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Alcohol Withdrawal During Hospitalization

Early recognition and consistent intervention are critical.

Overview: For a chronic drinker, sudden alcohol withdrawal because of an unexpected hospitalization can lead to escalating withdrawal symptoms and even death if unrecognized and untreated. Nurses need to be aware of the prevalence of alcohol abuse in the United States and consider the possibility of unplanned alcohol withdrawal in their patients. This article discusses the effects on the body of chronic alcohol intake, the potential symptoms of alcohol withdrawal, and ways to recognize and treat these symptoms through early assessment and consistent intervention.

Keywords: alcohol abuse; alcoholism; alcohol withdrawal; alcohol withdrawal delirium; alcohol withdrawal syndrome; Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised; hospitalization; substance withdrawal syndrome

Lorraine Wilson, 74 years of age, is admitted to the hospital at noon for a hip fracture sustained after a fall at her home. (This case is a composite based on my experience.) After several hours in the ED, she's transferred to the surgical unit. Around 8 PM the nurse notices that Ms. Wilson is a bit confused and anxious. Assuming the patient is experiencing "sundown syndrome," the nurse reorients her to time and place, ensures adequate lighting, and continues with her patient assessments. By 11 PM Ms. Wilson is extremely anxious, shaky, and nauseated. The nurse puts in a call to the physician for antiemetic and sleep medication. What she doesn't realize is that Ms. Wilson is exhibiting symptoms of alcohol withdrawal.

Unfortunately for the nurse, guessing which patient may be abusing alcohol is a futile exercise at best and a dangerous practice at worst, as there's simply no way to tell the heavy drinker from the moderate one.

Chronic alcohol consumption is prevalent in the United States, and for many heavy drinkers hospitalization forces at least a temporary abstinence. According to the Behavioral Risk Factor Surveillance System (BRFSS), 15% of surveyed adults reported binge drinking (defined as "five or more drinks during a single occasion for men or four or more drinks during a single occasion for women"), and 5% reported heavy drinking (defined as "more than two drinks per day on average for men or more than one drink per day on average for women").[1]

Managing the potentially severe symptoms associated with a sudden and unplanned alcohol withdrawal can be challenging. Nurses need to be aware of the pervasiveness of alcohol use and consider the possibility of alcohol withdrawal in their patients.

ALCOHOL IN THE BODY

Alcohol affects every system of the body. Absorbed from the stomach and upper intestine, it quickly passes into the bloodstream and within minutes permeates the brain, liver, heart, pancreas, lungs, and kidneys.

While chronic drinking affects all of these organs, the abrupt withdrawal of alcohol most immediately affects the brain. The brain balances and directs the activity of neurotransmitters, which carry signals to the peripheral nervous system and direct nearly every bodily function. For every neurotransmitter moving along a neuron carrying a signal, there must be a

Early screening for alcohol use can help nurses prevent and treat alcohol withdrawal in hospitalized patients more effectively.

receptor in the receiving cell ready to accept that signal. The interaction between a neurotransmitter and its receptor initiates a series of biochemical events in the receiving cell. Neurotransmitters either excite or inhibit the signal-receiving cell.

Alcohol depresses the central nervous system in two ways. First, it inhibits the *N*-methyl-D-aspartate (NMDA) neuroreceptors, which are designed to receive glutamate, one of the major *excitatory* neurotransmitters. In addition, it enhances the main *inhibitory* neurotransmitter, γ-aminobutyric acid (GABA), which acts via the GABA-A receptor to inhibit or slow certain brain activity.[2, 3]

Chronic drinking consistently depresses the central nervous system. The brain compensates by increasing the response of NMDA receptors and decreasing that of GABA-A receptors, which is why tolerance to alcohol increases along with intake.[2]

Yo-Yo drinking. Repeated cycles of intoxication followed by abstinence lead to long-term changes in neurotransmitters. This is known as the "kindling" phenomenon (see Figure 1[3]).[2, 3] After repeated episodes of drinking and withdrawal, chemical imbalances in the brain become more pronounced.[3] The more frequent the episodes of intoxication and abstinence, the greater the severity of withdrawal symptoms and the sooner they appear.

