Diagnosis and management of acute alcohol withdrawal

Education

Éducation

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This article has been peer reviewed.

CMAJ 1999;160:675-80.

See related article page 649

Abstract

ALCOHOL ABUSE PRODUCES A CONSIDERABLE BURDEN OF ILLNESS in the Canadian population. The diagnosis of alcohol dependence and withdrawal can be difficult, particularly in the setting of covert intake or comorbidity. Two validated scales, the CAGE questionnaire to screen for alcohol abuse and dependence and the Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale to assess the severity of withdrawal, are valuable tools for clinicians to use on a regular basis. For the treatment of alcohol withdrawal, compelling anecdotal evidence supports the routine administration of thiamine, but not necessarily other vitamins. Phenytoin has not been shown to be superior to placebo for uncomplicated withdrawal seizures. Neuroleptics are not recommended for routine use. Sedation with benzodiazepines guided by the CIWA-Ar results is recommended. There is good evidence that the management of alcohol withdrawal can be improved with the routine use of the CIWA-Ar scale to assess severity, treatment with adequate doses of benzodiazepines and follow-up monitoring of patients in alcohol withdrawal.

Résumé

L'ALCOOLISME IMPOSE UN FARDEAU MORBIDE CONSIDÉRABLE à la population canadienne. L'alcoolisme et le sevrage alcoolique peuvent être difficiles à diagnostiquer, surtout dans le contexte de l'absorption furtive ou d'une comorbidité. Deux échelles validées, soit le questionnaire CAGE de dépistage de l'abus de l'alcool et de l'alcoolisme et l'échelle d'évaluation du sevrage alcoolique de l'Institut clinique (CIWA-Ar), qui permettent d'évaluer la gravité du sevrage, sont des outils précieux que les cliniciens peuvent utiliser régulièrement. Pour le traitement du sevrage alcoolique, des données anecdotiques convaincantes appuient l'administration régulière de thiamine, mais pas nécessairement d'autres vitamines. On n'a pas démontré que la phénytoine est meilleure que le placebo dans le cas des crises de sevrage sans complication. On ne recommande pas l'utilisation routinière des neuroleptiques. On recommande une sédation au moyen de benzodiazépines fondée sur les résultats de l'évaluation CIWA-Ar. De solides données probantes indiquent qu'il est possible d'améliorer la prise en charge du sevrage alcoolique en utilisant régulièrement l'échelle d'évaluation CIWA-Ar pour évaluer la gravité, en traitant le problème au moyen de doses adéquates de benzodiazépines et en suivant les patients en phase de sevrage.

Alcohol use is highly prevalent in our society. In a survey published in 1989, 78% of adult Canadians reported alcohol consumption in the preceding year, and 19% of these current drinkers reported a previous health threat related to their alcohol use (e.g., driving under the influence of alcohol or a physical ailment related to alcohol).[1] In another survey, heavy drinking (defined in the article as 14 or more drinks per week) was reported by 10% of those who said they consumed alcohol.[2] The Addiction Research Foundation

has divided the Ontario population into the following categories of health risk by alcohol intake: no risk/abstainers 18%, low risk (1–14 drinks per week) 62%, moderate risk (15–35 drinks per week) 14% and high risk (over 35 drinks per week) 6%.[3]

Although there may be benefits from mild to moderate alcohol consumption in terms of cardiovascular outcomes,[4] the overall risk:benefit ratio associated with alcohol use is unknown.[5–7] Ethanol is toxic to a wide range of organ systems both in vitro and in vivo.[8] The association of heavy drinking with increased total mortality and the broad spectrum of dose-related morbidity associated with alcohol use has led to conservative public health recommendations for consumption.[9]

Alcohol dependence and abuse

Since 1977 the World Health Organization has recommended that the confusing term "alcoholism" be abandoned in favour of the more specific designation "alcohol dependence syndrome" or "nondependent abuse of alcohol."[10] The criteria for diagnosing substance (including alcohol) dependence and abuse that appear in the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition[11] (DSM-IV) are listed in Appendix 1. A recent analysis of data from Canada's Alcohol and Other Drugs Survey (CADS) revealed that an estimated 4.1% of Canadians met the DSM definition of alcohol dependence.[12]

