Content available at: https://www.ipinnovative.com/open-access-journals

Indian Journal of Pharmacy and Pharmacology

Journal homepage: https://www.ijpp.org.in/

Original Research Article

Exploring alcohol withdrawal and therapeutic strategies in a tertiary teaching hospital in Nagapattinam

Rengaraj Thirunanamoorthy[1], Lakshmi Sabapathi Sundaram[2], Vignesh Sekar[3], Vignesh Vaithiyanathan*[3], Vilvarajeshwaran Balamurugan[3]

[1]Dept. of General Medicine, Government Medical College, Nagapattinam, Tamil Nadu, India
[2]Dept. of Pharmacy Practice, EGS Pillay College of Pharmacy, Nagapattinam, Tamil Nadu, India
[3]Dept. of Pharmacy Practice, EGS Pillay College of Pharmacy, Nagapattinam, India

Abstract

Background: Alcohol Withdrawal Syndrome (AWS) is a potentially life-threatening condition that occurs following the sudden cessation of chronic alcohol use. Early identification and symptom-based management are essential to prevent complications such as seizures and delirium tremens.

Objectives: To evaluate the severity of AWS using the CIWA-Ar scale, assess associated clinical and biochemical abnormalities, and examine the therapeutic strategies employed in a tertiary care hospital.

Materials and Methods: A prospective observational study was conducted over six months in the general medicine ward at Government Medical College Hospital, Nagapattinam. A total of 150 male patients diagnosed with AWS were assessed using the CIWA-Ar scale. Laboratory investigations were carried out, and treatment regimens were documented.

Results: Among 150 patients, 77.3% experienced moderate withdrawal symptoms, 21.3% had mild symptoms, and 1.3% presented with severe symptoms. Common symptoms included nausea, sweating, tremors, and anxiety, with agitation and tactile disturbances associated with greater severity. Frequently observed biochemical abnormalities included hyponatremia (12.6%), hypokalaemia (11.3%), and elevated liver enzymes. Benzodiazepines, particularly diazepam (68.6%) and lorazepam (18%), were the primary treatments, alongside thiamine supplementation and supportive care. A significant positive correlation was found between the time since last alcohol intake and symptom severity.

Conclusion: Use of the CIWA-Ar scale facilitates timely, effective treatment in AWS. Structured protocols that include symptom-based pharmacotherapy and correction of biochemical imbalances can improve patient outcomes in tertiary care settings.

Keywords: Alcohol withdrawal syndrome, Ciwa-ar scale, Benzodiazepines, Electrolyte imbalance, Liver enzymes, Therapeutic strategies

Received: 28-05-2025; **Accepted:** 05-07-2025; **Available Online:** 25-09-2025

1. Introduction

In the last ten years, there has been a notable rise in alcohol use across India. 30% of Indians drink on average, of which 4-13% drink regularly and more than 50% abuse alcohol.[1] Alcohol Withdrawal Syndrome (AWS) becomes a clinically significant condition when individuals with chronic alcohol consumption abruptly or deliberately cease the use of alcohol.[2,3]

Alcohol Withdrawal Syndrome (AWS) often manifests within 6 to 24 hours after alcohol use is discontinued.[3] The clinical symptoms range from minor ones like anxiety, tremors, nausea, and depression to severe forms characterised by hallucinations, withdrawal seizures, delirium tremens, and coma.[2,4,5] History of alcohol consumption, existence of concomitant diseases, and unique qualities of each patient all influence when symptoms appear and how severe they are.[2.]

