



Received on 15 May 2025; received in revised form, 10 June 2025; accepted, 14 June 2025; published 01 November 2025

PHARMACOLOGICAL TREATMENT OF ALCOHOL DEPENDENCE SYNDROME IN A TERTIARY CARE HOSPITAL – A CROSS-SECTIONAL STUDY

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Keywords:

ADS, Vitamins, Detoxification, Anti-craving drugs

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ABSTRACT: Alcohol dependence syndrome (ADS) is an important condition causing significant morbidity and mortality contributing to 20-30% of all hospital admissions in India. There are various pharmacological agents available that are equally effective in the treatment of ADS along with psychotherapy. Hence this study is conducted. This is a cross-sectional study conducted in the inpatient department of Psychiatry, Victoria hospital, Bangalore for a period of 4 months. 70 study participants diagnosed with alcohol dependence syndrome willing to give written informed consent were enrolled. Demographic profile and treatment details were noted in a pre-structured case proforma. Data was analyzed and represented using descriptive statistics. The mean age of study participants was 39.38 ± 10.59 years, with a male predominance (98.57%) and mean duration of alcohol dependence was found to be 6.55 ± 0.55 years. 73% of Study participants were diagnosed with ADS alone whereas 27% had ADS along with comorbidities such as psychosis, alcoholic hepatitis, seizures, delirium tremens, diabetes mellitus and hypertension which were treated accordingly. In this study a combination of vitamins, detoxification drugs, anti-craving drugs along with drugs for comorbidities were prescribed. Of the total prescriptions, 39% were vitamins mainly vitamin B1 (Thiamine), 24% benzodiazepines namely Lorazepam, chlordiazepoxide, 20% anticraving drugs includes acamprosate, naltrexone and baclofen and 17% concomitant drugs. Each participant received minimum of 2 drugs, at least one of which was specific for ADS treatment. Vitamins were the most prescribed drugs followed by benzodiazepines and Acamprosate was the major anticraving drug seen in prescriptions.

INTRODUCTION: Alcohol is a potentially addictive substance and most widely used substance of abuse in the world. Alcohol dependence is a chronic disease in which a person craves alcohol and is unable to control his or her drinking and develops withdrawal symptoms upon discontinuation of alcohol consumption ¹.

Prevalence of ADS in India is 14.6% ². It is responsible for 2.6 million deaths worldwide ³. Alcoholism affects both physical, mental health and can cause problems with family, friends and work.

Goals of pharmacotherapy for alcohol dependence include reversal of the pharmacologic effects of alcohol, treatment and prevention of withdrawal symptoms and complications, maintenance of abstinence, prevention of relapse and treatment of coexisting disorders that complicate recovery ⁴. Considerable progress has been made in understanding the basics of neurobiological circuits

QUICK RESPONSE CODE 	DOI: 10.13040/IJPSR.0975-8232.16(11).3099-03 This article can be accessed online on www.ijpsr.com DOI link: https://doi.org/10.13040/IJPSR.0975-8232.16(11).3099-03
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associated with alcohol dependence. The neurotransmitter systems involved in alcohol dependence include GABA, glutamate, endogenous cannabinoids, dopamine, serotonin and nor-adrenaline as well as Hypothalamo pituitary adrenal axis⁵.

A number of pharmacological agents target these systems and thus aid in improving drinking behavior, enhancing abstinence and by preventing relapse promote improvement in quality of life. Hence, the present study is done to analyze the drugs prescribed for alcohol dependence syndrome in a tertiary care hospital.

METHODS: After obtaining clearance and approval from the Institutional Ethics Committee (IEC Number - BMCRI/PS/22/2019-20), a cross-sectional study was conducted in the inpatient department of Psychiatry, Victoria Hospital, Bangalore Medical College and research institute for a period of 4 months.

Inclusion Criteria: All study participants above the age of 18 years who were diagnosed with alcohol dependence as per the ICD-10 (International classification of diseases 10th

revision) criteria were included irrespective of gender.

Exclusion Criteria: Uncooperative patients were excluded. Written informed consent was taken from all the eligible study participants. Demographic data, clinical examination findings, diagnosis, relevant data on drug prescription like number of drugs, dosage form, dose, route of administration, duration were recorded.

Statistical Analysis: Categorical data were expressed as numbers, percentages.

