drinking?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	
9. Have you or someone else been injured because of your drinking?	No		Yes, but not in the last year		Yes, during the last year	
10. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?	No		Yes, but not in the last year		Yes, during the last year	
					Total	

Note: This questionnaire (the AUDIT) is reprinted with permission from the World Health Organization. To reflect drink serving sizes in the United States (14g of pure alcohol), the number of drinks in question 3 was changed from 6 to 5. A free AUDIT manual with guidelines for use in primary care settings is available online at ***www.who.org***.

Fig. 4. The AUDIT questionnaire. Scores are added to determine the total. Positive screens are indicated by total scores ≥8 in men and ≥4 in women. Higher scores indicate more severe alcohol involvement. Scores >16 suggest the possibility of alcohol dependence [16].

Conclusion

Alcohol withdrawal is a collection of symptoms seen in a person that reduces or completely stops alcohol intake after a very long duration of alcohol consumption. The signs and symptoms of alcohol withdrawal vary, usually minor e.g. anxiety, nausea, headache, hyperhidrosis, or might have more severe symptoms in some cases e.g; tachycardia, seizures or even fatal. Clinical diagnosis can be made by a positive history of high level of alcohol consumption or a positive history of a former alcohol withdrawal in the past. Patients with alcohol withdrawal syndrome can be treated in an impatient or outpatient setting depending on the severity of the patient's condition. The objective of the treatment is to minimize the symptoms of the alcohol withdrawal in the patient and to counter progression to severe medical conditions. Early recognition of signs of alcohol use disorder (AUD) as well as immediate intervention can help reduce the effects of Alcohol withdrawal and yield a better clinical outcome. Patients with mild symptoms can be treated by supportive care while patients with more severe symptoms may require pharmacologic care.

Aim of study

To recognize the etiology of alcohol withdrawal, generate strategies to decrease alcohol dependency in people with alcohol withdrawal, and to understand the best treatment options available for alcohol withdrawal. The study typically describes interprofessional team strategies for improving care coordination and communication to improve outcomes in patients with alcohol withdrawal.

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