Original Article

The Relationship between Severity of Alcohol Withdrawal at the Time of Presentation and Time Taken to Achieve Successful Outcome

Vijayraj N[1]

[1]Assistant Professor, Department of Psychiatry, Vijayanagara Institute of Medical Sciences, Ballari, Karnataka.

Abstract

Background: Although 95 percent or more of withdrawals are limited to these mild or moderate symptoms, Up to 71% of individuals presenting for alcohol deaddiction manifest significant symptoms of alcohol withdrawal, for 3 to 5 percent of the symptoms include convulsions or delirium. **Subjects and Methods:** Patients were detoxified using either diazepam or lorazepam based on clinical profile. Total equivalent dose of benzodiazepine used for detoxification were calculated. The results were tabulated and Statistical tests applied using SPSS software. **Results:** 86% of the patients achieved successful outcome of CIWA score ≤ 4 in ≤ 7 days. Out of this, 80% (n=69) were having uncomplicated withdrawal, 86% (n=74) had family history of ADS and 77.9% (n=67) belonged to lower socio-economic strata. **Conclusion:** Withdrawal symptoms drop to 50% by 4th day and become clinically insignificant by 8th day.

Keywords: Alcohol Withdrawal, CIWA Score, Diazepam or Lorazepam.

Corresponding Author: Dr. Vijayraj N, Assistant Professor, Department of Psychiatry, Vijayanagara Institute Of Medical Sciences, Ballari, Karnataka.

Introduction

Alcoholism is a multi-factorial disorder in which genetic, biologic and socio-cultural factors interact.[1] Lifetime risk for alcohol use disorders is more than 15% for men (and is even higher among those who seek treatment for medical or psychiatric disorders) and between 8-10% for women.[2] Prevalence of alcohol use and Alcohol dependence in India is varied but National health Survey 2004 showed it to be around 21.4%.[3]

Health problem for which alcohol is responsible are only a part of the total social damage which includes family disorganization, crime and loss of productivity.[4]

Although 95 percent or more of withdrawals are limited to these mild or moderate symptoms, Up to 71% of individuals presenting for alcohol deaddiction manifest significant symptoms of alcohol withdrawal, for 3 to 5 percent of the symptoms include convulsions or delirium.[2]

In psychiatric setting as many as a third of the patients are likely to have an alcohol problem that is either caused or exacerbated the present psychiatric or medical conditions.

Any patient who is admitted with Alcohol Dependence syndrome in psychiatric ward has to undergo a process called de-addiction. Detoxification is the initial phase of a much longer process of de-addiction. Detoxification is a process intended to remove the physiological effects of the addictive substances, alcohol in this case. However, longer process of de-addiction is not achieved in most inpatient settings. Patients tend to stay till only detoxification can be done, due to various reasons like socio-economic conditions, poor social and family support, affordability, and lack of motivation in patient. Both patients and families who come for deaddiction commonly enquire about duration of hospital stay, and prognosis during detoxification.

Clinical research in this area has focused primarily on alcohol and substance dependence, their comorbidity with other disorders and its management. Research has focused more on etiological factors for dependence, its biological mechanisms, pharmacological management during detoxification and later relapse prevention.[5] There is disappointingly little research on course and outcome of withdrawal symptoms and their determinants during detoxification from alcohol.

In this context, this study aims to assess the determinants of time needed for achieving successful outcome during alcohol detoxification and to test whether the severity of withdrawal symptoms at presentation can predict duration of hospital stay. Improvement in prediction of length of stay for detoxification could improve the medical care and communication with patients and relatives. Because inpatient care is the most expensive part of the mental health care system, changes in the length of stay have a considerable impact over the costs and are thus considered fundamental issues for cost-effectiveness.

Subjects and Methods

The study was conducted in Dept. of Psychiatry and Each

patient was administered MINI to rule out comorbid psychiatric disorders , Alcohol use disorders identification tests (AUDIT) was administered to identify people with hazardous and harmful use of alcohol. Severity of Alcohol dependence questionnaire (SADQ) was used to assess severity of alcohol dependence and Clinical institute of withdrawal assessment revised (CIWA-Ar) was used to rate the severity of withdrawal symptoms.

