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Impact of psychiatric pharmacist-led ambulatory alcohol withdrawal management

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Abstract

Introduction: Alcohol withdrawal syndrome (AWS) is a complication of alcohol use disorder commonly encountered across various healthcare settings. Management of AWS is routinely conducted in the inpatient setting; however, in numerous patients, ambulatory alcohol withdrawal management (AAWM) is safe, effective, and recommended. There is no published evidence describing psychiatric pharmacists, otherwise known as Psychiatric Clinical Pharmacist Practitioners (psychiatric-CPP) impact on AAWM.

Methods: This was a single-centered, retrospective review conducted at a Veterans Affairs Healthcare System that aimed to quantify and describe the clinical impact of psychiatric-CPP–led AAWM. Veterans who participated in AAWM with a psychiatric-CPP from April 1, 2019, to December 31, 2023, were included in the study. Descriptive statistics were used.

Results: The rate of successful AAWM was 67.6% (n = 23) for 34 total withdrawal episodes. The most common reason for failure was breakthrough withdrawal or cravings at 45.5% (n = 5). The most common medications utilized included gabapentin (62.9%; n = 22), chlordiazepoxide (8.6%; n = 3), and diazepam (8.6%; n = 3). In 3 AAWM episodes, no medications were used. Cost avoidance of outpatient management rather than inpatient management was calculated to be $139,361.24. There were 2 alcohol-related emergency department visits within the first month of psychiatric-CPP–conducted AAWM, and no serious medical complications were noted.

Discussion: Psychiatric-CPPs practicing in a Veterans Affairs Healthcare System successfully completed AAWM in a majority of the episodes that were attempted. Additionally, few patients were seen in an emergency department setting for alcohol-related matters after initiation of AAWM, perhaps emphasizing the safety of this service and the need for further use.

Keywords: ambulatory alcohol withdrawal, outpatient alcohol withdrawal, alcohol withdrawal management, psychiatric pharmacist, mental health pharmacist, Veterans Affairs

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Introduction

Alcohol withdrawal syndrome (AWS) is a complication of alcohol use disorder (AUD) commonly encountered across various healthcare settings. AUD has a lifetime prevalence of 29%, and nearly one-half of patients with AUD will experience signs or symptoms of AWS.[1,2] Veterans are more likely to use alcohol and are more likely to report heavy use of alcohol compared with a civilian population, thus suggesting a possible higher incidence of AWS in a veteran population.[3]

Management of AWS is routinely conducted in the inpatient setting; however, it has been estimated that only 10% of patients experiencing AWS require inpatient management.[4] In a significant number of patients, ambulatory alcohol withdrawal management (AAWM) is safe and effective, as evidenced by multiple publications.[4-13] The American Society of Addiction Medicine and American Academy of Family Physicians published guidelines in 2020 and 2021, respectively, encouraging the use of AAWM in the absence of indications for inpatient management.[2,14] AAWM can improve access to care, improve uptake into addiction treatment services, reduce admissions rates for AUD, and save on overall healthcare spending, supporting further use of this treatment.[5,6,13-16] Furthermore, patients benefit from being treated in less restrictive environments that minimize disruptions to normal life rhythms.[14]

In light of the coronavirus disease 2019 (COVID-19) pandemic, an evidence-based protocol was developed at a Veterans Affairs Healthcare System by a multi-disciplinary workgroup to further expand AAWM and limit unneeded COVID-19 exposure. The workgroup was led by psychiatric pharmacists, otherwise known as Psychiatric Clinical Pharmacist Practitioners (psychiatric-CPP), who have continued to spearhead efforts to expand access to AAWM beyond the COVID-19 pandemic. Facility protocol recommendations, including exclusion criteria, medication selection, and dosing, were based on the American Society of Addiction Medicine Clinical Practice Guideline on Alcohol Withdrawal Management[14] as well as evidence from Stephens et al,[16] Myrick et al,[17] and Stock et al.[18] Specific protocol recommendations can be found in Table 1. Any facility provider could refer patients for initial evaluation for AAWM or support with ongoing monitoring after initiation via addiction specialty consult (received by a psychiatric nurse practitioner or psychiatric-CPP) or direct referral to psychiatric-CPP champions.