The Canadian Task Force on Preventive Health Care (formerly the Canadian Task Force on the Periodic Health Examination) recommends early detection and counselling of patients at risk of alcohol-related problems.[13] Screening for the possibility of alcohol abuse or dependence can be easily done using the CAGE questionnaire, a validated tool comprised of the following 4 questions:[14–16] Have you ever felt you needed to ***c***ut down on your drinking? Have people ***a***nnoyed you by criticizing your drinking? Have you ever felt ***g***uilty about drinking? Have you ever felt you needed a drink first thing in the morning to steady your nerves or to get rid of a hangover (***e***ye-opener)? The likelihood ratios associated with the number of affirmative responses (possible total of 4) to the CAGE questions are as follows: 1.3–1.5 for 1 affirmative response, 4.5–8 for 2, 13–160 for 3 and 100–infinity for 4.[14,17] The analysis of the CADS data revealed that male sex, single or divorced marital status, low education level and region of residence were independent risk factors for a positive CAGE result.[12] Only 14.5% of the respondents in the CAGE-positive group said they had previously sought help or treatment to deal with problem drinking.[12]

Once alcohol dependence has been diagnosed, a brief physician-based intervention has been found to be effective in decreasing alcohol consumption in at-risk drinkers.[18–20] Family physicians are ideally situated to screen for high alcohol consumption and to provide cost-effective advice to patients at risk of alcohol-related problems.[19]

Acute alcohol withdrawal

Acute alcohol withdrawal can produce some of the more serious morbidity related to alcohol consumption. Clinical features of alcohol withdrawal follow the cessation of regular high-dose alcohol ingestion as soon as the blood alcohol level decreases significantly.[21] Within 6 to 24 hours after stopping drinking, tremors, nausea and vomiting, anxiety, mild agitation, tachycardia, hypertension, insomnia and diaphoresis may occur. These symptoms usually peak between 24 and 36 hours and may dissipate after 48 hours. Hallucinations occur in 3%–10% of patients and are usually visual; their onset and duration are variable but typically begin after several days of abstinence.[22] Convulsions, which are usually 1 or 2 grand mal seizures, occur in 5%–15% of patients during acute alcohol withdrawal and typically occur within 6 to 48 hours after alcohol cessation.[21,22] The risk of seizures increases with the duration of alcohol abuse.[21,22] Alcohol consumption is more strongly associated with seizures than is alcohol withdrawal.[23,24] Delirium tremens (disorientation and global confusion) occur in less than 5% of patients, usually 3 to 5 days after withdrawal, and last for 2 to 3 days.[22] The overall rate of death from delirium tremens is estimated at 2%–10%, with death usually due to cardiovascular, metabolic or infectious complications.[21,22,25]

Diagnosis and monitoring of withdrawal

If a clinician suspects that regular high-dose alcohol intake has been recently discontinued, she or he can diagnose and monitor alcohol withdrawal using the Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale,[26] a reliable and validated 10-item scale (Appendix 2). The CIWA-Ar has high interrater reliability ($r > 0.8$)[26] and construct validity.[27]

The clinician gives a score for each response or observation using a Likert-type scale (0–7 in most cases), with a maximum possible total score of 67. Mild withdrawal is considered if the patient has a CIWA-Ar score of 15 or less, moderate withdrawal if the score is between 16 and 20 and severe withdrawal if the score is above 20.[28–32] Each rise in score group is associated with a higher relative risk of complications such as confusion, seizures and hallucinations in those untreated.[28]

A randomized controlled trial comparing fixed-dose

sedation with sedation guided by the CIWA-Ar score showed a shorter duration of sedation and hospital stay in the latter group.[29] Although virtually all of the studies of alcohol withdrawal assessed using the CIWA-Ar scale have been based in specialized alcohol treatment centres, a report of a case series from a general hospital in Australia showed that the CIWA-Ar scale was useful in assessing hospitalized medical patients and identifying those who needed further treatment.[28]