CIWA-Ar scale was administered once at base line subsequently this scale was administered once daily till the total CIWA-Ar score reached 4(which was defined as successful outcome). Its administration continued till discharge.

Patients were detoxified using either DIAZEPAM or LORAZEPAM based on clinical profile. Total equivalent dose of BENZODIAZEPINE (BZD) used for detoxification were calculated.

The results were tabulated and Statistical tests applied using SPSS software.

Study Instruments and Scales of Assessment

A semi-structured pro-forma was designed to elicit information regarding socio-demographic profile, alcohol use patterns, family history of alcohol dependence, suicide, and other medical illnesses. MINI was administered to exclude the presence of other Axis-1 Psychiatric disorders.

Clinical examination was done and BMI, systemic examination and mental status examination details were recorded.

Various laboratory parameters which were assessed were- Hemoglobin, MCV, MCHC, Total counts, Differential counts, and Liver function tests.

At the time of admission, assessments of withdrawal symptoms were done using CIWA-Ar and subsequently it was applied daily to assess the progression of withdrawal symptoms. Meanwhile quantification of dependence was done using AUDIT and severity of Alcohol dependence was assessed using SADQ.

Mini International Neuropsychiatric Interview (M.I.N.I.)

It is brief structured interview design for the major Axis I psychiatric disorders in DSM-IV and ICD-1O.

The MINI is divided into modules identified by letters, each corresponding to a diagnostic category, at the beginning of each of which are screening questions corresponding to the main criteria of the disorder which is used as a screener tool in this study for co-morbid psychiatric conditions

Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT procedure was developed by the World Health Organization to identify persons whose alcohol consumption has become hazardous or harmful to their health. It is a brief structured interview that can be incorporated into a medical history. It contains questions about recent alcohol consumption, dependence symptoms and alcohol related problems. Screening with AUDIT may identify hazardous or harmful drinkers, even alcohol dependent patients, but is not in itself a diagnostic test.

It consists of 10 questions, each has 5 choices (except last 2)

and scoring is by the numbers of choice- which are summed up. A score of >8 is highly sensitive for Alcohol Dependence Syndrome and Elevated scores on items 4 through 6 imply the presence or emergence of alcohol dependence.

In a validation study involving Indian sample, The AUDIT had very high internal reliability (alpha 0.92) in the Indian sample. The AUDIT optimal cutoff score was 16 (sensitivity 85.3, specificity 89.4) for ICD-10 harmful use and 24 (sensitivity 69.4, specificity 87.5) for ICD-10 alcohol dependence.

Clinical Institute Withdrawal Assessment for Alcohol, revised (CIWA-Ar)

Clinical Institute Withdrawal Assessment for Alcohol, revised. The scale assesses 10 domains (nausea or vomiting; anxiety; tremor; sweating; auditory, visual, and tactile disturbances; headache; agitation; and clouding of sensorium) and assigns 0 to 7 points for each item except for the last item, which is assigned 0 to 4 points, with a total possible score of 67. This scale has been validated as a measure to assess the severity of alcohol withdrawal. Higher scores indicate a higher risk of complications; patients receiving scores of 8 or more should be treated. This scale offers an increase in efficiency while at the same time retaining clinical usefulness, validity and reliability. It can be incorporated into the usual clinical care of patients undergoing alcohol withdrawal and into clinical drug trials of alcohol withdrawal. The high inter-rater reliability of 0.96 clearly fulfills the criteria considered as satisfactory.

This scale has well documented reliability, reproducibility and validity, based on comparison to ratings by expert clinicians. From 30 signs and symptoms, the scale has been carefully refined to a list of 10 signs and symptoms in the CIWA-Ar. It is thus easy to use and has been shown to be feasible to use in a variety of clinical settings, including detoxification units, and general medical/surgical wards. The CIWA-Ar has added usefulness because high scores, in addition to indicating severe withdrawal, are also predictive of the development of seizures and delirium.