SYMPTOMS OF WITHDRAWAL

The brain regulates various mechanisms in the body, including blood pressure, heart rate, mood, perception, movement, temperature, and balance. In the chronic drinker, these mechanisms are continually depressed. Once the depressant effect of alcohol is removed, every mechanism will overreact within hours of the last drink, resulting in alcohol withdrawal syndrome (AWS). Symptoms of AWS range from mild to life threatening, and include anxiety, irritability, agitation, tremors, seizures, hallucinations, and delirium tremens. Mild symptoms can manifest within six to eight hours of the last drink, while more serious complications typically present 12 to 72 hours afterward (see Table 1[2]).[2, 3]

ASSESSING AND SCREENING FOR ALCOHOL WITHDRAWAL

Because minor alcohol withdrawal symptoms such as tremor and anxiety are common in hospitalized patients, they can be easily overlooked. However, if symptoms accurately reflect alcohol withdrawal and intervention doesn't take place early on, they will most likely become more severe and gradually progress to

hallucinations, seizures, and delirium tremens. They may even eventually lead to life-threatening conditions such as arrhythmia, pneumonia, central nervous system injury or infection, or to an exacerbation of underlying conditions such as pancreatitis or hepatitis. (In addition, chronic drinkers tend to have a lowered immune response; a recent study of patients who are heavy drinkers revealed a lowered ratio of T helper 1 to T helper 2 cells prior to surgery, which may have accounted for the increased rate of infection in these patients following surgery.[4])

It's important for nurses to assess their patients' alcohol intake upon admission. If patients indicate that they drink, ask for how many years, when they had their last drink, and what they typically drink and how much. Some patients may resist disclosing information regarding their drinking habits. Let them know that your queries are only meant to ensure their well-being; because certain medications may interact negatively with alcohol, it's essential that they candidly discuss their alcohol intake.

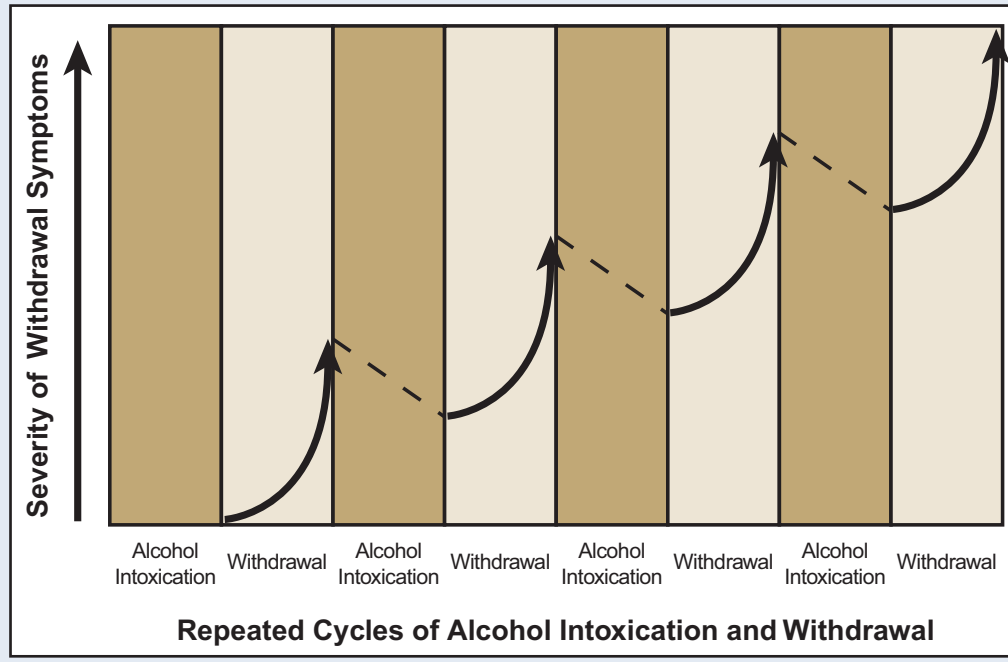
Screening. Historically, alcohol screening and intervention have been reserved for people whose behavior suggests chronic alcohol abuse. In an effort to intervene earlier, the Substance Abuse and Mental Health Services Administration (SAMHSA) has funded the Screening, Brief Intervention, and Referral to Treatment (SBIRT) initiative to increase alcohol abuse screening, intervention, and treatment in all health care settings.[5] Three screening tools are typically used: the Alcohol Use Disorders Identification Test (AUDIT); the Alcohol, Smoking, Substance Involvement Screening Test (ASSIST); and the Drug Abuse Screening Test (DAST). (These tools can be found on the SAMHSA Web site, at http://sbirt.samhsa.gov/core_comp/screening.htm.)

