Knowing the Score: An Evidence-Based Practice Evaluation of Alcohol Withdrawal Assessment Tools in the Critically-Ill Patient

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PURPOSE

An evidence-based practice project was undertaken to examine the following clinical practice question:

What is the best alcohol withdrawal assessment tool for the critically-ill inpatient?

BACKGROUND

Motivation for examining this clinical practice question:

- Treatment of alcohol withdrawal at UVHN-CVPH is guided by protocolized interventions indicated according to alcohol withdrawal assessment score
- The current alcohol withdrawal assessment tool, *CIWA-Ar*, is inappropriate in critically-ill patients [1]
  - *CIWA-Ar* requires verbal responses to 7 of ten tool items; items cannot be skipped
  - Critically-ill patients may be unable to verbally communicate due to disorientation, delirium, hallucinations, sedation, and/or endotracheal intubation
  - *CIWA-Ar* is not validated for critically-ill patients [2]
- Inability to obtain a *CIWA-Ar* tool score results in administration of PRN medications outside of defined parameters or delay of care for additional orders/parameters

EVIDENCE – LITERATURE REVIEW

Related Search Terms

Critically - Ill	Assessment Tools	Alcohol Withdrawal
• Critically-ill • Critical Care • Intensive Care Unit • ICU	• Assessment Tool • Assessment Scale	• Alcohol Withdrawal • Withdrawal severity • AWS

A comprehensive literature Review was initially completed in 2018, with additional reviews in 2019, 2020, 2021.

APPRAISAL OF EVIDENCE – TOOL RECOMMENDATION

Article Author	Tool Recommendation	Evidence Level and Quality
DeCarolis et al., 2007	*MINDS*	IIB
Duby et al., 2014	*RASS*	IIB
Heavner et al., 2018	*Modified MINDS*	IIB
Tavani et al., 2017	*RASS*	IIB
Littlefield et al., 2018	*Modified MINDS*	IIIA
Gee et al., 2017	*Alcohol Withdrawal Clinical Assessment*	IIIB
Awissi et al., 2013	*Sedation Agitation Scale*	VA
Benson et al., 2012	*Glasgow Modified Alcohol Withdrawal Scale*	VA
Phillips et al., 2006	*Modified Severity Assessment Scale*	VB
Ycaza-Gutierrez et al., 2015	*RASS*	VB
Smith et al., 2020	*Modified MINDS*	VB
Sankoff et al., 2013	*Severity of Ethanol Withdrawal Scale*	VC
Watling et al., 1995	*Severity Assessment Scale*	VC

FINDINGS

Based on the available literature:

- No alcohol withdrawal tool has been formally validated in the critical care setting
- *CIWA-Ar* is not appropriate for critically-ill patients in alcohol withdrawal
- Moderate evidence for two assessment scales, *RASS*, and *(m)MINDS*

Translation of findings at UVHN-CVPH:

- Multidisciplinary team of organization stakeholders evaluated strengths and weakness of implementing *RASS* vs. (*m)MINDS* scale
- Tentatively approved adoption of *mMINDS* scale in ICU pending protocol development

FUTURE DIRECTIONS

N**ext Steps at UVHN-CVPH**:

- Seek UVM Health Network approval for *mMINDS* assessment in EHR, *EPIC*
- Seek formal approval of proposed alcohol withdrawal treatment protocol and order set for ICU patients guided by the *mMINDS* alcohol withdrawal assessment scale
- Assess selected outcome measures post tool and protocol implementation, including; ICU intubations, ICU pneumonias, ICU LOS, and hospital LOS in critically-ill patients in alcohol withdrawal

1. American Society of Addiction Medicine. (2020). The ASAM clinical practice guideline on alcohol withdrawal management. https://journals.lww.com/journaladdictionmedicine/fulltext/2020/06001/the_asam_clinical_practice_guideline_on_alcohol.1.aspx
2. Adams, B., & Ferguson, K. (2017). Pharmacologic management of alcohol withdrawal syndrome in intensive care units. *AACN Advanced Critical Care, 28*(3), 233-238.doi:10.4037/aacnacc2017574

CIWA-Ar, RASS, & MMINDS

TABLE 1. RICHMOND AGITATION–SEDATION SCALE

Score	Term	Description
+4	Combative	Overtly combative or violent; immediate danger to staff
+3	Very agitation	Pulls on or removes tube(s) or catheter(s) or has aggressive behavior toward staff
+2	Agitated	Frequent nonpurposeful movement or patient–ventilator dyssynchrony
+1	Restless	Anxious or apprehensive but movements not aggressive or vigorous
0	Alert and calm	
−1	Drowsy	Not fully alert, but has sustained (more than 10 seconds) awakening, with eye contact, to voice
−2	Light sedation	Briefly (less than 10 seconds) awakens with eye contact to voice
−3	Moderate sedation	Any movement (but no eye contact) to voice
−4	Deep sedation	No response to voice, but any movement to physical stimulation
−5	Unarousable	No response to voice or physical stimulation

Retrieved from: Sessler et al, 2002.