Management

The management of patients experiencing acute alcohol withdrawal is summarized in Table 1. Standard treatment for acute alcohol withdrawal, regardless of severity, includes supportive care (general nursing care in a quiet environment, reassurance, hydration, nutrition, reality orientation and the monitoring of signs and symptoms of withdrawal) and the administration of thiamine.[27,32] Since thiamine deficiency has been reported in 30%–80% of people with alcohol dependence, 25–50 mg of thiamine given intravenously is recommended to prevent Wernicke's encephalopathy.[22,25] This vitamin should be administered before intravenous glucose because it is a cofactor necessary for glucose metabolism. Severe and irreversible cerebellar and brain-stem damage has been reported when glucose was administered to patients suffering acute alcohol withdrawal who were not given concomitant thiamine therapy.[22,25] The value of multivitamin or other B vitamin prophylactic therapy for patients in alcohol withdrawal remains unproven.[25,33]

For patients with a total CIWA-Ar score of less than 10 and no hallucinations or disorientation, supportive care is sufficient.[25,26,28,29,32] The trials we reviewed varied in their threshold for starting benzodiazepine therapy. Supportive care may be sufficient for patients with mild withdrawal whose CIWA-Ar scores are higher (10 to 15) if the patient is in a well-staffed detoxification unit rather than a busy, noisy emergency department. Providing supportive care might take 10 minutes of every hour at first, then less time as the patient stabilizes.[25,32] Such care does not, however, necessarily prevent the occurrence of seizures or hallucinations. For patients who have a CIWA-Ar score of more than 10 or who are experiencing hallucinations or disorientation, pharmacotherapy should be considered.[25,26,32]

Phenytoin has not been demonstrated to be superior to placebo in the prevention of simple withdrawal-induced seizures[34–36] but may be required for multiple recurrent seizures or focal seizures or in patients with a history of epilepsy or head trauma.[25]

Symptoms of acute alcohol withdrawal assessed using the Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale

Nausea and vomiting
Tremor
Paroxysmal sweats
Anxiety
Agitation
Tactile disturbances
Auditory disturbances
Visual disturbances
Headache, fullness in head
Disorientation

Clinicians using the CIWA-Ar scale (reproduced in Appendix 2) ask or observe patients regarding whether they are experiencing any of the above symptoms and to what degree. The patient's overall score indicates the severity of alcohol withdrawal and the treatment and follow-up required (Table 1).

Table 1: Management of acute alcohol withdrawal[28–30,32]

Severity of withdrawal (CIWA-Ar score)	Monitoring	Treatment
Mild (≤ 15)	Assess symptoms with CIWA-Ar scale every 4 hours	Thiamine use and supportive care are sufficient if patient has a CIWA-Ar score ≤ 10 and no hallucinations or disorientation. Benzodiazepine therapy may be indicated if score is > 10. The goal is a CIWA-Ar score below 8 for 2 consecutive readings
Moderate (16–20)	Assess symptoms with CIWA-Ar scale at and 1 hour after each benzodiazepine dose; once score is < 10, then reassess every 4 hours	Thiamine, supportive care and benzodiazepine therapy. Benzodiazepine dose every hour, up to 3 doses, until CIWA-Ar score is < 10. If no improvement, reassess diagnosis and benzodiazepine dose. Respiratory monitoring advised
Severe (> 20)	As for moderate withdrawal	As for moderate withdrawal

Note: CIWA-Ar = Clinical Institute Withdrawal Assessment for Alcohol. See Appendix 2 for CIWA-AR scale.

Neuroleptics are not recommended for routine use or prophylaxis because of a lack of evidence of efficacy and because of their adverse effects, particularly the lowering of the seizure threshold.[22,37,38] Nonetheless, patients experiencing severe agitation, thought disorders and hallucinations may require haloperidol (0.5–5 mg orally, intravenously or intramuscularly every 2–4 hours as needed) in addition to a benzodiazepine.[25]

Many sedatives, including benzodiazepines, have been tried to relieve symptoms of acute alcohol withdrawal.[22,30,39–41] Benzodiazepines have been advocated as the keystone therapy for alcohol withdrawal because they have both sedating and anticonvulsant effects. Observations of a wide variation in clinical practice in benzodiazepine regimens, in the use of additional medications and in the duration of inpatient treatment for alcohol withdrawal has led to a call for a review of regimen efficacy with a view toward practice guidelines.[41]

