



## The Assessment Of Complications Of Alcohol Use Disorders: A Prospective Observational Study

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### Abstract

Alcohol acts as a CNS depressant. It acts as a stimulant in low doses creating euphoric and chatty sentiments however, consuming a large amount of alcohol at once can cause somnolence and respiratory depression. Alcohol has an effect at large dose on every bodily organ and leads to severe complications like Wernicke-Korsakoff syndrome, withdrawal seizures, mood disorders and vitamin deficiency. The severity of the disease depends upon the blood alcohol concentration.

**Methodology:** It is a prospective observational study

**Results:** Out of 120 patients 44(36.66%) were diagnosed with alcoholic liver

Disease, 40(33.33%) were diagnosed with alcohol dependence syndrome and 36(30%) were diagnosed with an alcohol withdrawal syndrome. In alcohol dependence syndrome, 47.5% patients presented with complications, 33.33% in alcohol withdrawal and 65% in ALD. Vitamin supplements, benzodiazepines and hepatoprotective agents are most commonly prescribed for AUD's.

**Conclusion:** We concluded that the most common alcohol use disorder is ALD. Commonly affected age group is 40- 50. frequent type of complications we found was withdrawal features seizures, Ascites, alcoholic hepatitis, and portal hypertension. According to our survey most widely used treatment vitamin supplements, benzodiazepines Hepatoprotective agents.

**Keywords:** ALD, Alcohol dependence syndrome, Alcohol withdrawal syndrome

### Introduction

Alcoholic drinks are liquids containing ethanol at 0.5% or higher by volume, derived from the Arabic word "al- kohl." Pure alcohol is colorless and has a burning scent, with the aging barrel giving it color. They result from fermentation, followed by distillation for purification or concentration. The alcohol content in a beverage, ranging from 0.5% to 9.5%, varies depending on the production method<sup>1</sup>. According to the 2015 National Survey on Drug Use and Health by the Substance Abuse and Mental Health Services Administration, approximately 20.8 million Americans aged 12 and older had a substance use disorder, with 15.7 million primarily related to alcohol. Among young adults aged 18 to 25, 3.8 million (10.9%) had a substance use issue, as did 11.3 million (5.4%) individuals aged 26 and older.

Worldwide, approximately 240 million people, primarily in Europe and America, suffer from alcohol use disorder<sup>2</sup>. Alcohol use disorders are major public health problems that may cause alcoholic liver disease, alcohol dependence syndrome, and alcohol withdrawal syndrome. It may also cause complications like Wernicke's Korsakoff syndrome, Wernicke's encephalopathy, alcoholic cardiomyopathy, alcoholic neuropathy, hepatorenal syndrome, ascites etc. according to the national survey on drug use and health, an estimated 20.8 million Americans aged 12 and older had a substance use disorder in 2015, of which 15.7 million are alcohol use disorders. Therefore, prescribing the standard treatment for alcohol use disorder is important to reduce complications; the purpose of our

study is to determine the complications that occur due to alcohol use disorders.

**Methodology:**

**Study Site:** The study took place at Chalmeda Anand Rao Institute of Medical Sciences in Karimnagar.

**Study Design:** This was a hospital-based prospective study conducted on both in-patients and out-patients from the psychiatry and general medicine departments.

**Study Duration:** The study was conducted over a period of six months. **Sample Size:** The study involved 120 individuals.

**Study Criteria:**

**Inclusion Criteria:**

Patients diagnosed with alcohol-related disorders and known cases of alcohol-related disorders.

**Exclusion Criteria:**

1. Patients diagnosed with other substance abuse disorders.
2. Patients without a documented social history of alcohol consumption.
3. Emergency cases where patients were unable to provide answers to the study questions.

**Sources of Data:**

1. Patient data records review.
2. Patient interviews.
3. Data collection forms.

**Study Procedures:**

1. Obtained study approval from the institutional review board (IRB).
2. Submitted the study protocol for review and obtained oral consent from the head of the psychiatry and general medicine department.
3. After IRB permission, identified patients meeting the study criteria and reviewed their case records, documenting the relevant information in a pre-designed data collection form.
4. Entered all collected data into a Microsoft Excel database for further analysis.

**Statistical Analysis:**

Basic descriptive analyses and generation of graphs were performed using Microsoft Excel. For more advanced statistical analysis, IBM SPSS version 28.0.1.1 was used.