All psychiatric-CPPs providing AAWM within this review completed 2 years of post-graduate residency training and held Board Certification in Psychiatric Pharmacy. Each held a scope of practice, allowing for autonomy in patient care, prescriptive authority, and pertinent laboratory/referral ordering. Some facility psychiatric-CPPs, depending on their state of licensure, held United States Drug Enforcement Agency licensure and were able to independently prescribe controlled substances for AAWM. The aim of this project was to quantify the clinical impact of psychiatric-CPPs on AAWM.

Methods

This was a single-centered, retrospective review conducted at a Veterans Affairs Healthcare System. Veterans were included if they participated in AAWM from April 1, 2019 to December 31, 2023, based on the timeline of implementation of AAWM services at the study facility. Patients were identified for inclusion by administration of the Clinical Institute Withdrawal Assessment of Alcohol Scale, revised (CIWA-Ar) in the outpatient setting documented within the electronic health record; subsequent chart review was conducted to exclude patients who were not being evaluated for AAWM. Of note, if a Veteran had multiple AAWM attempts completed by a psychiatric-CPP, each individual attempt was counted as a separate episode that contributed to the overall sample. Demographic data collected included age, birth sex, and ethnicity, along with the discipline of any provider conducting initial or follow-up visits for the AAWM episode. Veterans were excluded from the review if they did not have at least 1 direct patient care visit with a psychiatric-CPP (initial or follow-up visit) during the alcohol withdrawal period or if they voiced a preference for gradual reduction of alcohol use rather than medically assisted abrupt alcohol cessation.

The primary outcome was the rate of patients that successfully completed AAWM, defined as completing all scheduled appointments and self-reported abstinence from alcohol through the withdrawal period per chart review of provider encounter documentation. Secondary outcomes included the number of alcohol-related emergency department visits and/or admissions at 1 and 3 months, the number of patients that returned to the use of alcohol within 1 and 3 months, and the retention rate in outpatient addiction treatment at 3 and 6 months from the date of initiation of AAWM. The definition of retention in care included completing a subsequent scheduled visit after completion of AAWM with either addiction treatment services staff or a mental health provider. If a patient's AAWM encounter was attempted within 3 months of the review end date, future visits scheduled with addiction specialty or mental health providers were counted toward the retention in care outcome for the shortest time frame appropriate (ie, only for 3 months if less than 3 months until the end of the review). Return to alcohol use was defined by self-report of alcohol consumption or if the patient was lost to follow-up during the outlined study period. Medications used for AAWM and the specific referral routes were characterized. The reasons for failure of AAWM were categorized. Further, a cost avoidance analysis was conducted in accordance with Patanwala et al[19] to compare outpatient versus inpatient management. Data were collected via a combination of warehouse extraction and manual chart review. Descriptive statistics were used.

Results

One hundred forty-three unique episodes were identified for inclusion via documentation of an outpatient CIWA-Ar. Upon chart review, 103 of these episodes were subsequently excluded because the patient was not being evaluated for AAWM. Administration of CIWA-Ar was standard practice

TABLE 1: Ambulatory alcohol withdrawal management facility protocol recommendations

