Journal of Cardiovascular Disease Research

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 10, 2023

Original research article

Correlation of the clinical parameters with severity of delirium in patients with alcohol related disorder

[1]Dr. Sadananjali, [2]Dr. Anantha Kalyan, [3]Dr. Furkhan Ali

[1] Assistant Professor, Department of Biochemistry, Gadag Institute of Medical sciences, Karnataka, India

[2]Assistant Professor, Department of Psychiatry, Basaveswara medical college, Chitradurga, Karnataka, India

[3] Consultant Psychiatrist, NIMHANS, Bangalore, Karnataka, India

Corresponding Author:

Dr. Vajipeyajula Anupama

Abstract

Among the more intense withdrawal conditions that can be seen in conjunction with autonomic hyperactivity, the most dramatic is delirium tremens (DT). While there is some disagreement about the optimal definition of this condition, most studies agree that in addition to evidence of severe autonomic dysfunction patients must show some level of confusion or disorientation, often accompanied by illusions, hallucinations and agitation. Consecutive sampling was done to select the study subjects. All patients who attended or referred to the department of psychiatry with alcohol related disorders as per ICD-10 were included in the study. Mean score of SADQ-C which is an indicator of severity of alcohol dependence in DT group was 31.45 (sd=6.31) and in Non-DT group 27.88 (sd=5.31). Mean of total CIWA-Ar Score Day 1 of admission which indicated the severity of withdrawal symptoms was 34.30 (sd =6.31) in DT group and 19.41 (sd =4.07) in non DT group. Mean days of recovery from withdrawal state was 4.36 days (sd=0.83) in DT group and 2.45 days (sd=0.56) in non DT group.

Keywords: Clinical parameters, Delirium, Alcohol related disorder

Introduction

Around 10% of alcohol-dependent individuals are likely to develop more severe withdrawal syndromes at some time in their lives. These potentially dangerous conditions include a combination of marked autonomic hyperactivity such as increase in blood pressure, pulse, respiratory and heart rate, along with an elevated body temperature, sweating and severe tremors. Among the more intense withdrawal conditions that can be seen in conjunction with autonomic hyperactivity, the most dramatic is delirium tremens (DT). While there is some disagreement about the optimal definition of this condition, most studies agree that in addition to evidence of severe autonomic dysfunction patients must show some level of confusion or disorientation, often accompanied by illusions, hallucinations and agitation.The withdrawal phenomena appear to relate primarily to a history of repeated heavy exposure to alcohol followed by relative or absolute abstinence and are not just the outcome of poor nutrition or organ damage [1, 2].

Studies have demonstrated that the usual alcohol withdrawal or abstinence syndrome is relatively mild. In an evaluation of 487 hospitalized alcohol-dependent individuals, only 10.6% demonstrated withdrawal syndromes judged to be severe enough to require medications. Several investigations have indicated that the alcohol withdrawal syndrome is usually mild enough to be treated on an outpatient basis [3].

One study of 1024 patients undergoing evaluation for outpatient detoxification identified only 90 cases (8%) who demonstrated severe syndromes requiring hospitalization. This type of severe withdrawal syndrome begins within the first several days of withdrawal, peaks in intensity between days three and four and is likely to markedly improve over a 72-hour period [4]. Complicated alcohol withdrawal is the one with occurrence of seizures or delirium tremens on sudden reduction or stoppage of alcohol consumption. Complications related to alcohol withdrawal account for a significant demand in healthcare resources and are associated with an increase in morbidity and mortality [5, 6].

Methodology

Source of data

142 out of 150 patients with alcohol related problems were recruited as per ICD-10, those who had attended or referred to the department of psychiatry.

Type of study

A prospective cross sectional study design.

Sampling procedure

Consecutive sampling was done to select the study subjects. All patients who attended or referred to the

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 10, 2023

department of psychiatry with alcohol related disorders as per ICD-10 were included in the study.

Inclusion criteria

Adult patients more than 18yrs of age who had attended or referred to the Department of Psychiatry for alcohol related problems as per ICD-10.