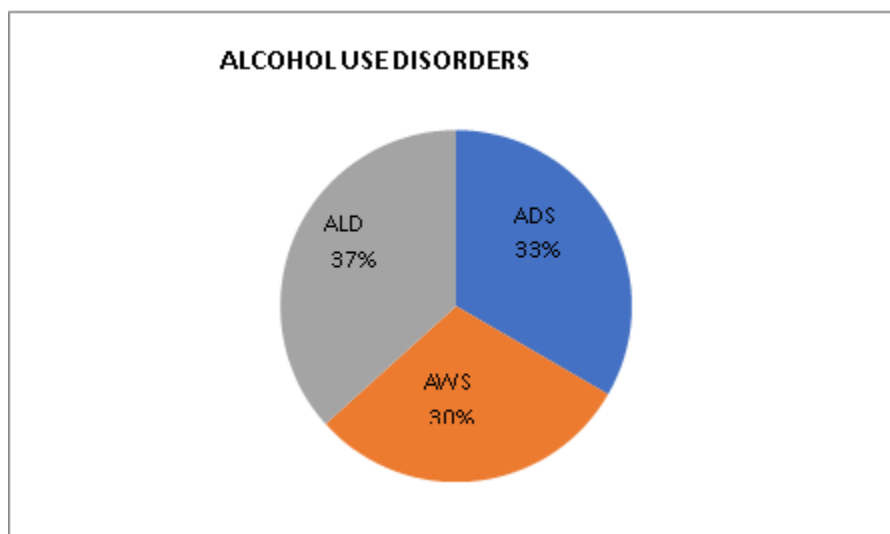
The "P-value" was calculated to evaluate the probability. A "P-value" of less than 0.005 was considered statistically significant.

**Results:**

**Table 1: Alcohol Use Disorders: [120 Patients]**

TYPE OF DISORDERS	NO. OF PATIENTS	PERCENTAGE
ALCOHOL DEPENDENCE SYNDROME	40	33.33%
ALCOHOL WITHDRAWAL SYNDROME	36	30%

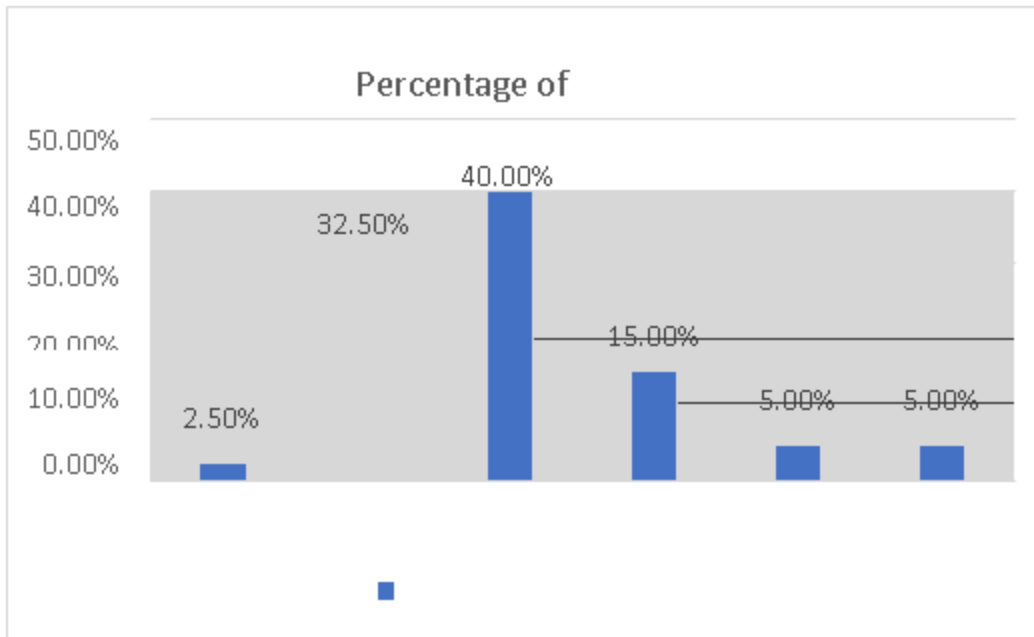
ALCOHOLIC LIVER DISEASE	44	36.66%
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**Age-Wise Distribution:**