The mMINDS Scale

Modified Minnesota Detoxification Scale (MINDS)	
PARAMETER (Patient receives score based on real-time assessment)	SCORE
Pulse (beats per minute)	
<90	0
90-110	1
>110	2
DIASTOLIC blood pressure (mmHg)	
<90	0
90-110	1
>110	2
***Tremor** – Assess with patient's arms extended and fingers spread.	
Absent	0
Slightly visible or can be felt fingertip to fingertip	2
Moderate – Noticeably visible with arms extended	4
Severe – Noticeable even with arms not extended	6
Sweat	
Absent	0
Barely; Moist palms	2
Beads visible	4
Drenching	6
***Hallucinations** – Feeling crawling sensations over skin (tactile), hearing voices when no one has spoken (auditory), or seeing patterns, lights, beings, or objects that are not there (visual).	
Absent	0
Mild – Mostly lucid, sporadic/rare hallucinations	1
Moderate/Intermittent – Hallucinating at times (when first waking up or in between conversations/patient care) with moments of lucidity but able to be reoriented	2
Severe, continuous while awake	3
***Agitation** – Assess using the Richmond Agitation-Sedation Scale (RASS)	
Normal activity or sedated (RASS of 0 or less)	0
Somewhat > normal (RASS of +1)	3
Moderately fidgety, restless (RASS of +2)	6
Pacing, thrashing (RASS of ≥+3)	9
***Orientation**	
Oriented x3 (person/place/time OR at patient's baseline OR too sedated to assess orientation)	0
Oriented x2	2
Oriented x1	4
Disoriented	6
***Delusions** – Unfounded ideas that can be related to suspicions or paranoid thoughts, i.e. patient believes their things have been stolen, or they are being persecuted unjustly	
Absent of unable to assess	0
Present	6
Seizures	
Not actively seizing	0
Actively seizing	6
TOTAL	
***If unable to assess a parameter secondary to over sedation or mechanical ventilation, score = 0**	

Note: Scale available from Heavner et al., 2018.

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SUBJECT: *Alcohol Withdrawal, Care Management of* **Section: Generic**

CVPH Medical Center

Alcohol Withdrawal Assessment Form

Record pulse, blood pressure, temperature on flow sheet

MODIFIED
CIWA ASSESSMENT SCALE - Ar

1. PAROXYMAL SWEATS OBSERVAITON:
Sweating: observation
0 No sweat
1 Barely perceptible sweating, palms moist
4 Beads of sweat obvious on forehead
7 Drenching sweats

2. TREMOR:
Arms extended and fingers spread apart.
Observation
0 No tremor
1 Not visible, but can be felt fingertip to fingertip
4 Moderate, with patient's arms extended
7 Severe, even with arms not extended

3. ANXIETY
Ask, "Do you feel nervous or nervous?"
Observation
0 No anxiety, at ease
1 Mildly anxious
4 Moderately anxious or guarded
7 Severe, equivalent to panic state

4. TACTILEDISTURBANCES:
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 Not present
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

5. AUDITORY DISTURBANCES:
Are you more aware of sounds around you? Are they harsh? Are you hearing things you know are not there?"
0 Not present
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

6. VISUAL DISTURBANCES:
Does the light appear to be too bright? Does it hurt your eyes? Are you seeing anything that is disturbing to you?"
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

7. AGITATION
Observe
0 Normal activity
1 Somewhat more than normal activity
4 Moderately fidgety and restless
7 Paces back and forth during most of the interview, or constantly thrashes about

8. NAUSEA OR VOMITING
Ask: "Do you feel sick to your stomach or have you vomited?" Include recorded vomiting since last observation.
0 No nausea and no vomiting
1 Mild nausea with no vomiting
4 Intermittent nausea with dry heaves
7 Constant nausea, frequent dry heaves & vomiting

9. HEADACHE, FULLNESS IN HEAD:
Ask: "Does your head feel different? Does your head feel full? 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

10. ORIENTATION AND CLOUDING OF SENSORIUM
Ask: "What day is it? 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

Withdrawal Guide
8 or under: mild withdrawal
8-15: moderate withdrawal
15 or above: severe withdrawal

Retrieved from: CVPH Medical Center, 2018.

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