A study of the revised version of the CIWA predicted that those with a score of >15 were at increased risk for severe alcohol withdrawal (RR 3.72; 95% confidence interval 2.85-4.85); the higher the score, the greater the risk.

Beta was 0.99, with t=36.72 p<0.0001, and r2-squared 0.98 suggesting that the new score is a good predictor of the old score. Inter-rater reliability is high (r>0.8).

SADQ- The Severity of Alcohol Dependence Questionnaire

It was developed by the Addiction Research Unit at the Maudsley Hospital. It is a measure of the severity of dependence. It is a short, easy-to-complete, self-administered, 20-item questionnaire designed to measure severity of dependence on alcohol. The SADQ is a fairly specialized test, and it is aimed at people who have a drinking problem in order to measure the level of addiction. It does not look at any other areas of alcohol related harm. The SADQ questions cover the following aspects of dependency syndrome:

- physical withdrawal symptoms
- affective withdrawal symptoms
- relief drinking
- frequency of alcohol consumption
- speed of onset of withdrawal symptom

Scoring

Answers to each question are rated on a four-point scale:

- Almost never - 0
- Sometimes   1
- Often 2
- Nearly always 3

A score of 31 or higher indicates "severe alcohol dependence". A score of 16 -30 indicates "moderate dependence". A score of below 16 usually indicates only a mild physical dependency.

SADQ is used in this study to measure the severity of dependence.

Statistical Tests Used

Analysis was done using SPSS and various descriptive statistics explained. Non parametric independent samples test (Mann Whitney U test) was done to find out statistical significance between various groups.

Multiple Logistic regressions were applied to find out relationship between various variables.

Results

Table 1: Clinical Variables.

	Minimum	Maximum	Mean	Std. Deviation
Total BZD Dose	22	272	76.97	30.999
Days of hospital stay	3	34	9.74	4.769
Day Of CIWA-AR Score <=4	1	14	5.25	2.607
CIWA-Ar day 1	3	55	14.50	9.288
CIWA-Ar day 2	2	43	11.27	7.926
CIWA-Ar day 3	1	44	9.07	7.077
CIWA-Ar day 4	1	40	6.88	6.073
CIWA-Ar day 5	1	32	5.39	5.032
CIWA-Ar day 6	1	29	4.74	4.306
CIWA-Ar day 7	1	22	4.07	3.496

Table 2: Audit and SADQ Scores.

	Minimum	Maximum	Mean	Std. Deviation
Audit Score	12	40	29.64	4.152
SADQ Score	9	63	29.16	6.783

Table 3: Severity of Dependence According To SADQ Scores.

Severity Of Dependence (SADQ scores)		
	Frequency	Percent
Mild (up to 16)	3	3.0
Moderate (16-30)	53	53.0
Severe (≥31)	44	44.0

Table 4: Severity of Withdrawal at Presentation According To Ciwa-Ar Scores.