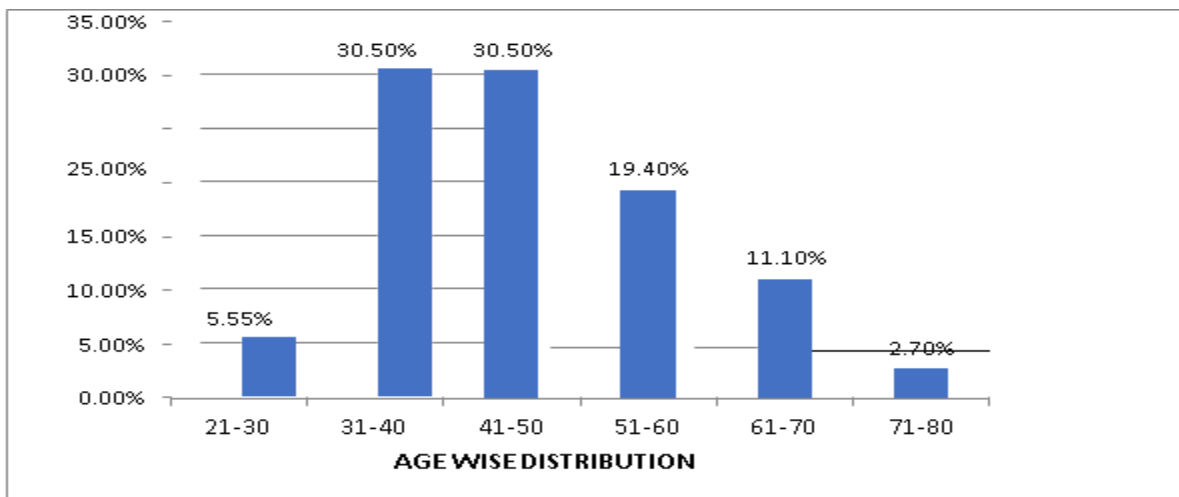
**Table 2: Alcohol Dependence Syndrome:**

AGE	NO. OF PATIENTS	PERCENTAGE
21-30	1	2.5%
31-40	13	32.5%
41-50	16	40%
51-60	6	10%
61-70	2	5%
71-80	2	5%
Mean ± S. D	47.16 ± 12.16	



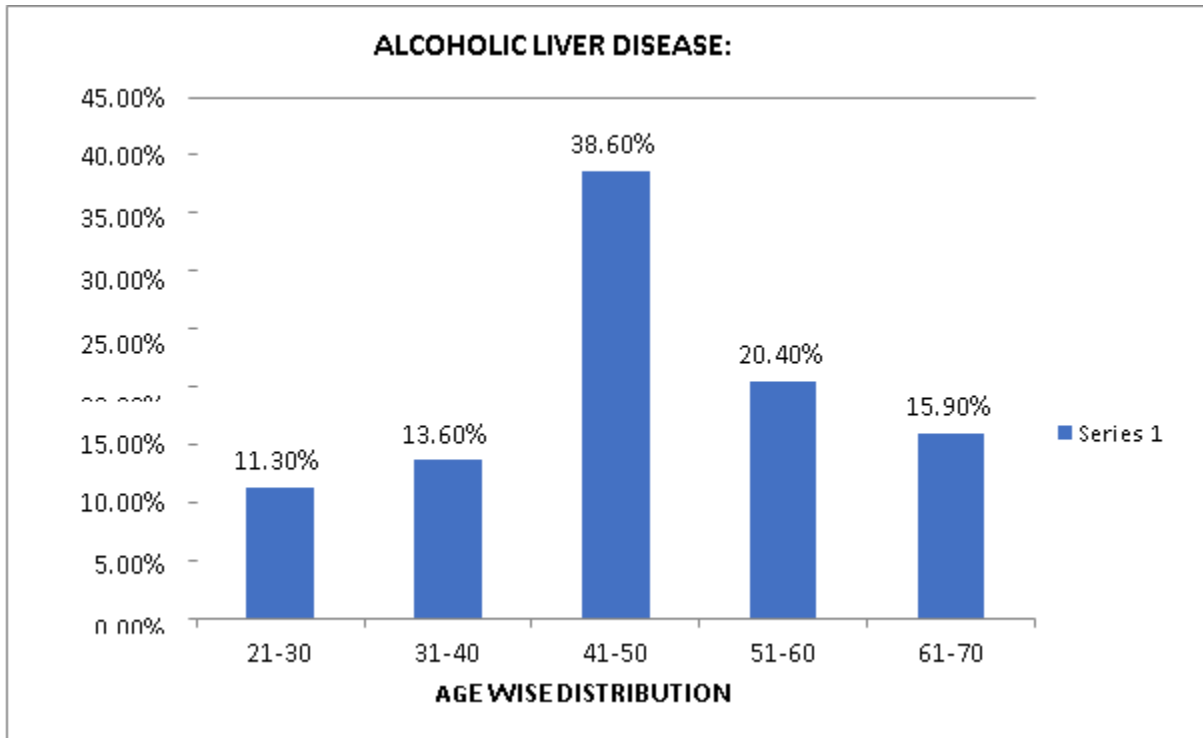
**Table 3: Alcohol Withdrawal Syndrome**