Exclusion criteria

- Clinical evidence of other significant primary psychiatric illness other than alcohol related disorders were excluded. These include dementia due to any cause, schizophrenia, bipolar affective disorders and major depressive disorders.
- Other substance use disorders like benzodiazepine dependence syndrome, opioid dependence syndrome and cannabis dependence syndrome, except for nicotine dependence syndrome Delirium primarily due to other causes like neuro-infections, head injury (head injury resulting in intracranial bleed or significant oedema), hepatic encephalopathy, metabolic causes like hyponatremia, hypoglycemia and systemic causes like septicemia.

Methods of collection of data

Consecutively referred patients with alcohol related problems to the Department of Psychiatry, who fulfilled the inclusion criteria were included in the study. A total of 150 cases were assessed and 142 cases were included for the final analysis. All the patients were assessed on the day of referral or admission and appropriate scales were used to collect the data.

Results

Table 1: Clinical Variables of Patients with Delirium Tremens (DT) when compared with Non-DT patients

Variable	Delirium Tremens N=31	Non- Delirium Tremens N=111	p value
Age at first drink (mean/sd)	22.7 (2.7)	22.6 (3.3)	0.943
Age at dependence pattern (mean/sd)	33.1 (2.5)	32.7 (4.0)	0.577
Amount (mean / sd)	15.0 (1.9)	12.0 (2.5)	<0.0001
Duration of alcohol use in years(Dependence pattern) (mean/ sd)	10.7 (6.1)	9.8 (5.9) N=106	0.466
Time of onset of any withdrawal symptoms (mean / sd)	21.2 (6.3)	23.3 (13.8)	0.410
Pulse rate per minute (mean / sd)	88.6 (8.6)	92.9 (11.9)	0.065
Systolic Blood Pressure (mean / sd)	126.5 (6.0)	128.3 (8.1)	0.233
Diastolic Blood Pressure (mean/sd)	83.7 (6.9)	82.9 (6.9)	0.581
Score of SADQ-C (median/IQR)	34 (35.5 to 32)	28 (30 to 21) N=106	<0.0001
Total CIWA-Ar Score-Day 1 (median/IQR)	32 (35 to 29)	20 (24.75 to 17.25) N=82	<0.0001
Recovery from withdrawal state (Days) (mean / sd)	3.9 (0.6)	1.8 (0.6)	<0.0001
Family history of alcoholism (N/ %)	17 (54.83)	50 (45.05)	0.3366
Past history of Seizures (N/ %)	8 (25.80)	9 (8.11)	0.0075
Past history of Delirium (N/ %)	4 (12.90)	0 (0)	0.0001
Past history of Delirium Tremens (N/ %)	8 (25.80)	2 (1.80)	<0.0001.

Age at first drink and onset of alcohol use in dependence pattern was similar in both DT and the non-DT group. The mean years of alcohol use in the dependence pattern though slightly more in the DT group (10.7 years) was not statistically different with that of non-DT group. The total amount alcohol used on a daily basis was statistically significant in cases with DT, when compared with that of non DT. Case with DT were using a mean of 15 units of alcohol on daily basis, when compared to 12 units of alcohol among non-DT group.

The time of onset of any withdrawal symptom was earlier in cases of DT when compared with that of non DT cases by two hours, which was not statistically significant. The mean time of onset of any withdrawal symptom was around 21 hours after the last drink by the patient. There was a marginal increase in the systolic and diastolic blood pressure, and decrease in pulse rate among the cases of DT, though it did not reach statistical significance.

Past history of seizure was found in 9 (27.3%) cases in DT group and 10 (8.3%) in non DT group. Past history of delirium was found 4 (12.1%) cases in DT group and was not found in non-DT group. Past history of DT was found in 8 (25.8%) cases and in 1(0.8%) in non DT group. Pressssence of past history of seizure, delirium and DT was significantly more in cases of DT when compared with that of non-DT cases.

Family history of alcohol use was present in half of the cases with DT, which was not different from that of non-DT cases.