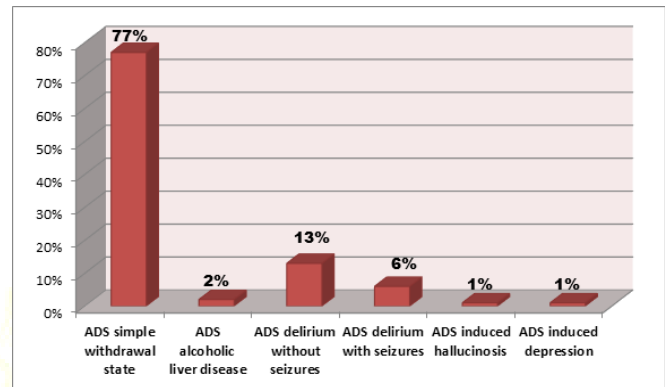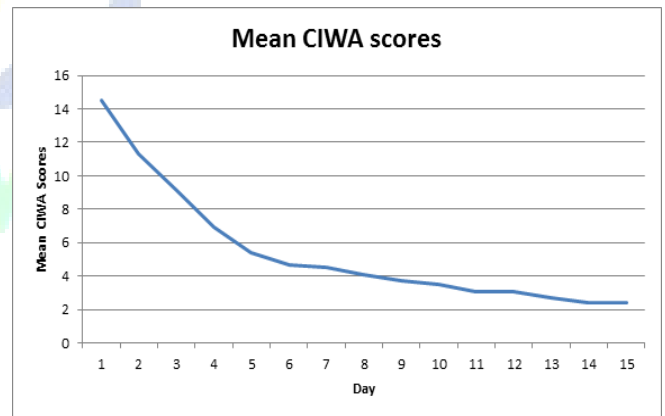|	Frequency	Percent
Mild (8-15)	67	67.0
Moderate (16-24)	12	12.0
Severe (24-67)	21	21.0
Total	100	100.0

Figure 1: Diagnosis

Figure 2: Trend of Ciwa-Ar Mean Scores during the Days of Hospital Stay

By 4th day, 50% of reduction in withdrawal symptoms was noted

Table 5: Comparison Between Patients Who Achived Ciwa-Ar Score ≤4 In Less Than 7 Days and More Than 7 Days

	≤ 7DAYS		> 7 DAYS		Mann-Whitney U	P Value
	Mean	Std. Deviation	Mean	Std. Deviation		
Age	38.71	8.85	39.21	10.05	594.0	0.937
Duration Of Alcohol Use	15.77	6.32	17.79	8.39	538.5	0.523
Age At First Drink	20.03	5.91	17.86	2.96	483.5	0.232
Amount Alcohol/ Day(Ml/Day	422.91	171.89	591.43	216.79	327.0	0.005
Units/Day	14.30	5.69	20.14	6.90	310	0.003
Grams	171.49	69.40	236.57	86.72	333.0	0.006
No Of Units On A Typical Day	22.01	6.42	26.86	5.30	358.5	0.01
MCV	91.68	8.65	93.8	8.50	500.0	0.311
MCHC	32.60	1.52	33.70	1.18	348.0	0.01

Audit Score	29.15	4.15	32.64	2.73	278.0	0.001
SADQ Score	28.19	5.63	35.14	9.93	290.5	0.002
Total BZD Dose	71.78	21.93	108.86	53.86	263.5	0.001
DAY OF CIWA-Ar SCORE =<4 Is Reached	4.44	1.64	10.21	1.81	0.0	<0.001
CIWA-Ar Day 1	13.59	8.78	20.07	10.68	266.0	0.001
Days Of Hospital Stay	9.14	4.54	13.43	4.64	219.0	<0.001

86% of the patients achieved successful outcome of CIWA score ≤ 4 in ≤ 7 days. Out of this, 80% (n=69) were having uncomplicated withdrawal, 86% (n=74) had family history of ADS and 77.9% (n=67) belonged to lower socio-economic strata.
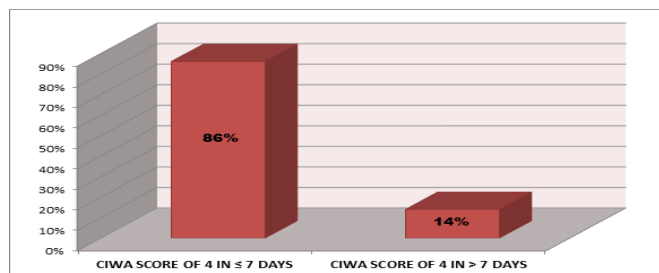

Figure 3: Numbers Who Achieved Successful Outcome of Withdrawal

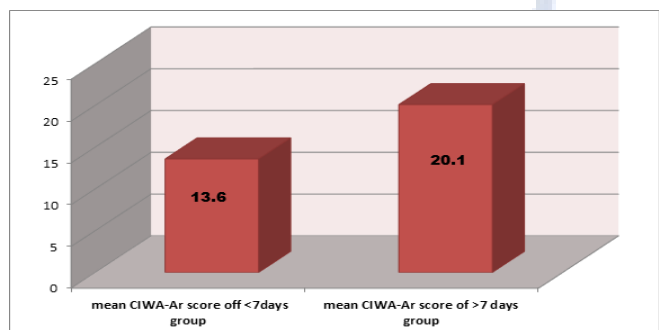86% of the sample achieved successful outcome within 7 days.