Absolute Contraindications	
• Clinical Institute Withdrawal Assessment of Alcohol Scale, revised (CIWA-Ar) ≥ 19 • Current intoxication • History of withdrawal seizures or delirium tremens in last year • History of seizure disorder • Acute decompensated medical illness • Acute mental status changes • Unstable psychiatric condition • Benzodiazepine dependence or sedative use disorder • Pregnancy • Concern for imminent return to alcohol use or other risk of harm	
Relative Contraindications (Provider Discretion)	
• History of withdrawal seizures, delirium tremens > 1 year ago • CIWA-Ar 15-18 • Physiologic opioid dependence or opioid use disorder • Lack of dedicated caregiver or supportive family/friends • Significantly elevated vitals (eg, SBP > 180 mm Hg, DBP > 110 mm Hg, sustained HR > 110 bpm, or Temperature > 101°F) • Increase caution for exclusion criteria for age > 65	
Follow-Up Procedures	
• Daily follow-up is recommended for 3-5 days after last alcoholic drink, however, can be individualized per provider assessment • Follow-up assessments are completed by telephone, audio-visual telehealth, or in person as clinically indicated • Content of the assessments routinely includes administration of CIWA-Ar as well as evaluation of medication adherence and tolerability	
Medication Treatment Options	
Gabapentin[a]	**5-day taper:** 400 mg TID × 2 days 400 mg BID × 2 days 400 mg daily × 1 day
Carbamazepine[a]	**5-day taper:** 200 mg QID × 2 days 200 mg TID × 2 days 200 mg BID × 1 day
Chlordiazepoxide	**5-day taper:** 25-50 mg Q6H × 1 day 25 mg Q8H × 1 day 25 mg Q12H × 1 day 25 mg QHS × 2 days
Diazepam	**5-day taper:** 10-20 mg Q6H × 1 day 10 mg Q8H × 1 day 10 mg Q12H × 1 day 10 mg QHS × 2 days
Lorazepam[b]	**5-day taper:** 2 mg Q6H × 1 day 2 mg Q8H × 1 day 2 mg Q12 × 1 day 2 mg QHS × 2 days

BID = twice a day; DBP = diastolic blood pressure; HR = heart rate; SBP = systolic blood pressure; TID = three times a day; Q6H = every 6 hours; Q8H = every 8 hours; Q12H = every 12 hours; QHS = once a day at bedtime.
[a]Preferred for mild alcohol withdrawal.
[b]Preferred benzodiazepine in hepatic dysfunction.

for outpatient mental health walk-in visits, which led to a significant number of episodes that were not applicable to this review. Thereafter, 6 episodes were excluded because of an absence of psychiatric-CPP involvement in AAWM; 5 were completed by a nurse practitioner and 1 by a physician. This resulted in 34 total episodes among 29 unique patients eligible for inclusion. Of the eligible episodes, 1 patient had 4 unique AAWM episodes, while 1 had 3 different episodes. Demographic data can be found in Table 2.

Psychiatric-CPPs initiated the vast majority of AAWM episodes (79.4%), followed by physicians with 14.7%, and finally, nurse practitioners with 5.9%. If the AAWM episode was initiated by a physician or nurse practitioner, the

TABLE 2: Study demographics

	Results (N = 29)
Mean age	50 yr
Birth sex	25 males (86.2%)
Ethnicity	
White	16 (55.1%)
Black or African American	9 (31.0%)
Declined to answer	3 (10.3%)
American Indian or Alaskan Native	1 (3.4%)

TABLE 3: Study outcomes

	Results (N = 34)
Rate of successful ambulatory alcohol withdrawal management	23 (67.6%)
Retention rate in care at 3 months	27 (79.4%)
Retention rate in care at 6 months	22 (64.7%)
Number of episodes that returned to alcohol by 1 month	23 (67.6%)
Number of episodes that returned to alcohol by 3 months	25 (73.5%)
Number of alcohol-related emergency visits and/or admission by 1 month	2 (5.9%)
Number of alcohol-related emergency visits and/or admission by 3 months	5 (14.7%)
Specific Referral Route	
Addiction therapy	17 (50.0%)
Emergency psychiatry	6 (17.6%)
Outpatient psychiatry	5 (14.7%)
Psychiatric-CPP self-referred	5 (14.7%)
Speech language pathologist	1 (3.0%)
Reason for Failure[a]	
Breakthrough withdrawal or cravings	5 (45.5%)
Lost to follow-up	4 (36.4%)
Lack of social support	2 (18.1%)
Profession Who Initiated Ambulatory Alcohol Withdrawal Management	
Psychiatric-CPP	27 (79.4%)
Physician	5 (14.7%)
Nurse Practitioner	2 (5.9%)
Medication(s) Used[b]	
Gabapentin	22 (62.9%)
Chlordiazepoxide	3 (8.6%)
Diazepam	3 (8.6%)
No medication	3 (8.6%)
Lorazepam	2 (5.7%)
Carbamazepine	2 (5.7%)
Cost Avoidance	
Lower range	$23,383.08
Upper range	$336,359.45
Mean	$139,361.24