Sample size Estimation: Considering the prevalence of alcohol dependence as 14.6% and assuming a precision of 10% and 95% C.I. sample size was calculated to be 70².

RESULTS: A total of 70 study participants' data of alcohol dependence is analyzed. **Table 1** shows demographic profile of study population which includes 69 males and 1 female. Out of which 28 were from urban areas and 42 were from rural locality. They belonged to 18 to 65 years of age group. The majority of them were 26-35 years of age **Fig. 1**.

TABLE 1: DEMOGRAPHIC PROFILE OF STUDY POPULATION

Age		Percentage (%)
Mean±SD (years)	39.38 ± 10.59	
Age group (years)	No. of study participants	
18-25	4	6
26-35	31	44
36-45	17	24
46-55	13	19
56-65	5	7
Gender		
Male	69	99
Female	1	1
Locality		
Urban	28	40
Rural	42	60

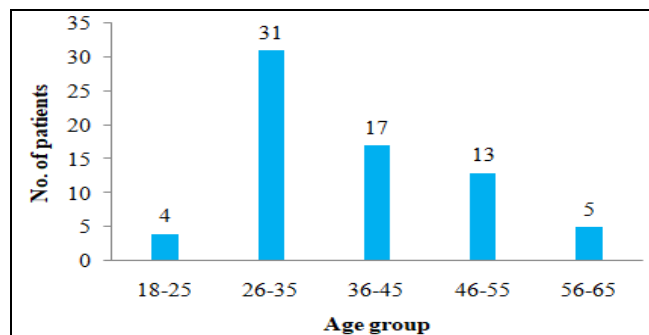


FIG. 1: AGE WISE DISTRIBUTION OF ADS STUDY PARTICIPANTS

Among 70 study participants, 50 were diagnosed with ADS alone, 20 patients had ADS with comorbidities and their prescription pattern showed 39% vitamins, 24% benzodiazepines, 20% anticraving drugs and 17% concomitant drugs. Vitamins included multivitamins, mainly vitamin B1. Among benzodiazepines lorazepam was used largely followed by chlordiazepoxide, they were used for detoxification treatment.

Acamprosate, Naltrexone, Baclofen were used for anticraving treatment. Among these acamprosate

constituted 16%, Naltrexone and baclofen constituted 2% each **Fig. 2**.

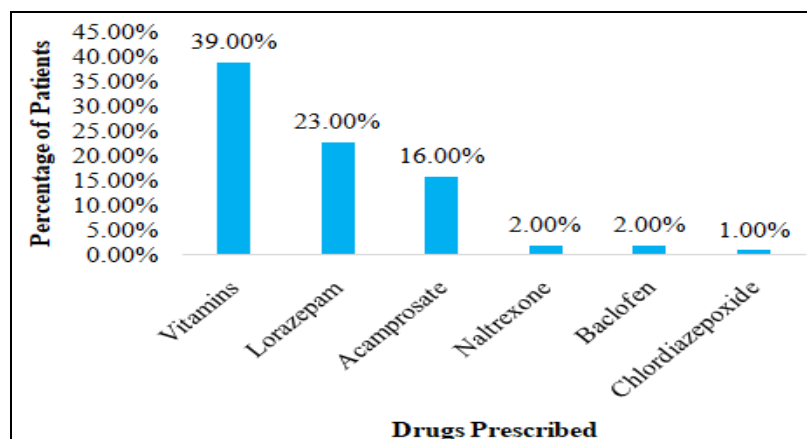


FIG. 2: DRUGS PRESCRIBED FOR ADS

Concomitant medications prescribed include, propranolol, for portal hypertension in alcoholic liver cirrhosis. It is also known to have anti-craving effect. Ursodeoxycholic acid for cholestatic jaundice in alcoholic liver disease. Haloperidol for delirium tremens. Risperidone for ADS patient

with psychosis. Trihexyphenidyl for extrapyramidal symptoms caused by antipsychotics. Phenytoin is prescribed in some study participants to treat seizures, Pantoprazole for gastric irritation, and antidiabetic, antihypertensive agents **Fig. 3**.