AGE	NO. OF PATIENTS	PERCENTAGE
21-30	2	5.55%
31-40	11	30.55%
41-50	11	30.55%
51-60	7	19.4%
61-70	4	11.1%
71-80	1	2.7%
Mean ± S. D	47.54 ± 12.02	



**Table 6: Alcoholic Liver Disease:**

AGE	NO. OF PATIENTS	PERCENTAGE
21-30	5	11.36%
31-40	6	13.63%
41-50	17	38.63%
51-60	9	20.45%
61-70	7	15.9%
Mean ± S. D	47.53 ± 11.95	

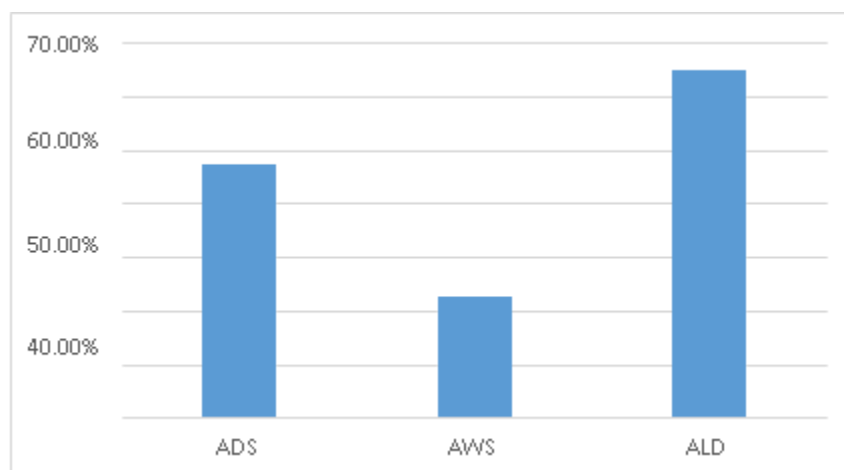


**Table 7: Complications Of Aud**

TYPE OF DISEASE	TOTAL NO. OF PATIENTS	PATIENTS WITH COMPLICATIONS	PERCENTAGE OF PATIENTS WITH COMPLICATIONS

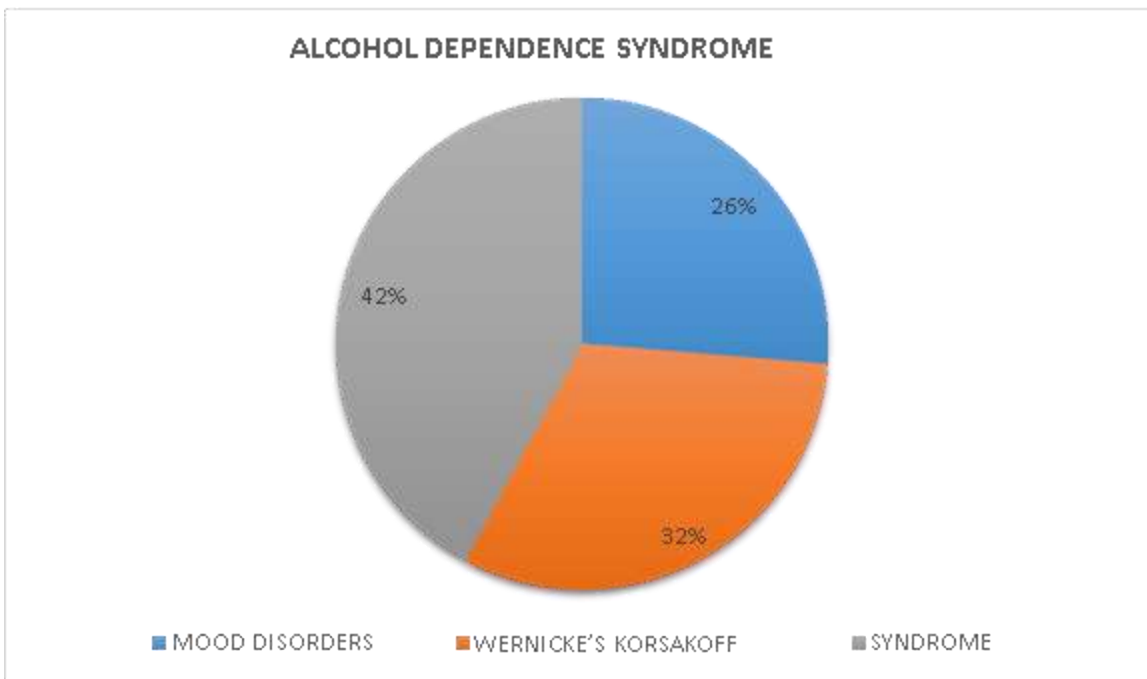
ALCOHOL DEPENDENCE SYNDROME	40	19	47.5%
ALCOHOL WITHDRAWAL SYNDROME	36	9	22.5%
ALCOHOLIC LIVER DISEASE	44	26	65%