[a]n = 11.
[b]n = 35.

majority of follow-up assessments were completed by the psychiatric-CPP. Overall, 67.6% of AAWM episodes involving a psychiatric-CPP were successful (all scheduled appointments completed and self-reported abstinence through the withdrawal period). Addiction therapists made up most of the referrals to the psychiatric-CPP with 50.0%. Other referrals came from emergency consult mental health providers, outpatient mental health providers, or were already being followed by a psychiatric-CPP. Reasons for failure of AAWM (loss to follow-up or self-reported return to alcohol use during the AAWM episode) included breakthrough withdrawal symptoms or cravings (45.5%), loss to follow-up (36.3%), or lack of social support (18.1%). Other secondary outcome results are found in Table 3.

Of the 34 episodes completed by psychiatric-CPPs, 32 prescriptions were issued for AAWM. In 1 episode, a Veteran was prescribed both gabapentin and carbamazepine. In 3 episodes, Veterans were prescribed no medications and monitored closely. Specific agents used are found in Table 3.

Cost avoidance was calculated via the equation described in Patanwala et al.[19] Further information related to the calculation can be found in Figure. The mean cost avoidance calculated for outpatient withdrawal management rather than inpatient was $139,361.24 for the episode sample (n = 34).

Discussion

AAWM is an underused treatment, evidenced by the low sample size of this review despite a prolonged data collection time frame and ample provider education. The low number of patients offered this service signifies a gap in care, which can be filled by the psychiatric-CPP. Prior evidence has demonstrated that pharmacists with prescriptive authority have shown a reduction in costs, improved workflow efficiency, improved medication initiation, and increased patient access.[20] This is the first review outlining the impact of the psychiatric-CPP on AAWM and one of only a handful of primary literature publications speaking on AAWM within the last 20 years.[5-12,15-18,21,22] The majority of AAWM episodes identified during the study period involved a psychiatric-CPP, and more than 75% of AAWM episodes were initiated and managed exclusively by a psychiatric-CPP. Approximately 20% of AAWM episodes were initiated by a psychiatrist or psychiatric nurse practitioner in the emergency department or outpatient mental health setting, which were subsequently referred to psychiatric-CPPs for follow-up evaluations during the withdrawal period. Anecdotally, inappropriate referrals for patients with exclusion criteria for AAWM were infrequent.

A near 70% success rate was noted for completion of AAWM when managed by psychiatric-CPPs. This success rate aligns closely with other publications where a success

Cost Avoidance Calculation

$$Cost\ Avoided = [\sum_{i=1}^{n} pTC_i \times (\{pCON_i \times cCON_i\} + \Delta DC_i)] - [cPharm]$$

pTC_i	$pCON_i$	$cCON_i$	ΔDC_i
0.8 (0.75-0.85)	0.375 (0.25-0.50)	$14,853 ($5,605-$24,101)	-$8.80 (-$17.60-$0)

$$Cost\ Avoided = [0.8 \times (\{0.375 \times 14853\} - 8.80)] - [350]$$

$$Cost\ Avoided = 4098.86 + i2 + i3 \ldots i34 = \$139{,}361.24$$

$$Cost\ Avoided\ Lower\ Limit = 687.7375 + i2 + i3 \ldots i34 = \$23{,}383.08$$

$$Cost\ Avoided\ Upper\ Limit = 9892.925 + i2 + i3 \ldots i34 = \$336{,}359.45$$

pTC_i

Probability of the trajectory change in medication use affected by the intervener. We interpreted this variable in the context of this review as the chance that someone else other than a Psychiatric Pharmacist completes the AAWM encounter (i.e., 20% chance of someone else other than a pharmacist completing the AAWM if the variable is set at 0.8).

$pCON_i$

Probability of the consequence. In the context of AAWM, we viewed inpatient admission as the primary consequence.

$cCON_i$

The cost of the consequence occurring. Estimations completed via facility average cost for emergency department visit and hospitalization. Upper limit considered to be a complicated alcohol withdrawal, 5-day admission whereas lower limit was an uncomplicated, 1-day admission.

