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ALCOHOL WITHDRAWAL IS COMMONLY ENCOUNTERED IN GENERAL HOSPITAL SETTINGS – A FIVE-YEAR EXPERIENCE IN A MEDICAL COLLEGE

Medicine

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ABSTRACT

Background: Alcohol withdrawal seizures (AWS) are defined as adult-onset seizures that occur in the setting of chronic alcohol dependence. alcohol withdrawal syndrome (AWS) is a combination of varied physiological manifestations that occur as a response to the sudden cessation or reduction of alcohol consumption. **Materials and methods:** A total of 250 consecutive patients presenting with seizures to either emergency room or out-patient to department of General Medicine, SVS Medical College Mahabubnagar, Telangana state for five years from first August 2014 to 31st July 2019. All the cases were thoroughly investigated with neuroimaging and electroencephalogram apart from a detailed history and clinical examination. 74 cases (29.6%) fell in the category of alcohol withdrawal seizures. Patients were initially screened for alcohol use, using AUDIT, a 10-item questionnaire designed to detect hazardous and harmful drinkers that has been validated and is extensively used. The data was analyzed using SPSS 20.0 package for Windows. **Results:** 42 male and 32 female were included in this study. The mean age was 22.26 [10.46] while mean duration of alcoholism was 14 years [8.98]. 41 were from rural background, 60 were earning while 14 were dependent; 24 cases were unmarried and 42 were from nuclear family. 62 cases used to consume Indian made foreign liquor (IFL). These demographic differences did not have any change the presentation pattern of AWS. Anxiety agitation (51) was most noted followed by disorientation (48) and headache (46). GTCS was noticed in 68 (91.89 %) and focal fits were recorded in only 6 patients. Five cases of GTCS turned to status epilepticus as only focal convulsion landed in status epilepticus. CT scan of brain demonstrated atrophy in 22. All the cases responded well to parental benzodiazepines. **Conclusion:** 74 Cases of seizures were reported in this present study. 32(43.24%) female cases also presented with seizures as against no case in female reported earlier. Cerebral atrophy was recorded in this series in 22 while only 8 had seizure like activity in EEG recording.

KEYWORDS

Alcohol Withdrawal Seizures, AUDIT Score, CT/ MRI scan of brain.

INTRODUCTION

Alcohol withdrawal seizures (AWS) are defined as adult-onset seizures that occur in the setting of chronic alcohol dependence[1]. Excitation of nervous system results in the clinical symptoms of alcohol withdrawal in the form of autonomic over activity such as tachycardia, tremors, sweating and neuropsychiatric complications such as delirium and seizures[2,3]. The World Development Report[4] found that the alcohol related disorders involve 5-10% of the world's population each year and accounted for 2% of the global burden of disease. Victor and Brausch stated that seizures during alcohol withdrawal in the absence of other epileptogenic factors are not symptoms of a latent disorder activated by the alcoholism, but rather a transient disturbance of cerebral functioning during withdrawal[4]. As per WHO, worldwide, an estimated annual three million deaths and 5.1% of Disability-Adjusted Life Years (DALYs) of the world are attributed to alcohol consumption[1]. Alcohol consumption in India has substantially increased in the last decade. On an average, 30% of Indians consume alcohol, out of which 4–13% are daily consumers and more than half of those who consume alcohol are hazardous drinkers[2]. ICMR bulletin (2008) estimated 62 million alcoholics in India[6] Interestingly, despite its historical relevance and wide prevalence, it was not until the late 1950s that it was definitively proved that the alcohol withdrawal syndrome (AWS) is a combination of varied physiological manifestations that occur on a continuum as a response to the sudden cessation or reduction of alcohol consumption[4]. According to the World Health Organization (WHO)[7], average alcohol consumption in India was 5.7 liters per person above the age of 15 per year in 2020, up from 4.3 litters in 2010.

Alcohol related seizures [ARS] or alcohol withdrawal seizure [AWS] is clinically diagnosed; the following criteria need to be fulfilled[8]:

1. Clear evidence of recent cessation or reduction of alcohol after previous high dose regular use.
2. Symptoms of alcohol withdrawal seen cannot be accounted for by any medical or another mental disorder.
3. Significant distress or decline in functioning in socio-occupational, or other important areas due to the withdrawal symptoms.