Several factors have been individually identified as predictors of Alcohol Withdrawal Syndrome (AWS) in studies worldwide. These include low socioeconomic status, a family history of alcoholism, previous episodes of multiple admissions for withdrawal, a history of severe withdrawal, low platelet counts, low potassium levels, and an increased

*Corresponding author: Vignesh Vaithiyanathan
Email: vickyvignesh9936@gmail.com

https://doi.org/10.18231/j.ijpp.67971.1758779418

mean corpuscular volume (MCV).[6] Patients suffering from alcoholism are highly susceptible to electrolyte imbalances, particularly low levels of potassium, phosphorus, and magnesium. Low potassium levels are frequently seen in individuals with alcoholism.[7]

Elevated levels of gamma-glutamyl transpeptidase (GGT), alanine transaminase (ALT), and aspartate aminotransferase (AST) could be signs of cirrhosis or alcoholic hepatitis. Liver illnesses and thyroid disorders have been firmly linked to AWS.[8,9] Early identification and assessment of these abnormalities are crucial, as timely intervention will help minimize mortality.[6]

Alcohol Withdrawal Syndrome (AWS) remains a major clinical concern due to its complex neurochemical basis and the wide range of symptoms and severity with which it can present. Accurately predicting the severity of AWS is crucial for proper management and for reducing the risk of serious complications, such as delirium tremors and seizures, which can greatly threaten patient health and safety.[2,5]

Alcohol Withdrawal Syndrome (AWS) remains a significant clinical and public health concern, especially in low- and middle-income countries like India, where alcohol consumption rates are rising. Despite the growing burden, region-specific data on the clinical presentation, severity grading, and biochemical correlations of AWS are scarce. This lack of localized evidence hampers early detection, risk stratification, and standardized treatment protocols in hospital settings. Therefore, this study was designed to assess the severity and symptom patterns of AWS using structured tools, correlate them with clinical and laboratory parameters, and evaluate the therapeutic interventions used. The goal is to bridge the existing evidence gap and inform better clinical management strategies in tertiary care hospitals.

Thus, the current study aimed to evaluate the pattern and severity of withdrawal symptoms and their related clinical parameters. The study also aimed to determine the biochemical abnormalities occurring in AWS patients and the treatment prescribed as per the CIWA-Ar scale score.

2. Materials and Methods

It was a prospective observational study conducted in the Department of General Medicine at Government Medical College and Hospital, Nagapattinam, for a period of 6 months (April 2024 to September 2024) with approval from the institutional ethical committee with proposal no. GMCN/IEC/2024/1/36. The study enrolled 150 patients admitted to the General Medicine ward who met the inclusion criteria.

2.1. Inclusion criteria

18-65-year-old male patients who were admitted to the general medicine ward due to alcohol withdrawal syndrome were included in the study.

2.2. Exclusion criteria

Patients who had a history of head injury or mental retardation, patients who were dependent on substances other than alcohol, and patients allergic to benzodiazepines were excluded from the study.

2.3. Methodology

Study participants were identified and selected based on inclusion and exclusion criteria. Patient data was gathered using a specifically designed proforma containing the necessary details like demographical data, laboratory data including electrolyte level and liver function tests (SGOT and SGPT), renal function tests (GFR rate and creatinine rate), and management. Symptom severity was analysed by using the CIWA-SCALE. The data obtained were then analyzed.

The Clinical Institute Withdrawal Assessment for Alcohol–Revised (CIWA-Ar) scale was chosen as the primary tool for evaluating the severity of AWS due to its robust clinical utility. It is a validated and widely used instrument that offers a standardized, symptom-triggered approach to assessing withdrawal. Compared to other scales, CIWA-Ar is simple to administer, reliable across healthcare providers, and effective in guiding benzodiazepine dosing. It allows for tailored interventions based on symptom severity, thereby minimizing both over- and under-treatment risks. Its use aligns with international best practices and ensures objective, evidence-based management of AWS, making it particularly suitable for this study in a busy tertiary care setting.

2.4. Statistical analysis

Data were entered in MS Excel and then analyzed using SPSS Statistics for Windows Version IBM 22. A descriptive statistical tool such as percentage, mean, or range is used to assess the pertinent data. P values less than 0.05 were accepted as statistically significant.

3. Results

3.1. Distribution of Socio-demographic characteristics of patients with AWS

Out of 150 patients studied, the maximum number of subjects (22%) belongs to the age group of 36–40 years, followed by 31–35 years (17.33%). Only a small proportion of participants (7.33%) belonged to the 20–25-year age group. The average age of the study population was 40.5 ± 10.72 years.