The CIWA-Ar scale. If screening indicates the potential for AWS, ongoing assessment and management of symptoms become necessary. A widely used standardized assessment tool is the Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar), which assesses the presence of 10 symptoms: anxiety; tremor; sweating; auditory, visual, and tactile disturbances; agitation; nausea and vomiting; headache; and orientation. The higher the score, the more severe the withdrawal symptoms.[6] (See *Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised* [*CIWA-Ar*].)

Studies have shown that the use of the CIWA-Ar in the inpatient setting can shorten detoxification time,

Figure 1. The Kindling Phenomenon

This is a graphic representation of the kindling concept during alcohol withdrawal. The term "kindling" refers to the phenomenon that people undergoing repeated cycles of intoxication followed by abstinence and withdrawal will experience increasingly severe withdrawal symptoms with each successive cycle. Reprinted from Becker HC. Kindling in alcohol withdrawal. *Alcohol Health Res World* 1998;22(1):25-33.



Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar)

Patient:_____ Date: _____ Time: _____ (24 hour clock, midnight = 00:00)

Pulse or heart rate, taken for one minute:_____ Blood pressure:_____

NAUSEA AND VOMITING — Ask "Do you feel sick to your stomach? Have you vomited?" Observation.
0 no nausea and no vomiting
1 mild nausea with no vomiting
2
3
4 intermittent nausea with dry heaves
5
6
7 constant nausea, frequent dry heaves and vomiting

TREMOR — Arms extended and fingers spread apart. Observation.
0 no tremor
1 not visible, but can be felt fingertip to fingertip
2
3
4 moderate, with patient's arms extended
5
6
7 severe, even with arms not extended

PAROXYSMAL SWEATS — Observation.
0 no sweat visible
1 barely perceptible sweating, palms moist
2
3
4 beads of sweat obvious on forehead
5
6
7 drenching sweats

ANXIETY — Ask "Do you feel nervous?" Observation.
0 no anxiety, at ease
1 mildly anxious
2
3
4 moderately anxious, or guarded, so anxiety is inferred
5
6
7 equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions

AGITATION — Observation.
0 normal activity
1 somewhat more than normal activity
2
3
4 moderately fidgety and restless
5
6
7 paces back and forth during most of the interview, or constantly thrashes about

TACTILE DISTURBANCES — Ask "Have you any itching, pins and needles sensations, any burning, any numbness, or do you feel bugs crawling on or under your skin?" Observation.
0 none
1 very mild itching, pins and needles, burning or numbness
2 mild itching, pins and needles, burning or numbness
3 moderate itching, pins and needles, burning or numbness
4 moderately severe hallucinations
5 severe hallucinations
6 extremely severe hallucinations
7 continuous hallucinations

AUDITORY DISTURBANCES — Ask "Are you more aware of sounds around you? Are they harsh? Do they frighten you? Are you hearing anything that is disturbing to you? Are you hearing things you know are not there?" Observation.
0 not present
1 very mild harshness or ability to frighten
2 mild harshness or ability to frighten
3 moderate harshness or ability to frighten
4 moderately severe hallucinations
5 severe hallucinations
6 extremely severe hallucinations
7 continuous hallucinations

VISUAL DISTURBANCES — Ask "Does the light appear to be too bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things you know are not there?" Observation.
0 not present
1 very mild sensitivity
2 mild sensitivity
3 moderate sensitivity
4 moderately severe hallucinations
5 severe hallucinations
6 extremely severe hallucinations
7 continuous hallucinations

HEADACHE, FULLNESS IN HEAD — Ask "Does your head feel different? Does it feel like there is a band around your head?" Do not rate for dizziness or lightheadedness. Otherwise, rate severity.
0 not present
1 very mild
2 mild
3 moderate
4 moderately severe
5 severe
6 very severe
7 extremely severe

ORIENTATION AND CLOUDING OF SENSORIUM — Ask "What day is this? Where are you? Who am I?"
0 oriented and can do serial additions
1 cannot do serial additions or is uncertain about date
2 disoriented for date by no more than 2 calendar days
3 disoriented for date by more than 2 calendar days
4 disoriented for place or person

Total CIWA-Ar Score _____

Rater's Initials _____

Maximum Possible Score 67

Patients scoring less than 10 do not usually need additional medication for withdrawal.