**Complications Of Aud**



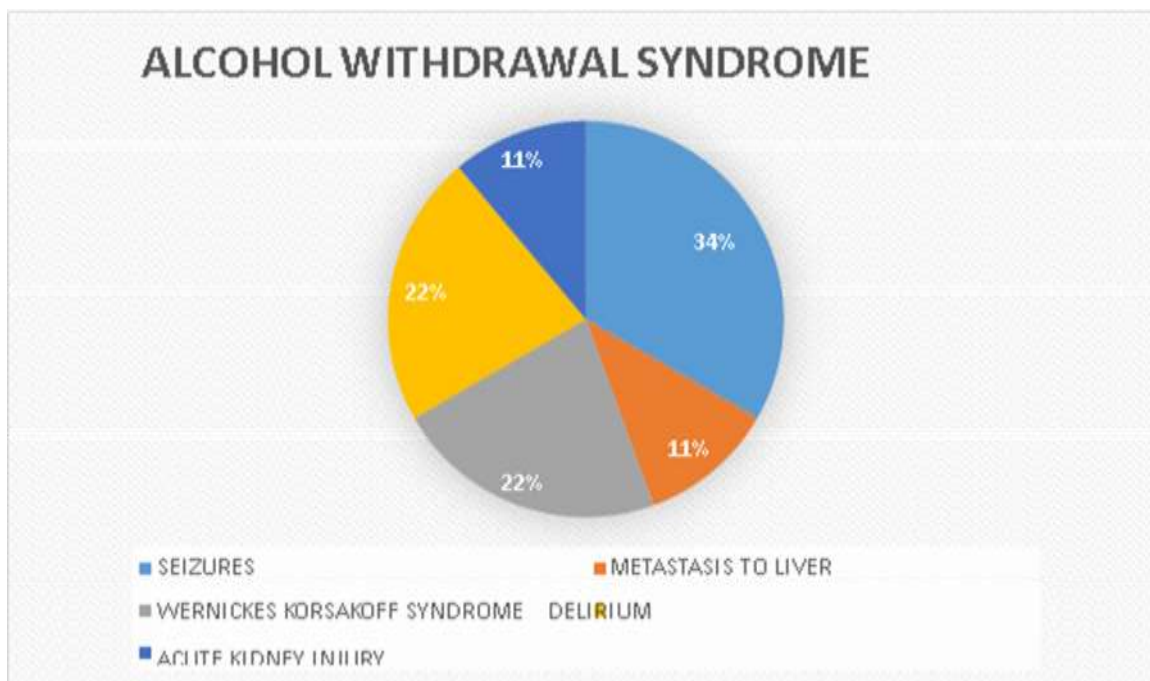
**Table 8: Alcohol Dependence Syndrome:**

COMPLICATIONS	NO OF PATIENTS	PERCENTAGE
MOOD DISORDERS	5	26.31%
WERNICKE’S KORSAKOFF SYNDROME	6	31.57%
WITHDRAWAL FEATURES	8	42.10%