Out of 150 patients studied, the maximum number of subjects (62%) belongs to the nuclear family type, followed by the joint family type (30%), and very few family types are found to be single parent (8.87%).

Out of 150 patients studied, 130 (86.6%) subjects are employed, comparatively higher than 20 (13.4%) unemployed subjects. 106 patients receive between 11,000 and 15,000 per month in wages, an amount lower than that of a different category.

Our study report states that 24 (16%) of the AWS patients were unmarried, while 120 (80%) of the patients were married. Most of these subjects were married.

Out of the 150 patients in the study population, the highest percentage of subjects (49.33%) have only completed the 10th grade of schooling. The data is given below in (**Table 1**)

Table 1: Distribution of socio-demographic characteristics of patients with AWS

Variables	Total (N) (%)
Socio-demographic	
Age (years)	
20-25	11(7.3%)
26-30	19(12.7%)
31-35	26(17.3%)
36-40	33(22%)
41-45	22(14.6%)
46-50	17(11.3%)
51-55	14(9.3%)
56-60	5(3.3%)
61-65	3(2%)
Type of family	
Nuclear	93(62%)
Joint	45(30%)
Single Parent	13(8%)
Occupation	
Employed	130(86.6%)
Unemployed	20(13.4%)
Income per month	
<5,000	2(1.3%)
5,000 – 10,000	4(2.6%)
11,000 – 15,000	106(70.6%)
16,000 – 20,000	37(24.5%)
21,000 – 25,000	1(1%)
Marital status	
Married	120(80%)
Unmarried	24(16%)
Divorced	4(2.6%)
Missing	2(1.4%)
Education status	
<8th standard	27(18%)
10th standard	74(49.3%)
11th standard	2(1.3%)
12th standard	30(20%)
Diploma/ITI graduates	10(6.6%)
Professional graduates	7(4.8%)
Mean ± Standard deviation	

3.2. Distribution of severity of AWS symptoms based on CIWA score

Out of the 150 subjects surveyed by the CIWA-Ar scale, 32 patients (21.3%) were found to have mild symptoms, 116 patients (77.3%) were found to have moderate symptoms, and 2 patients (1.3%) were found to have severe symptoms. The data is given below in **(Table 2)** and **(Figure 1)**.

Table 2: Distribution of severity of AWS symptoms based on CIWA Score

Ciwa Score	Severity	No. of patients	Percentage
8-10	Mild	32	21.3%
11-15	Moderate	116	77.3%
>15	Severe	2	1.3%

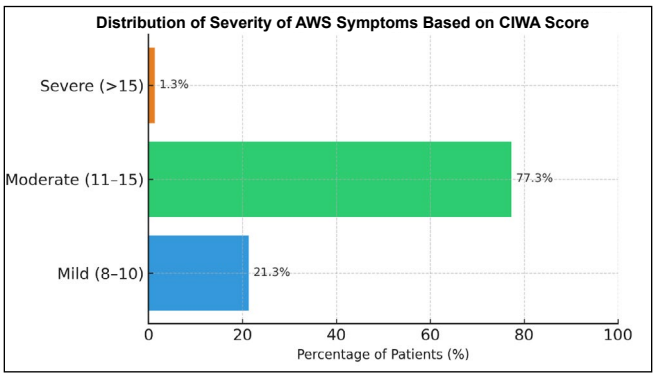

Figure 1: Distribution of severity of AWS symptoms based on CIWA score

3.3. Determination of the pattern and severity of withdrawal symptoms in AWS patients

Among patients with mild alcohol withdrawal syndrome, the most commonly reported symptoms were nausea and tremors (both at 93.75%), followed by paroxysmal sweating and anxiety (87.5% each).

The majority of patients with moderate alcohol withdrawal syndrome presented with tremor (86.2%), followed by paroxysmal sweats and anxiety (73.27%). Nausea (56.03%) and agitation (43.10%) also occur.

Tremors, nausea, anxiety, and agitation are found in all the patients with severe alcohol withdrawal syndrome. Paroxysmal sweats and tactile disturbance also occur.