Sullivan, J.T; Sykora, K.; Schneiderman, J.; Naranjo, C.A.; and Sellers, E.M. Assessment of alcohol withdrawal: The revised Clinical Institute Withdrawal Assessment for Alcohol scale (CIWA-Ar). *British Journal of Addiction* 84:1353-1357, 1989.

Reprinted from Addiction medicine essentials: Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar). *ASAM News* (supplement) 2001;16(1).

Table 1. Symptoms of Alcohol Withdrawal Syndrome

Symptoms	Time of appearance after cessation of alcohol use
Minor withdrawal symptoms: insomnia, tremulousness, mild anxiety, gastrointestinal upset, headache, diaphoresis, palpitations, anorexia	6 to 12 hours
Alcoholic hallucinosis: visual, auditory, or tactile hallucinations	12 to 24 hours[a]
Withdrawal seizures: generalized tonic-clonic seizures	24 to 48 hours[b]
Alcohol withdrawal delirium (delirium tremens): hallucinations (predominately visual), disorientation, tachycardia, hypertension, low-grade fever, agitation, diaphoresis	48 to 72 hours[c]

[a] Symptoms generally resolve within 48 hours.
[b] Symptoms reported as early as two hours after cessation.
[c] Symptoms peak at five days.

From Bayard M, et al. Alcohol withdrawal syndrome. *Am Fam Physician* 2004; 69(6):1443-50. Copyright 2004 by the American Academy of Family Physicians. Reprinted with permission.

avoid the administration of unnecessary medications, help decrease the incidence of delirium tremens, and generally improve patient outcomes.[7-9] The CIWA-Ar can help the nurse identify and assess the severity of symptoms in order to intervene appropriately. It also directs the timing of reassessments.

MANAGEMENT

The goal of AWS management is to preserve respiratory and cardiovascular function and to alleviate symptoms until alcohol levels are sufficiently reduced. Timely intervention is critical; the greater the time elapsed between the patient's last drink and appropriate treatment, the more severe the symptoms. It's also essential to watch for subtle shifts in the patient's status.

Medications. The medications most widely used to manage AWS are the benzodiazepines (most commonly diazepam [Valium], lorazepam [Ativan], and chlordiazepoxide [Librium]),[8] which act upon the GABA system and mimic the effects of alcohol.[10] Because it takes several days for the neurotransmitters' equilibrium to be readjusted, patients must be medicated consistently during the entire withdrawal period, as directed by the CIWA-Ar score. Although benzodiazepines carry a risk of dependency, the benefit of their short-term use during AWS outweighs that risk. Furthermore, when used in response to a CIWA-Ar score, they can be tapered off as the patient's condition improves, thereby decreasing the risk of dependency.

Other management measures. Continued vigilance is essential: watch the patient carefully and consistently reevaluate her or his condition. It's also important to implement precautions against falling, frequently monitor the patient's vital signs, and provide a one-on-one sitter if possible.

Upon discharge. The nurse, hospital discharge planner, and primary care provider should talk about the patient's withdrawal experience to identify the level of postdischarge follow-up required. The patient may need outpatient counseling or a referral to a rehabilitation center. Follow-up appointments should be discussed, and arranged if possible, to increase the chances for successful abstinence. Referrals to community resources may also be helpful.

REVISITING MS. WILSON

A quick alcohol intake assessment by the nurse upon Ms. Wilson's arrival on the surgical unit, followed by the use of the CIWA-Ar, would have prevented the aggravation of her alcohol withdrawal symptoms. Follow-up assessments with the CIWA-Ar would have helped the physician to properly manage her symptoms by using benzodiazepines. ▼

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