**Table 9: Alcohol Withdrawal Syndrome**

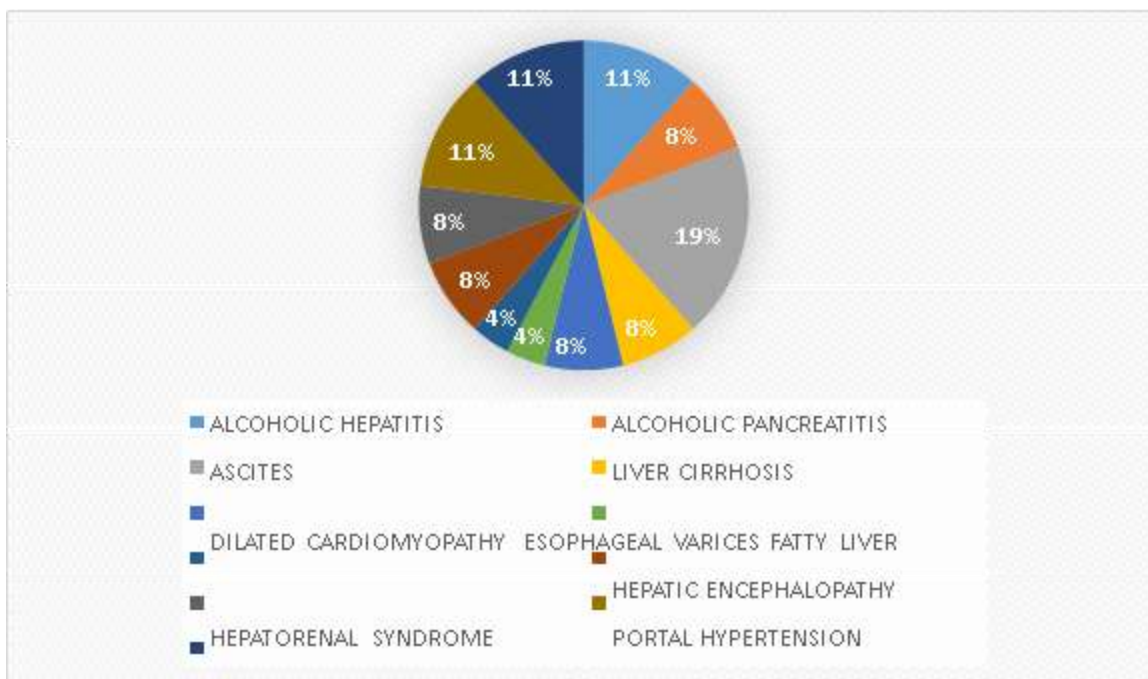
COMPLICATIONS	NO OF PATIENTS	PERCENTAGE
SEIZURES	3	33.33%
METASTASIS TO LIVER	1	11.11%
WERNICKES KORSAKOFF SYNDROME	2	22.22%
DELIRIUM	2	22.22%
ACUTE KIDNEY INJURY	1	11.11%



**Table 10: Alcoholic Liver Diseases**

COMPLICATIONS	NO OF PATIENTS	PERCENTAGE
ALCOHOLIC HEPATITIS	3	11.53%
ALCOHOLIC PANCREATITIS	2	7.69%
ASCITES	5	19.23%
LIVER CIRRHOSIS	2	7.69%
DILATED CARDIOMYOPATHY	2	7.69%
ESOPHAGEAL VARICES	1	3.84%
FATTY LIVER	1	3.84%
HEPATIC ENCEPHALOPATHY	2	7.69%
HEPATORENAL SYNDROME	2	7.69%
PORTAL HYPERTENSION	3	11.53%
SPLENOMEGALY	3	11.53%





**Table 11: Alcohol Dependence Syndrome [N=40 Patients]**

DRUGS	FREQUENCY	POSITIVE PERCENTAGE	NEGATIVE PERCENTAGE	TOTAL PERCENTAGE
<b>ALCOHOL ANTAGONIST</b>				
1. Naltrexone				
2. Disulfiram	0	0%	0%	0%
<b>VITAMIN SUPPLEMENTS</b>	35			
<b>Ex's: 1. Thiamine</b>	18	45%	55%	100%
2. Optineurin	17	42.5%	57.5%	100%