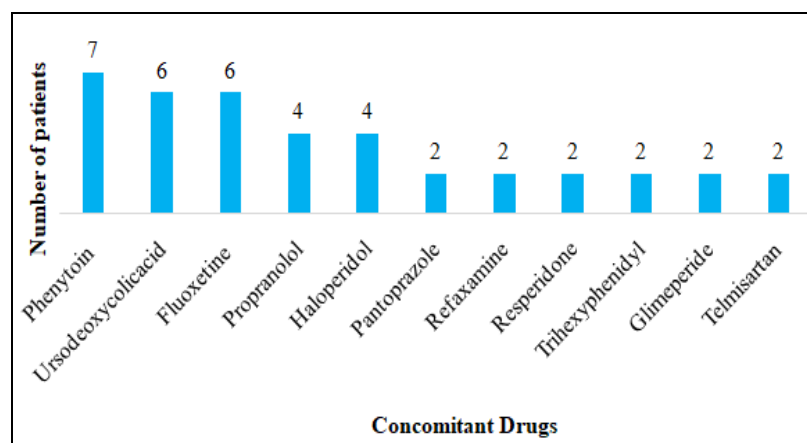


FIG. 3: PRESCRIPTION FOR COMORBITIES

DISCUSSION: Vitamins and benzodiazepines were used as the initial treatment in ADS. As vitamin B deficiency, particularly thiamine deficiency is common in study participants with alcohol use disorder resulting in cognitive impairment. For detoxification long-acting benzodiazepines are preferred as they not only improve the symptoms of alcohol withdrawal, but also prevent seizures and delirium tremens⁶.

First line anticraving drugs for treatment of ADS are naltrexone and acamprosate. Naltrexone blocks μ opioid receptor, reduces pleasurable, reinforcing effects of alcohol and also reduces craving⁷.

Acamprosate decreases glutamate during alcohol withdrawal through NMDA receptor modulation, also indirectly potentiates GABA_A receptors. It is generally well tolerated⁸.

Topiramate and gabapentin are also suggested as anticraving drugs, but typically after trying naltrexone and acamprosate first and Disulfiram is not used as a first-line treatment lately. Other drugs used in the treatment of ADS include, Baclofen, Fluoxetine, Ondansetron *etc*⁹. The current study was aimed at analyzing the prescription pattern of ADS patients in a tertiary care hospital. The mean age at diagnosis of ADS from this study was 39 $\pm$

10 years. These findings were consistent with a previous clinical study done by Andrew Thompson et al which showed that the mean age at diagnosis of ADS was 45 years (SD = 14)¹⁰.

Ninety eight percent of males and two percent of females in our sample were dependent on alcohol. These results are similar to a previous study done by Upasana Dube *et al.*¹¹ which showed that 95.2% male and 4.8% female were dependent on alcohol, proving that the burden of alcohol dependence is more on the male gender. In our study 39% vitamins, 24% benzodiazepines, 20% anti-craving drugs and 17% concomitant drugs were used. These findings were in line with previous research where vitamins (74.4%), BZDs (56.8%), anti-craving drugs (52%), antipsychotics (20%) and anti-depressant drugs (8%) were prescribed¹¹.

Study by Palatty PL *et al.* showed Disulfiram as the main drug of choice in the deaddiction regimen¹². In our study Disulfiram was not prescribed, because of the availability of better drugs achieving anti-craving effect without causing aversion to alcohol.

In a meta-analysis most trials reported that acamprosate increases the time to relapse, decreases the number of drinks per drinking day, or helps to maintain abstinence, with a rate of improved outcome similar to naltrexone¹³. In our study acamprosate was prescribed the most followed by naltrexone and baclofen as anti-craving drugs.

CONCLUSION: ADS treatment includes detoxification phase and anticraving treatment phase. As the current study is a cross sectional one, study participants were in different phases of treatment and found vitamins as the most prescribed drugs followed by benzodiazepines and Acamprosate was the major anticraving drug. A combination of treatments to target several neurotransmitter systems simultaneously promises a better outcome in the treatment of alcohol dependence

ACKNOWLEDGEMENTS: The authors would like to thank all the faculty members of the department of pharmacology and department of Psychiatry, Bangalore medical college and research

institute, Bengaluru for their co-operation in conducting the study. Would also thank Dr. Sharath V. Sagar for valuable inputs in writing the study.

Funding: None

CONFLICT OF INTEREST: None

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How to cite this article:

Kavya BS and Rajarathna K: Pharmacological treatment of alcohol dependence syndrome in a tertiary care hospital – a cross-sectional study. *Int J Pharm Sci & Res* 2025; 16(11): 3099-03. doi: 10.13040/IJPSR.0975-8232.16(11).3099-03.

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