MATERIALS AND METHODS

A total of 250 consecutive patients presenting with seizures to either emergency room or out-patient to department of General Medicine, SVS Medical College Mahabubnagar, Telangana state. The period of the study was for five years from first August 2014 to 31st July 2019. All the cases were thoroughly investigated with neuroimaging and electroencephalogram apart from a detailed history and clinical examination. 74 cases (29.6%) fell in the category of alcohol withdrawal seizures. An informed and written consent was taken from the patient or immediate responsible attendant. An institutional ethic committee approval was obtained. Patients were initially screened for alcohol use, using AUDIT, a 10-item questionnaire designed to detect hazardous and harmful drinkers that has been validated and is extensively used. Clinical Institute Withdrawal Assessment for Alcohol-revised (CIWA-Ar)[7] was used to rate the severity of withdrawal symptoms and to assess various symptoms associated with alcohol withdrawal seizures. This scale scores the severity of symptoms like nausea, sweating, agitation, headache, anxiety, tremor, sensory disturbances, and orientation adding up to a scale of 10. The scale has a total score of 67, out of which a score of 8 or greater is considered sufficient to require treatment for alcohol withdrawal.

The data was analyzed using SPSS 20.0 package for Windows. All statistical tests were conducted at a two-sided 0.05 level of significance. Simple parameters were recorded as percentages. Mean and standard deviation were used to describe quantitative data. Pearson's correlation coefficient was used to assess the strength of association between two continuous variables.

RESULTS

The results were tabulated in the following tables

Table 1: Clinical characteristics of patients with alcohol related seizures [N=74]

Characteristics	Number of cases	Percentage
Gender ratio M:F	42:32	56.76%/ 43.24%
Unmarried: married	24:50	32.43%/ 67.57%
Employed: Unemployed	60:14	81.08% /18.92%

*No education: V: X: D+	11:21:24:18	14.86/ 28.78/ 32.43 /24.32
**Religion – H: M: C	26:22:26	35.13/ 29.73/ 35.13
# Habitat R: U	41:33	55.41/ 44.59
$ Income 5:10:20:21+	12:14:24:24	16.21/ 18.92/ 34.43/ 3.43
Nuclear: Joint family	42:32	56.76/ 43.24
Family H/O mental illness: Y:N	23:51	31.08/ 69.92
Personal or Family physical illness; Y:N	21:53	28.38/ 71.62

*up to V standard, up to X standard, D degree or above; **Hindu, Muslim, Christian #Rural, Urban; #Rural, Urban; $less than 5000, up to 10000, 20,000 and above

Table 2: Distribution of the Age of onset of Alcohol consumption

Age in years	Number of cases	Percentage
<20	26	35.14
21 – 30	20	20.03
31 – 40	12	16.22
41 – 50	10	13.51
>51	6	08.11

Table 3: Clinical symptoms noted in this study

Symptom	Number of cases	Percentage
Nausea and vomiting	28	37.84
Anxiety and agitation	51	68.92
Tremors	38	51.35
Hallucinations	28	37.84
Sweating	32	43.24
Disorientation	48	64.86
Headache	46	62.16
Seizures	74	100

Tab 4: Clinical characteristics of patients with alcohol related seizures

Mean age [SD]	22.26 [10.46]
Median age [SD]	26.24 [16.38]
Mean duration of alcohol consumption [SD]	14 years [8.98]
Mean AUDIT score (SD)	22.2 (3.98)

*SD=Standard deviation, AUDIT=Alcohol use disorders identification test

TABLE 5: Time between last drink and admission to hospital in alcoholic withdrawal seizures [N=74]

	Time duration	Number of patients
1	6 – 10 hours	8
2	1 – 3 days	36
3	4 – 6 days	28
4	7 and more days	4

Table 6: Age Wise Distribution of the withdrawal seizures in Alcoholics

Diagnosis	Less than 30 years	31-40 years	41-50 years	>51 years	Total
Alcoholic withdrawal seizures	36	22	14	2	74

Table 7: Seizure characteristics

Average number of seizures [SD]	1.86 [4.21]
Mean time interval between alcohol consumption to seizure (SD)	21.35 h (36.19)
Clustering in the current episode (%)	20 (22)
Withdrawal symptoms before the onset of seizure (%)	65 (65)
Epilepsy in first degree relative (%)	8 (8)

SD=Standard deviation

Table 8: Comparision Of Type Of Seizure & Status Epilepticus.

SL.NO	TYPE OF SEIZURE	NO. OF PATIENTS	% OF PATIENTS
1	GTCS	68	91.89 %
2	FOCAL	6	8.11 %
3	STATUS EPILEPTICUS	6*	8.11 %

*One patient of focal and GTCS cases later on resulted in status epilepticus

Table 9: Ct/mri Brain Findings Among The Cases

CT-finding	Number of patients = 74
Cortical atrophy	22
Normal	52
MRI Finding	Number of cases [44]
Symmetrical increased signal intensity in dorsomedial thalami	6
No abnormality	38

MRI of brain was done in 44 cases. Findings are as follows. T2 FLAIR showed symmetrical increased signal intensity in dorsomedial thalami in 6 cases while MRI of brain did not show any abnormality in another 38 cases.