**Table 12: Alcohol Withdrawal Syndrome [N=36 Patients]**

DRUGS	FREQUENCY	POSITIVE PERCENTAGE	NEGATIVE PERCENTAGE	TOTAL PERCENTAGE

BENZODIAZEPINES	27			
1.LORAZEPAM	14	38.88%	61.12%	100%
2.CHLORDIAZEPOXIDE	13	36.11%	63.11%	99.22%
ADJUNCTIVE THERAPY BETA-BLOCKERS 1. ATENOLOL 2. METOPROLOL	0	0%	0%	0%
NEUROLEPTIC AGENTS	16			
1. HALOPERIDOL	9	25%	75%	100%
2. OLANZEPINE	7	19.44%	80.56%	100%
ANTI CONVULSANTS	8			
1.TOPIRAMATE	6	16.66%	83.34%	100%
2.LEVETIRACETAM	2	5.55%	94.45%	100%

**Table 13: Alcohol Liver Disease [N=44 Patients]:**

DRUGS	FREQUENCY	POSITIVE %	NEGATIVE %	TOTAL %
<b>BETA-BLOCKERS</b> Nodolol Propranolol	0	0%	0%	0%
<b>ASCITES DIURETICS</b> Furosemide Hydrochlorthiazide	2	4.54%	95.46%	100%

<b>ALCOHOLIC HEPATITIS CORTICOSTEROIDS</b> Prednisolone	3	6.81%	93.19%	100%
<b>VITAMIN SUPPLEMENTS</b> Thiamine	7	15.9%	84.1%	100%
<b>HEPATO PROTECTIVE AGENTS</b>	40			
Hepamerz	21	47.72%	52.28%	100%
Ursodeoxycholic Acid	19	43.18%	56.82%	100%

**Paired Sample Test**

**I - Ald**

<b>ALD DISEASE-ALD COMPLICATIONS</b>	<b>MEAN</b>	<b>t</b>	<b>ONE-SIDED P VALUE</b>	<b>TWO-SIDED P VALUE</b>
	-4.769	-6.89	<0.01	<0.01

**ii. Ads**

<b>ADS DISEASE-ADS COMPLICATIONS</b>	<b>MEAN</b>	<b>t</b>	<b>ONE-SIDED P VALUE</b>	<b>TWO-SIDED P VALUE</b>
	2	-0.825	0.2	0.4

**iii. Aws**

<b>AWS DISEASE-AWS COMPLICATIONS</b>	<b>MEAN</b>	<b>t</b>	<b>ONE-SIDED P VALUE</b>	<b>TWO-SIDED P VALUE</b>
	3	0.6	0.2	0.5

**Discussion:**

Alcohol use disorders are a serious global issue that is frequently coordinated with psychiatric disorders. This co-occurrence rises the risk associated with

AUDs and has more severe effects on patients. However, it is unknown what causes the dominant psychiatric illness in AUD studies examining comorbidities may shed light on neurological concepts of AUDs.

The present prospective observational study was conducted in a tertiary care teaching hospital. Patients admitted to Psychiatry and general medicine departments were included according to the study design and assessed for complications of alcohol use disorders, and assessing the current treatment according to guidelines.

In our present study, we found that the majority of AUD (Alcohol use disorders) patients were diagnosed with ALD (Alcoholic liver disease) and we observed that the chances of developing complications of Alcohol use disorders like ascites, alcoholic hepatitis, and cirrhosis were higher in the patients who were not treated according to guidelines or who were undertreated.

In this study, we found that alcohol dependence syndrome, alcohol withdrawal syndrome and alcoholic liver disease were more prevalent in the age group of 41-50 years, with a percentage of 40%,30.55% and 38.63% followed by other age groups (21-30;31-40; 51-60; 61-70; 71-80).

The present research reveals that 65% of alcohol liver-diseased patients developed complications like alcoholic hepatitis, alcoholic pancreatitis, ascites, liver cirrhosis, dilated cardiomyopathy, oesophageal varices, fatty liver, hepatic encephalopathy, hepatorenal syndrome, portal hypertension & splenomegaly whereas 47.5% of alcohol dependence syndrome patients presented with complications like mood disorders, Wernicke's Korsakoff's syndrome and withdrawal features; 22.5% of patients with complications of alcohol withdrawal syndrome like seizures, metastasis to liver, Wernicke's Korsakoff syndrome, delirium & acute kidney injury. In alcohol dependence syndrome, we found that withdrawal features are the most common complication with 42.10% followed by Wernicke Korsakoff's (31.57%) and mood disorders (26.31%). The most common complication of alcohol withdrawal syndrome was seizures 33.33% followed by Wernicke Korsakoff's syndrome & delirium (22.22%) whereas ascites were found to be a frequently occurring complication in ALD with 19.23% followed by pancreatitis (7.69%), liver cirrhosis (7.69%), hepatic encephalopathy (7.69%), hepatorenal syndrome(7.69%). In our assessment, 40 patients are diagnosed with alcohol dependence syndrome, and 35 patients are administered vitamin supplements in these 18