3.4. To assess the clinical parameters and their association with the severity of alcohol withdrawal symptoms

The mean duration of alcohol intake was 18.2 ± 8.81 years, and the last intake of alcohol was 36.50 ± 15.5 hours before presentation **(Table 3)**. Age (P = 0.017) and duration of alcohol intake (P = 0.017) had a statistically significant negative correlation, and last intake of alcohol (P = 0.000) by the patients had a statistically significant positive correlation in relation to the CIWA scale. The data is given below in **(Table 4)**.

Table 3: Pattern and severity of withdrawal symptoms in AWS patients

Symptoms	Mild (n = 32)	Moderate (n = 116)	Severe (n = 2)
Nausea/vomiting	30 (93.75%)	65 (56.03%)	2 (100%)
Tremors	30 (93.75%)	100 (86.2%)	2 (100%)
Paroxysmal sweats	28 (87.5%)	85 (73.27%)	1 (50%)
Anxiety	28 (87.5%)	85 (73.27%)	2 (100%)
Tactile disturbance	0 (0%)	3 (2.58%)	1 (50%)
Auditory disturbance	0 (0%)	0 (0%)	0 (0%)
Visual disturbance	0 (0%)	0 (0%)	0 (0%)
Headache, fullness in head	0 (0%)	30 (25.86%)	0 (0%)
Agitation	0 (0%)	50 (43.10%)	2 (100%)
Orientation and clouding of sensorium	0 (0%)	20 (17.24%)	0 (0%)

Table 4: Correlation between clinical parameters and their associations with severity of alcohol withdrawal symptoms

Variable	Mean ±SD	Pearson's correlation coefficient (r=)	P value
Age	40.5 ± 10.72 years	–0.112	0.017*
Duration of alcohol intake (years)	18.2 ±8.81 years	–0.114	0.015
Last intake of alcohol	36.5 ± 15.5 hours	0.180	0.000

P - value <0.05 considered as significance (*Pearson's correlation was applied to analyze thedata).

Table 5: Biochemical abnormalities in patients with alcohol withdrawal syndrome

Biochemical parameter	Reference standard	Total (n) (%)	Mean	SD	Sig
Hemoglobin	Mild Anemia (9 – 10.9 g/dl)	5(3.3%)	9.1250	1.99153	0.0001*
	Moderate Anemia (7 – 9 g/dl)	18(12%)	7.8167	1.17536	
	Severe Anemia (Less than 7g/dl)	1(1%)	6.5	-	
Hyponatremia Hypernatremia	<135 mEq/l	19(12.6%)	132.5675	2.56854	0.0006**
	>145 mEq/l	7(4.6%)	148.5626	1.59785	
Hypokalemia Hyperkalemia	<3.5 mEq/l	17(11.3%)	3.2514	0.54845	0.1516***
	>5.2 mEq/l	1(0.6%)	5.2	-	
SGOT SGPT	>46 U/L	21(14%)	50.5646	18.65666	0.0001***
	>57 U/L	18(12%)	63.4156	12.61418	

P - value <0.05 is considered as significance

One-way ANOVA test * student t- test

3.5. To analyze the biochemical abnormalities reported in patients specific to alcohol withdrawal admission

Out of the 150 subjects studied, 5 (3.3%) patients were identified with mild anemia, followed by 18 (12%) patients with moderate anemia and 1 (1%) patient with severe anemia.

Out of the 150 subjects, 19 (12.6%) patients had hyponatremia and 17 (11.3%) patients had hypokalemia. Among the 150 patients, the SGOT level is higher in 21 (14%) patients, and the SGPT level is higher in 18 (12%) patients. This is indicated in **(Table 5)**.

3.6. Treatment patterns in patients with alcohol withdrawal syndrome

During hospitalization, the most common approach to treating patients with alcohol withdrawal syndrome is with benzodiazepines and adjunctive treatment. Among the benzodiazepines, the most commonly prescribed drug is diazepam (68.6%), followed by lorazepam (18%).

Thiamine (86.6%) and normal saline (66.6%) were the most commonly used adjuvant care for the patients.