In an accompanying article in this issue (page 649) we report on a meta-analysis we conducted of the evidence for the use of benzodiazepines in the treatment of acute alcohol withdrawal.[42] Our findings from the meta-analysis support the view that benzodiazepines are effective in reducing signs and symptoms of withdrawal and preventing complications. All of the benzodiazepines studied appear to have similar efficacy. Two key points emerge as the most relevant for prescribers. First, clinicians should start treatment with benzodiazepines early, as indicated by the CIWA-Ar score, rather than waiting for withdrawal to advance. Second, adequate doses of benzodiazepine should be used (20 mg of diazepam or 4 mg of lorazepam). These high doses are required to counteract the tolerance that most people with alcohol dependence have to benzodiazepines. Higher doses given early, along with close monitoring using the CIWA-Ar scale, are considered safe and may avoid the late sedation that occurs with ongoing administration of lower doses.

People suffering alcohol withdrawal are often admitted to busy acute care wards of hospitals, settings where staff cannot devote their attention solely to this type of patient. After reviewing our local situation and the medical literature, we instituted a care path approach to the treatment of alcohol withdrawal to facilitate consistent, high-quality assessment and treatment. The package includes a structured order form for physicians to initiate the care path and an assessment form for nurses to chart the CIWA-Ar score and medications given. Physicians and nurses can call on a trained nurse educator for help in using the care path with patients when necessary.

Conclusion

Physicians, particularly family physicians, are ideally situated to screen for problem drinking and to intervene to reduce excessive alcohol consumption. Simple, short screening tools such as the CAGE questionnaire help make it feasible for physicians to incorporate this area of screening into usual clinical practice.

For the patient suffering alcohol withdrawal, we recommend the use of the CIWA-Ar scale for initial assessment and for follow-up. This validated scale is useful to determine the need for medication and for monitoring the alcohol withdrawal syndrome. A standardized approach to alcohol withdrawal, including treatment guided by close follow-up with the CIWA-Ar scale, can improve the efficiency of management of this potentially serious condition.

This work was funded in part by the Canadian Pharmaceutical Association (CPhA) and the Canadian Medical Association (CMA). The overview was prepared for a CPhA–CMA clinical practice guideline initiative on benzodiazepines. Dr. Holbrook is a recipient of an Ontario Ministry of Health Research Personnel Award (no. 04698).

Competing interests: None declared.

In an accompanying article in this issue (page 649) the authors report the results of their meta-analysis of the evidence on the efficacy of benzodiazepines in the treatment of acute alcohol withdrawal. These 2 articles are the first of several that will examine some of the uses of benzodiazepines in clinical practice.

References

1. Eliany M. *Alcohol in Canada*. Ottawa: Minister of Supplies and Services; 1989. Cat no H39-158/1989E.
2. Millar W. A trend to a healthier lifestyle. *Health Rep* 1991;3:363-70.
3. Addiction Research Foundation. *How many people are alcoholics?* Toronto: The Foundation; 1997. Available: www.arf.org/isd/stats/alcohol.htm.
4. Rimm EB, Klatsky A, Grobbee D, Stampfer MJ. Review of moderate alcohol consumption and reduced risk of coronary heart disease: Is the effect due to beer, wine, or spirits? *BMJ* 1996;312:731-6.
5. Fletcher RH. Modest alcohol consumption decreased mortality [commentary]. *ACP J Club* 1995;122:49.
6. Doll R, Peto R, Hall E, Wheatley K, Gray R. Mortality in relation to consumption of alcohol: 13 years' observations on male British doctors. *BMJ* 1994;309:911-8.
7. Makela P, Valkonen T, Martelin T. Contribution of deaths related to alcohol use to socioeconomic variation in mortality: register based follow up study. *BMJ* 1997;315:211-6.
8. Ahmed FE. Toxicologal effects of ethanol on human health. *Crit Rev Toxicol* 1995;25:347-67.
9. Anderson P, Cremona A, Paton A, Turner C, Wallace P. The risk of alcohol. *Addiction* 1993;88:1493-508.
10. World Health Organization. *Manual of the international statistical classification of diseases, injuries, and causes of death*. Geneva: WHO; 1977.
11. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 4th ed. Washington: The Association; 1994. p. 255-653.
12. Poulin C, Webster I, Single E. Alcohol disorders in Canada as indicated by the CAGE questionnaire. *CMAJ* 1997;157:1529-35.
13. Haggerty JL. Early detection and counselling of problem drinking. In: Canadian Task Force on the Periodic Health Examination. *The Canadian guide to clinical preventative health care*. Ottawa: Canada Communication Group; 1994. p. 1-11.
14. Buchsbaum DG, Buchanan RG, Centor RM, Schnoll SH, Lawton MJ. Screening for alcohol abuse using CAGE scores and likelihood ratios. *Ann In-*