subjects were treated with thiamine and 17 with optineurin and no one is treated with an alcohol antagonist like naltrexone and disulfiram. In an analysis of our prospective observational study, 36 patients are diagnosed with alcohol withdrawal syndrome and 27 patients are administered benzodiazepines, 14 with lorazepam and 13 with chlordiazepoxide. Neuroleptic agents such as haloperidol and olanzapine are prescribed to 16 patients the frequency of haloperidol was found in 9 patients and 7 patients with olanzapine.

Out of 36 patients, 8 patients are treated with anticonvulsants,6 are treated with topiramate and 2 are with levetiracetam. In comparison with standard treatment and current treatment in ALD hepatoprotective agents are frequently used in that Hepamerz is prescribed to 21 patients and 19 patients are prescribed Ursodeoxycholic acid. A total of 36 patients in our study have been diagnosed with alcohol withdrawal syndrome, and our analysis contrasts with the study by Arineh Melkonian et.al. Because the total number of patients in that study was 421. The difference is related to the fact that we have conducted a prospective study and set a time restriction for our research<sup>3</sup>.

In contrast to Wang et.al., the study included 74,988 individuals and was conducted in a significant group, whereas our study was conducted in a tertiary care hospital and 44 patients were diagnosed with alcoholic liver disease<sup>4</sup>. According to our study, those who had consumed alcohol for more than 30±40 years likely developed liver damage. Based on According to our study, those who had consumed alcohol for more than 30±40 years likely developed liver damage. Based on Huai Wang et al. The beginning drinking age was 25±9 according to cross-sectional research on alcohol intake and ALD completed in 2022, which is also in agreement with our data<sup>4</sup>.

In our analysis of the data, we discover that individuals with AUD complications are more prevalent in alcoholic liver disease when compared to Huai Wang et.al., the study which concluded that AUD is more prevalent in alcoholic liver disease and is nearly identical to our study. The one-sided 'P' value for complications of Alcoholic liver disease was found to be

<0.01. For alcohol dependence syndrome 'P' value was found to be 0.2 and for alcohol withdrawal syndrome is 0.2. Our results almost perfectly describe Jeremiah J. Duby *et. al*'s study which found that benzodiazepines can lessen the symptoms of alcohol withdrawal syndrome<sup>5</sup>.

### Conclusion:

Our present study was to evaluate the complications of alcohol use disorder like alcohol dependence syndrome, alcoholic liver disease, and alcohol withdrawal syndrome. The main objective of our study is to find the known case of alcohol use disorders of which alcoholic liver disease constitutes the highest percentage (36.6%) followed by alcoholic dependence and alcohol withdrawal syndrome. The most common psychological factors which are responsible for alcoholic use are psychiatric illnesses (anxiety, depression, suicidality social phobia, and mood disorders). The percentage comparison of our sample regarding the occurrence of alcohol dependence syndrome in treated and untreated is 47.5% and 52.5% whereas for alcohol withdrawal syndrome was 22.5 and 77.5 and for alcoholic liver disease is 65% and 35%.

The following might be the complications of alcohol dependence syndrome which include mood disorders (depression, schizophrenia), Wernicke's Korsakoff syndrome and withdrawal features (hallucinations, delirium, delusions). The point to note is that these are the complications that occurred in the treated patients but the reason for their occurrence is thiamine dose should be given more than the normal dose in Wernicke's syndrome. Disulfiram which is an opiate antagonist when prescribed to an alcoholic person may cause increased serum acetaldehyde and

leads to diaphoresis, palpitations, facial flushing, nausea, vertigo, hypotension and tachycardia. In alcoholic dependence syndrome, 55% of alcoholics have not been prescribed thiamine which may lead to the occurrence of Wernicke's syndrome, mood disorders, withdrawal features like hallucinations, and delirium. In alcohol withdrawal syndrome, due to failure in prescribing benzodiazepines, the common complications are gait, and dementia whereas beta-blockers (not prescribed due to their high price) may cause trouble breathing, arrhythmias, and chest pain.

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