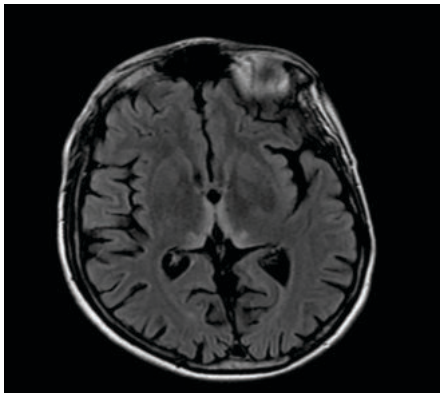

Fig 1: T2 FLAIR MRI of the brain demonstrates hyperintensities in the periaqueductal region and the medial thalami. Cerebral atrophy is also seen in this case.

TABLE 10: EEG findings in 74 cases

	EEG Abnormality	No of patients [N=74]	%
1	Normal	66	89.47
2	Abnormal features s/o seizure disorder	08	10.53

The cases were treated with benzodiazepine group of medicines according to the recommendations[9,11,12].

DISCUSSION

Excessive consumption of alcohol causes an individual many problems. Gender, economic status, or educational qualifications did not bear any influence on the incidence of alcohol withdrawal seizures. This study noted an equal prevalence among male (42) and female (32) cases. This finding is in quite contrast with earlier studies indicated exclusively male or majority were male patients[15 -18]. Alcohol withdrawal seizures occur within 48 – 72 hours of alcohol cessation, Rathlev et al also noted similar observation[1]. 74 had alcohol withdrawal seizers in this study, while many cases presented with delirium tremens which is characterized by a state of intense acute withdrawal state in the form of mental confusion, diaphoresis, agitation, fluctuating levels of consciousness, visual and auditory hallucinations associated with tremors and autonomic activity[4]. Certain minor illnesses like headache, giddiness mild tingling and numbness, transient muscle cramps not included as done by Baghel V.S. et al[11]. 20 to 40% of patients with seizures who present to an ER have seizures related to alcohol abuse. Alcohol related seizures are common in our set up and in this locality female cases are also noted in quite good number which was not reported in earlier studies. Table 11 describes the comparison of our study with that of earlier reports.

Table 11 A comparison of present study with that of earlier studies.

	Murthy et al131999	Sandeep et al14 2013	Jamir et al16 2016	Synmon et al17 2021	Sachdev et al18 2021	Present study
Gender	All males	All males	All males	All males	All males	42 male: 32femal es
Mean age	37.53 (8.11)	43.7 (10.77)	–	40.79 ± 11.85	36.55 ± 10.84	22.26 [10.46]

Starting age of ethanol addiction	22.1 (27.2)		21-25 - 30.67% 26-30 - 55.33%	Not given	19.13±9 .46	<20 – 26% cases
Percentage of AWS among cases convulsions attending the casualty	60/38 1 22.86 %	27%	39%	–	33.33%	29.6%
Withdrawal symptoms before seizures	Not noted	25%	18.67%	–	30%	29.6%
Last drink and symptoms	18.78 ± 28.6 hours	19.35 h (35.94)	–	Maxim um <24 h	20.20 ± 13.30 h	21.35 ± 36.19 h
Past or family of epilepsy	No	8%	Not revealed	–	29.0%	12%
Generalized convulsions	98.3%	88%	Mostly generali zed convulsi ons	91%	Mostly GTCS	91.89 %
EEG – Seizure activity	6 out 60	15% had intermit tent theta bursts	–	12 patients (35.2%) were abnorm al	–	8 (10.53%)
CT BRAIN Atrophy	31 (51.7 %)	–	–	23.5%	–	32%

Summary:
The present study showed alcohol withdrawal seizures were found to be about one third of total cases of seizures in adults. Further large number cases to be studied to confirm this finding. EEG is helpful to identify this small subgroup who may require long-term anti-epileptic medication.

CONCLUSION

Alcohol is a known risk for developing seizure or lowering the epileptogenic threshold. This study tried to assess the predictors and pattern of alcohol withdrawal. Use of MRI would help to better examine focal defects in the brain. The absence of a control group of alcoholics without seizures prevents comparison especially on parameters such as neurological signs and CT findings. A comparison either with alcoholics without seizures or epileptics without alcoholism may further through a light on this subject.

Limitations of the study:
Most of the patients had moderate or severe AWS. Hence, patients with mild AWS were not represented adequately. Patients with mild withdrawal symptoms usually do not seek treatment as the symptoms are relatively easy to self-manage. They were usually managed without specific pharmacotherapy. However, the patients with moderate to severe alcohol withdrawal need urgent treatment and prompt referral. The symptoms included in the list were from CIWA-Ar and AUDIT, which may not cover the entire spectrum of AWS.

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