Antiepileptics were also prescribed for 48% of patients, with the most common one being phenytoin (34.6%). This data is presented in **(Table 6)**.

Table 6: Treatment approaches in patients with alcohol withdrawal syndrome

Drugs	No. of patients N=150	Total percentage
Benzodiazepines		
Diazepam	103	68.6%
Lorazepam	27	18%
Clonazepam	20	13.3%
Adjuvant care		
Thiamine	130	86.6%
Normal saline	100	66.6%
Vitamin K	10	6.6%
Vitamin B12	30	20%
Antiepileptics		
Valproic Acid	12	8%
Phenytoin	52	34.6%
Levetiracetam	8	5.3%
Antipsychotics		
Haloperidol	2	1.3%

4. Discussion

The present study aimed to assess the severity of Alcohol Withdrawal Syndrome (AWS), identify associated clinical and biochemical factors, and evaluate treatment patterns using the CIWA-Ar scale. A key finding was that the majority (77.3%) of patients experienced moderate withdrawal symptoms, suggesting that a structured screening and treatment protocol is essential in general medicine wards **(Table 2)**. The CIWA-Ar tool helped quantify severity and guided timely pharmacological interventions, reinforcing its role in clinical practice.

Demographic data **(Table 1)** revealed that most patients were middle-aged (36–40 years), married, employed, and from nuclear families with limited education. This socioeconomic profile is indicative of a vulnerable group with high alcohol dependence and poor awareness of withdrawal risks.[10] The findings point to a need for targeted community education and intervention programs.[11]

Symptom patterns **(Table 3)** showed that while nausea, tremors, and anxiety were commonly reported across all severity levels, symptoms like agitation and tactile disturbances were more specific to moderate and severe AWS. This observation is consistent with the findings of Ankur Sachdeva et al.[1] This distinction suggests that while common symptoms may trigger clinical suspicion, the presence of agitation or sensory disturbances may warrant more intensive monitoring.

Clinical correlations **(Table 4)** indicated a significant positive correlation between time since last alcohol intake and symptom severity, while age and duration of alcohol use showed weak negative correlations. These findings emphasize that the timing of last alcohol use is a more reliable predictor of withdrawal intensity than patient age or chronicity of use. This highlights the importance of obtaining accurate history during the initial assessment. These results differ from the findings of Ankur Sachdeva et al.[1]

Biochemical abnormalities **(Table 5)**, such as hyponatremia (12.6%), hypokalemia (11.3%), and elevated SGOT/SGPT levels, were prevalent.[10] These findings reflect the metabolic disturbances associated with chronic alcohol use and withdrawal. However, not all biochemical abnormalities aligned with symptom severity, suggesting they are important for supportive management rather than severity prediction.[12]

Therapeutic patterns **(Table 6)** revealed that diazepam (68.6%) was the most frequently prescribed benzodiazepine, supported by thiamine (86.6%) and normal saline (66.6%). These findings confirm that benzodiazepines remain the cornerstone of AWS treatment, while vitamin and fluid supplementation address common nutritional and metabolic deficits.[4] Interestingly, adjunct therapies such as antiepileptics were prescribed in 48% of patients, possibly reflecting the need for seizure prophylaxis in moderate-to-severe AWS cases.

4.1. Therapeutic strategies

Effective management of Alcohol Withdrawal Syndrome (AWS) hinges on early identification, standardized severity assessment, and evidence-based therapeutic interventions. In this study, benzodiazepines—particularly diazepam and lorazepam—formed the cornerstone of pharmacologic therapy.[13] Diazepam was prescribed in 68.6% of cases, favoured for its long half-life and smoother coverage of withdrawal symptoms. Lorazepam, used in 18% of patients, is commonly preferred in individuals with hepatic impairment due to its shorter half-life and safer metabolic profile.[14]

Adjuvant therapies, including thiamine supplementation (86.6%) and normal saline infusion (66.6%), were critical in addressing the nutritional and fluid-electrolyte deficiencies often found in chronic alcohol users. Thiamine administration is particularly important for preventing Wernicke's encephalopathy, a potentially fatal complication of AWS. Intravenous fluids help stabilize hemodynamics , support renal function, and facilitate the clearance of accumulated toxins.