Mean score of SADQ-C which is an indicator of severity of alcohol dependence in DT group was 31.45

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 10, 2023

(sd=6.31) and in Non-DT group 27.88 (sd=5.31). Mean of total CIWA-Ar Score Day 1 of admission which indicated the severity of withdrawal symptoms was 34.30 (sd =6.31) in DT group and 19.41 (sd =4.07) in non DT group. Mean days of recovery from withdrawal state was 4.36 days (sd=0.83) in DT group and 2.45 days (sd=0.56) in non DT group. All the above were significantly higher in patients with DT when compared with non-DT cases reaching statistical significance (p<0.01).

Table 2: Correlation analysis of variables in patients with alcohol withdrawal symptoms

	Severity of Withdrawal Symptoms		
Clinical variables	**CIWA- Ar total score on Day 1 of admission (r / p)**	**DRS Severity Score on Day 1 of admission (r / p)**	**Duration of withdrawal symptoms in days (r / p)**
Age	0.30(*)	0.09	0.06
	0.10	0.630	0.748
Duration of alcohol use	0.501	0.228	0.088
(dependence pattern)	0.004	0.217	0.638
Amount of alcohol use (IU)	0.24 0.194	0.30	0.657
SADQ-C total Score	<0.0001	0.228	-0.199

Correlation analysis was performed to look at the variables which influenced the outcome in the form of occurrence of severe alcohol withdrawal symptoms. The significant variables were daily amount of alcohol use, severity score on SADQ-C, which correlated positively with severity of alcohol withdrawal symptoms on CIWA- Ar on the first day of admission and also was positively correlated with longer duration of recovery from withdrawal symptoms. Severity of delirium in DT cases was seen to be positively correlated with that of total score of SADQ-C.

The clinical variables that best differentiated between the DT and the non DT group were those that showed significance in correlation analyses. Variables included daily amount of alcohol in units, seizures in the current admission, past history of DT, total score of SADQ-C and total CIWA-Ar Score-Day 1 of admission. Finally the variables which were significant were the presence of seizure in the current admission and the total score of CIWA-Ar on day 1 of admission.

Discussion

This is a bit different from findings in our study and the possible causes may be due to the methodological issues like a prospective study with consecutive sampling and the study population was hospital based which is an indication of the severe form of alcohol dependence syndrome [7].

Mortality rate from DT has been reported as high as 20% in earlier studies. However, with appropriate detection and prompt treatment, mortality has reduced and currently the mortality from DT ranges from 1 to 5%. In our study we did not find any mortality in DT group, which might be attributed to proper use of medication, good hydration, correction of electrolytes, adequate supplementation of vitamins like thiamin, Vitamin B12 etc., at an appropriate time. There is a possibility of exclusion of cases of DT with severe medical co morbidity, which may be another reason why the mortality was absent in the current sample. Improved survival rates might be attributed to careful use of benzodiazepines, more meticulous attention to fluids, vitamins, nutrition and correction of electrolytes and acid-base disturbances [8].

The clinical profile of DT as assessed by using DRS-R-98 revealed hyperactive type of delirium with autonomic hyperactivity, tremulousness, agitation and half of the patients reported hallucinations. These findings are in tune with the earlier studies that DT is due to hyperactive state of the brain secondary to abrupt cessation of GABA receptor agonist like alcohol, while there is also activation of Glutamatergic activities. A recent study by Grover *et al* (2013) reveals the similar clinical profile delirium in Cases of DT [9].

While comparing the clinical and socio-demographic variables in patients with DT with those who did not develop DT, there was no significance in terms of age of the patients, background and education. When clinical variables were evaluated across the groups, DT patients showed no difference in terms of age of onset of alcohol, duration of alcohol use and age at dependence of alcohol use. Some studies have shown that earlier onset and longer duration of alcohol use was associated with more severe withdrawal symptoms. The total amount of alcohol use by the patients was significantly higher in patients with DT along with the severity of alcohol dependence as indicated by the SADQ-C score. Patients with DT required more days to recover from withdrawal symptoms when compared to the non DT group which is an indication of severe alcohol dependence. The presence of past episodes of seizures, delirium and DT was significantly higher in cases with DT when compared with that of non DT group. This has been reported in the previous studies and it has been hypothesized that kindling process occurs as that in recurrent seizure.