tern Med 1991;115:774-7.
15. Peters C, Wilson D, Bruneau A, Butt P, Hart S, Mayhew J. Alcohol risk assessment and intervention for family physicians. *Can Fam Physician* 1996;42:681-9.
16. Kitchens J. Does this patient have an alcohol problem? *JAMA* 1994;272: 1782-7.
17. Sackett DL. A primer on the precision and accuracy of the clinical examination. *JAMA* 1992;267:2638-44.
18. Kahan M, Wilson L, Becker L. Effectiveness of physician-based interventions with problem drinkers: a review. *CMAJ* 1995;152:851-9.
19. McIntosh MC, Leigh G, Baldwin NJ, Marmulak J. Reducing alcohol consumption. *Can Fam Physician* 1997;43:1959-67.
20. Saitz R. Brief advice reduced drinking in nondependent problem drinkers. *Therapeutics* 1997;Nov/Dec:63.
21. Lemer WD, Fallon HJ. The alcohol withdrawal syndrome. *N Engl J Med* 1985;313:951-2.
22. Guthrie SK. The treatment of alcohol withdrawal. *Pharmacotherapy* 1989;9: 131-43.
23. Ng S, Hauser A, Brust J, Susser M. Alcohol consumption and withdrawal in new-onset seizures. *N Engl J Med* 1988;319:666-716.
24. Leone M, Bottacchi E, Beghi E, Morgando E, Mutani R. Alcohol use is a risk factor for a first generalized toni-clonic seizure. *Neurology* 1997;48:614-20.
25. Sellers EM. Alcohol, barbiturate and benzodiazepine withdrawal syndromes: clinical management. *CMAJ* 1988;139:113-20.
26. Sullivan JT, Skykora K, Schneiderman J. Assessment of alcohol withdrawal: the revised Clinical Institute Withdrawal Assessment for Alcohol Scale (CIWA-Ar). *Br J Addict* 1989;84:1353-7.
27. Shaw JM, Kosesar S, Sellers EM, Kaplan HL, Sandor P. Development of optimal treatment tactics for alcohol withdrawal. I. Assessment and effectiveness of supportive care. *J Clin Psychopharmacol* 1981;1:382-9.
28. Foy A, March S, Drinkwater V. Use of an objective clinical scale in the assessment and management of alcohol withdrawal in a large general hospital. *Alcohol Clin Exp Res* 1988;12:360-4.
29. Saitz M, Mayo-Smith MF, Redmond HA, Bernard DR, Calkins DR. Individualized treatment for alcohol treatment. A randomized double-blind controlled trial. *JAMA* 1994;272:519-23.
30. Mayo-Smith MF. Pharmacological management of alcohol withdrawal. *JAMA* 1997;278:144-51.
31. Sellers EM, Naranjo CA, Harrison M, Devenyi P, Roach C, Sykora K. Diazepam loading: simplified treatment of alcohol withdrawal. *Clin Pharmacol Ther* 1983;34:822-6.
32. Naranjo CA, Sellers EM, Chater K, Iversen P, Roach C, Sykora K. Nonpharmacologic intervention in acute alcohol withdrawal. *Clin Pharmacol Ther* 1983;34:214-9.
33. Schwab RA, Powers RD. Prevalence of folate deficiency in emergency department patients with alcohol-related illness or injury. *Am J Emerg Med* 1992;10:203-7.
34. Alldredge BK, Lowenstein DH, Simon RP. Placebo-controlled trial of intravenous diphenylhydantoin for short-term treatment of alcohol withdrawal seizures. *Am J Med* 1989;87:645-8.
35. Chance JF. Emergency department treatment of alcohol withdrawal seizures with phenytoin. *Ann Emerg Med* 1991;20:520-2.
36. Rathlev NK, D'Onofrio GD, Fish SS, Maher P, Bernstein E, Hossack RW. The lack of efficacy of phenytoin in the prevention of recurrent alcohol-related seizures. *Ann Emerg Med* 1994;23:513-8.
37. Cold JA, Wells BG, Froemming JH. Seizure activity associated with antipsychotic therapy. *DICP* 1990;24:601-6.
38. Markowitz JC, Brown RP. Seizures with neuroleptics and antidepressants [review]. *Gen Hosp Psychiatry* 1987;90:135-41.
39. Turner RC, Lichstein PR, Peden JG Jr, Busher JT, Waivers LE. Alcohol withdrawal syndromes: a review of pathophysiology, clinical presentation, and treatment [review]. *J Gen Intern Med* 1989;4:432-44.
40. Ozdemir V, Bremner K, Naranjo CA. Treatment of alcohol withdrawal syndrome. *Ann Med* 1993;26:101-5.
41. Saitz R, Friedman LS, Mayo-Smith MJ. Alcohol withdrawal: A nationwide survey of inpatient treatment practices. *J Gen Intern Med* 1995;10:479-87.
42. Holbrook AM, Crowther R, Lotter A, Cheng C, King D. Meta-analysis of benzodiazepine use in the treatment of acute alcohol withdrawal. *CMAJ* 1999;160:649-55.