ΔDC_i

The direct drug cost savings for the specific intervention or change in drug cost because of the intervention. Given the cost avoidance intervention in this review is related to change in setting rather than drug cost, we set our upper limit at $0 and our lower limit at -$17.60 (estimated cost of a 5-day taper of gabapentin).

cPharm

The estimated costs of Psychiatric Pharmacist services. Hourly pay rate was estimated to be $70 per hour and 1 hour per day for 5 days was spent completing the patient encounter including documentation; total estimated cost for Psychiatric Pharmacist services was $350 per encounter.

FIGURE: Cost avoidance calculation; AAWM = ambulatory alcohol withdrawal management

rate ranged from 50% to 94% for AAWM when managed by non–psychiatric-CPP providers.[5-12] Only 5 (14.7%) alcohol-related emergency visits and/or admissions were documented 3 months from initiation of AAWM, and none resulted in serious medical complications related to alcohol. This figure aligns closely with prior literature ranging from 5% to 30% of AAWM patients requiring inpatient admission.[5-9]

At 1-month post-AAWM, patients had returned to alcohol use in 67.6% of treatment episodes. Elevated rates of return to alcohol use are common, with 1 report estimating more than 60% of patients with AUD will have a recurrence of alcohol use after remission within 6 months.[23] In Hayashida et al,[5] 44% of patients who completed AAWM and were able to be contacted had returned to the use of alcohol by the 1-month mark. Of note, most patients did remain in addiction or mental health care at 3- and 6-months post AAWM, with 79.4% and 64.7%, respectively. Retention in care is an understudied area in the context of AAWM. Wiseman et al[6] reported that 74% of their patients who completed AAWM went on to complete a rehabilitation program. In Soyka et al,[11] 62% of patients that completed AAWM remained in subsequent addiction treatment at the 3-month mark. Although patients may return to alcohol use following AAWM episodes, positive treatment retention rates may, in turn, lead to opportunities to improve long-term treatment outcomes. Prescribers included in this review routinely recommended initiating medications for AUD during the withdrawal period to support ongoing abstinence-related goals. These data were not captured in this review but could be a pertinent outcome for future studies.

Gabapentin was frequently used for AAWM in this review, and it is a preferred agent for mild AWS. Gabapentin offers a more favorable side effect profile and lower risk for misuse compared with benzodiazepines with similar efficacy for mild to moderate AWS.[17,18] Finally, gabapentin can be continued after completion of AAWM to aid in the maintenance of abstinence from alcohol.[24,25] Benzodiazepines are the preferred agent for patients presenting with moderate withdrawal severity and were used in 25% of AAWM episodes. The psychiatric-CPP either comanaged the benzodiazepine prescription with a prescribing physician or nurse practitioner or prescribed the benzodiazepine independently under their United States Drug Enforcement Agency license. Currently, 14 states permit clinical pharmacists to prescribe controlled substances.[26-30] This highlights the need for continued advocacy to advance state laws and facilitate access to this valuable service.

From a health economics perspective, psychiatric-CPPs cost avoided more than $130,000 even in the context of a low number of episodes. Moving forward, a continuation of this service has the potential to cost avoid more than $4,000 per inpatient admission day based on the facility average costs for an inpatient stay. These figures speak to the potential cost savings that could occur at any facility with the uptake of an AAWM service.

Limitations of this review include its retrospective design and its relatively low number of episodes, which hampers its external validity. Additionally, given that most outcomes were collected via manual chart review, there is inherently a risk of bias that cannot be completely mitigated despite the authors' best efforts with specific definitions for all outcomes.

Conclusion

Treatment guidelines recommend AAWM as a safe and effective treatment option for many patients at risk for alcohol withdrawal; however, it remains underused. The majority of AAWM episodes involved psychiatric-CPPs and were successfully completed with no serious medical complications noted. These findings highlight the psychiatric-CPP's role in expanding access to this underused service and decreasing associated healthcare costs. Further

efforts should be made to improve the uptake of this service within other professions as well as at other facilities.

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