Family studies using the FIGS instrument revealed that presence of alcohol use with significant impairment and presence of psychosis was higher in cases with DT. There is high heritability for alcohol dependence syndrome and also for the severe complications as shown by earlier studies [10].

Investigation revealed impairment in the liver functions like presence of hepatitis and fatty liver changes

ISSN:0975 -3583,0976-2833 VOL14, ISSUE 10, 2023

on sonography, which is an indicator of recent and acute damage to the liver. It may also explain the higher occurrence of DT in the group, as hepatic derangement itself can cause delirium [11].

When the severity of withdrawal symptoms was assessed using CIWA-Ar score, it showed high positive correlation with that of severity of alcohol use in the form of score on SADQ-C and the total amount of alcohol use [12].

The predictors of DT in the current sample showed, presence of withdrawal seizures and high scores of CIWA-Ar on the first day after discontinuation. This finding is similar to that in the earlier studies and has significant clinical implications.

Conclusion

A Median score of SADQ-C which is an indicator of severity of alcohol dependence in DT group was 34 (IQR 35.5 to 32) and in Non-DT group 28 (IQR 30 to 21). Median of total CIWA-Ar Score Day 1 of admission indicated the severity of withdrawal symptoms was 32 (IQR 35 to 29) in DT group and 20 (IQR 24.75 to 17.25) in non DT group. Mean days of recovery from withdrawal state was 3.9 days (sd=0.6) in DT group and 1.8 days (sd=0.6) in non DT group. All the above were significantly higher in patients with DT when compared to non-DT cases ($p<0.05$).

References

1. Hayashida M, Alterman AI, Mclellan AT, O'brien CP, Ptmnix JJ, Volpicelu JR, *et al*. Comparative effectiveness and costs of inpatient and outpatientdetoxification of patients with mild-to-moderate alcohol withdrawal syndrome, Nete England Journal of Medicine. 1989;320:356-8.
2. Schuckit MA, Tipp JE, Reich T, Hesselbrock VM, Bucholz KK. The histories of withdrawal convulsions and delirium tremens in 1648 alcohol-dependent subjects. Addiction. 1995;90:1335-47.
3. Whitfield CL, Thompson G, Lamb A, Spencer V, Pfeifer M, Browning- Ferrando M, *et al*. Detoxification of 1,024 alcoholic patients without psychoactive drugs. JAMA. 1978;239:1409-10.
4. Ferguson JA, Suelzer CJ, Eckert GJ, Zhou XH, Dittus RS. Risk factors for delirium tremens development. J Gen Intern Med. 1996;1:410-4.
5. Lerner WD, Fallon HJ. The alcohol withdrawal syndrome. N Engl J Med. 1985;313:951-2.
6. Palmstierna T. A model for predicting alcohol withdrawal delirium. Psychiatr Serv. 2001;52:820-3.
7. Pearson S. Observations on the brain fever: delirium tremens. Edinberg Medical Surgical Journal. 1813;9:6.
8. Stern TA, Gross AF, Stern TW, Nejad SH, Maldonado JR. Current approaches to the recognition and treatment of alcohol withdrawal and delirium tremens:- old wine in new bottles or new wine in old bottles‖. Prim Care Companion J Clin Psychiatry. 2010;12:1-15.
9. Shaw GK, Waller S, Latham CJ, Dunn G, Thomson AD. The detoxification experience of alcoholic in-patients and predictors of outcome. Alcohol Alcohol. 1998;33:291-303.
10. Mayo-Smith MF, Beecher LH, Fischer TL, Gorelick DA, Guillaume JL, Hill A, *et al*. Management of alcohol withdrawal delirium. Arch Intern Med. 2004;164:1405-12.
11. Koch-Weser J, Sellers EM, Kalant H. Alcohol intoxication and withdrawal. N Engl J Med. 1976;294:757-62.
12. Victor M. Alcohol withdrawal seizures: An Overview. In: R, P. (ed.) Alcohol and Seizures. New York: Davis; c1990.