Antiepileptic medications, such as phenytoin and valproic acid, were used in nearly 48% of patients, especially in those exhibiting moderate to severe withdrawal symptoms. These agents were initiated as a preventive measure against seizures, a known complication of unmonitored AWS progression.[15]

The study also emphasizes the utility of the CIWA-Ar (Clinical Institute Withdrawal Assessment for Alcohol–Revised) scale, which enables symptom-triggered therapy.

This approach allows clinicians to administer benzodiazepines based on objective symptom scores rather than fixed schedules, reducing the risk of overmedication, excessive sedation, and respiratory depression. Studies have shown that symptom-triggered therapy can also reduce the length of hospital stay and improve overall patient outcomes.[16,17]

1. In summary, a multimodal therapeutic strategy comprising,
2. Benzodiazepine administration guided by CIWA-Ar scores,
3. Nutritional support with thiamine and vitamins.
4. Intravenous fluid therapy for electrolyte and volume correction, and
5. Prophylactic antiepileptic use in high-risk cases.

was associated with better symptom control and minimized complications. These strategies, supported by both our findings and published evidence, should be adopted as standard protocol in the management of AWS in hospital settings, especially in resource-limited environments.

5. Conclusion

This study highlights the clinical value of using the CIWA-Ar scale for structured evaluation and management of Alcohol Withdrawal Syndrome. The majority of patients exhibited moderate symptoms, with nausea, tremors, and anxiety being the most prevalent—though not severity-specific. Agitation and tactile disturbances were more predictive of severe AWS.

A strong correlation was found between the time since last alcohol intake and withdrawal severity, reinforcing the importance of early history-taking. Although biochemical abnormalities such as hyponatremia and elevated liver enzymes were common, they were not consistent predictors of clinical severity.

Benzodiazepines, especially diazepam and lorazepam, were found to be safe and effective for withdrawal control. Thiamine supplementation and IV fluids supported recovery and prevented complications such as Wernicke's encephalopathy.

Overall, early detection, standardized symptom scoring, and evidence-based therapeutic strategies are essential to improve patient outcomes. The findings from this study support the implementation of protocol-based AWS management in tertiary care settings, particularly in resource-limited environments.

6. Author Contributions

1. **Rengaraj Thirunanamoorthy:** Supervised clinical execution at the hospital, ensured ethical compliance during data collection, and contributed to review and final approval of the manuscript.
2. **Lakshmi Sabapathi Sundaram:** Provided academic supervision and guidance throughout the research process, reviewed and critically revised the manuscript for important intellectual content.
3. **Vignesh Sekar:** Principal Investigator. Contributed to study conceptualization, literature review, data collection, data analysis and interpretation. Responsible for the integrity and accuracy of the entire work.
4. **Vignesh Vaithiyanathan:** Assisted in literature review, data interpretation, preparation of tables and figures. Mainly responsible for manuscript drafting and formatting.
5. **Vilvarajeshwaran Balamurugan:** Contributed to data collection in clinical settings, helped with case documentation and supported manuscript editing.

7. Ethical Committee Approval

This study was conducted after obtaining approval from the institutional ethical committee with proposal no. GMCN/IEC/2024/1/36.

8. Source of Funding

None.

9. Conflict of Interest

None.

10. Acknowledgements

The success and culmination of this project were made possible through the invaluable guidance and assistance of numerous individuals, to whom we owe immense gratitude. We are grateful to our institutional guide, Dr. S. Lakshmi Sabapathi, Associate Professor, E.G.S. Pillay College of Pharmacy, for his guidance and support in the successful completion of our project work.

We sincerely thank the Department of General Medicine, Government Medical College Hospital, Nagapattinam, for providing the necessary support to carry out this study. We also thank the patients and clinical staff for their cooperation which contributed to our successful completion of this project in time.