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Appendix 1: Diagnostic criteria for substance dependence and abuse*

Substance dependence

A maladaptive pattern of substance abuse, leading to clinically significant impairment or distress, as manifested by 3 (or more) of the following occurring at any time in the same 12-month period:

1. Tolerance, as defined by either of the following:
   (a) A need for markedly increased amounts of the substance to achieve intoxication or desired effect
   (b) Markedly diminished effect with continued use of the same amount of substance
2. Withdrawal, as manifested by either of the following:
   (a) The characteristic withdrawal syndrome for the substance (refer to criteria A and B of the criteria sets for withdrawal from the specific substances in the DSM-IV)
   (b) The same (or closely related) substance is taken to relieve or avoid withdrawal symptoms
3. The substance is often taken in larger amounts or over a longer period than was intended
4. There is a persistent desire or unsuccessful efforts to cut down or control substance abuse
5. A great deal of time is spent in activities necessary to obtain the substance (e.g., visiting multiple doctors or driving long distances), use the substance (e.g. chain-smoking) or recover from its effects
6. Important social, occupational or recreational activities are given up or reduced because of substance abuse
7. The substance use is continued despite knowledge of having a persistent or recurrent physical or physiological problem that is likely to have been caused or exacerbated by the substance (e.g., current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption)

Specify if:

- *with physiological dependence:* evidence of tolerance or withdrawal (i.e., either criterion 1 or 2 is present)
- *without physiological dependence:* no evidence of tolerance or withdrawal (i.e., neither criterion 1 nor 2 is present)

Substance abuse

A. A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by one (or more) of the following, occurring at any time in the same 12-month period:
   1. Recurrent substance use resulting in a failure to fulfil major role obligations at work, school or home (e.g., repeated absences or poor work performance related to substance abuse; substance related absences, suspensions or expulsions from school; neglect of children or household)
   2. Recurrent substance abuse in situations in which it is hazardous (e.g., driving an automobile or operating a machine when impaired by substance abuse)
   3. Recurrent substance-related legal problems (e.g., arrests for substance-related disorderly conduct)
   4. Continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance (e.g., arguments with spouse about consequences of intoxication, physical fight)
B. The symptoms have never met the criteria for substance dependence for this class of substance.

Note: DSM-IV = *Diagnostic and Statistical Manual of Mental Disorders,* 4th ed.[11]

Appendix 2: Addiction Research Foundation Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale

Patient _____ **Date** ___/___/___ **Time** _____ : _____
y m d **(24-hour clock, midnight = 00:00)**

Pulse or heart rate, taken for 1 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, burning sensations, 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 colour 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 as if 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 and/or person

Total CIWA-Ar score: _____
Rater's initials: _____
Maximum possible score: 67