References

1. Sachdeva A, Kumar V, Rizvi SAA, Khullar S, Abidi SSA, Das A. Pattern of alcohol withdrawal syndrome and its clinical correlates. *Biomedicine*. 2021;41(2):278–82.
2. Arokiadoss JD, Venkateshan N, Pauline D, Karthika, Niranjana BS. Predictors for severe alcohol withdrawal syndrome in clinical practice. *Indian J Pharm Pract*. 2025;18(2):155–60.
3. Saitz R. Introduction to alcohol withdrawal. *Alcohol Health Res World*. 1998;22(1):5–12.
4. Mirijello A, D'Angelo C, Ferrulli A, Vassallo G, Antonelli M, Caputo F, et al. Identification and management of alcohol withdrawal syndrome. *Drugs*. 2015;75(4):353–65.
5. Vijayanand D, Dedeepya SD, Lavanya L. A retrospective study of symptom profile of psychiatric complications in alcohol dependence patients admitted in psychiatric ward in Chennai. *J Evid Based Med Healthc*. 2021;8(31):2842–7.
6. Nagda P, Harshe D, Halder A, Ravindran NP. Study of socio-economic, biochemical and clinical predictors of alcohol withdrawal and delirium tremens in patients of alcohol dependence in Indian population. *Annals Indian Psychiatry*. 2024;8(1):52–60.

7. Abdulfattah O, Rahman EU, Alnafoosi Z, Schmidt F. Severe hypokalemia with cardiac arrest as an unusual manifestation of alcoholism. *J Commun Hosp Intern Med Perspect*. 2018;8(5): 285–91.
8. Borah AJ, Deka K, Bhattacharyya K. Serum electrolytes and hepatic enzymes level in alcohol withdrawal patients with and without delirium tremens: a comparative study. *Int J Health Sci Res*. 2017;7(11):74–83.
9. Gedam SR, Dhabarde A, Patil PS, Sharma A, Kumar K, Babar V. Psychiatric comorbidity, severity of dependence and liver enzymes dysfunction among alcohol dependent individuals: a cross-sectional study from central rural India. *J Clin Diagn Res*. 2019;13(4):1–5.
10. Nagda P, Harshe D, Halder A, Ravindran NP. Study of socio-economic, biochemical and clinical predictors of alcohol withdrawal and delirium tremens in patients of alcohol dependence in Indian population. *Ann Indian Psychiatry*. 2024;8(1):52–60.
11. Vignesh BT, Singh AK, Mohan SK, Murthy S, Joshi A. Association between socio-demographics and alcohol dependence among individuals living in an Indian setting. *Glob J Health Sci*. 2014;6(3):16–26.
12. Sundaram DM, Madesh VP, Reddy DR, Baliga K. Multiple dyselectrolytemia in a chronic alcohol abuser: a case report. *Cureus*. 2023;15(3):e36389.
13. Lohr RH. Treatment of alcohol withdrawal in hospitalized patients. *Mayo Clin Proc*. 1995;70(8):777–82.
14. Mayo-Smith MF. Pharmacological management of alcohol withdrawal. A meta-analysis and evidence-based practice guideline. American society of addiction medicine working group on pharmacological management of alcohol withdrawal. *JAMA*. 1997;278(2):144–51.
15. Yanta JH, Swartzentruber GS, Pizon AF. Alcohol withdrawal syndrome: improving outcomes through early identification and aggressive treatment strategies. *Emerg Med Pract*. 2015;17(6):1–18.
16. Daeppen JB, Gache P, Landry U, Sekera E, Schweizer V, Gloor S, et al. Symptom-triggered vs fixed-schedule doses of benzodiazepine for alcohol withdrawal: a randomized treatment trial. *Arch Intern Med*. 2002;162(10):1117–21.
17. The ASAM Clinical Practice Guideline on Alcohol Withdrawal Management. *J Addict. Med*. 2020;14(3):1–72.

Cite this article: Thirunanamoorthy R, Sundaram LS, Sekar V., Vaithiyanathan V, Balamurugan V. Exploring alcohol withdrawal and therapeutic strategies in a tertiary teaching hospital in Nagapattinam. *Indian J Pharma Pharmacol.* 2025;12(3)*:*137-143