Figure 4: Ciwa Scores on Day-1 between Those Who Achieved Successful Outcome In ≤7 Days and > 7 Days

Higher mean CIWA-Ar scores among those who did not achieved successful outcome within 7 days.
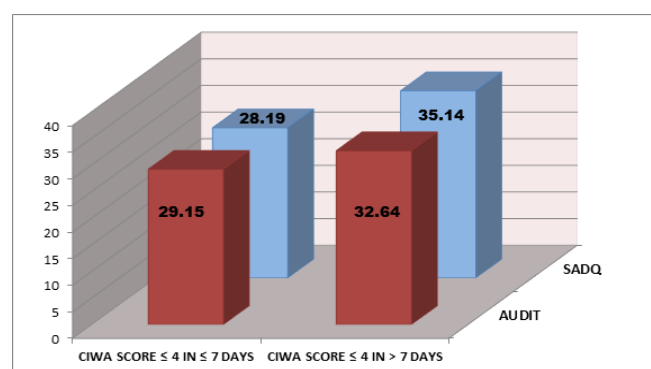

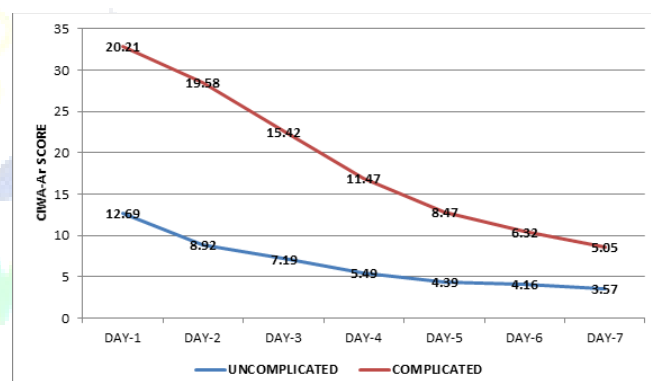**Figure 5: Comparison of Audit and SADQ Scores in Those Who Achieved Successful Outcome In ≤7 Days and > 7 Days**

Figure 6: Graph Showing Trend of Ciwa-Ar Scores between Uncomplicated and Complicated Groups Upto 7 Days

Table 6: Comparison between Complicated and Uncomplicated Withdrawal Groups						
	Uncomplicated		Complicated		Mann-Whitney U	P value
	Mean	Std. Deviation	Mean	Std. Deviation		
Age	38.94	8.31	39.21	11.58	786.5	0.416
Duration of alcohol use	15.65	6.213	17.79	7.70	799.5	0.475
Age at first drink	20.17	5.934	18.74	4.51	698.0	0.119
Amount alcohol/ day(ml/day)	444.81	178.64	449.47	206.81	877.0	0.946
UNITS/DAY	20.60	2.94	20.11	2.51	825.0	0.608
GRAMS	180.39	71.94	180.32	82.33	881.0	0.970
SGOT	85.0	95.6	110	80.6	648.0	0.052
SGPT	52.0	50.3	60.0	40.3	727.5	0.195
AUDIT SCORE	29.55	3.67	30.00	5.44	808.0	0.520
SADQ SCORE	28.92	7.00	29.89	6.49	813.0	0.553
TOTAL BZD DOSE	71.81	21.70	97.68	46.82	596.0	0.018
DAY OF CIWA-Ar SCORE =<4 is reached	4.75	2.35	6.84	2.89	446.5	<0.001
CIWA-Ar day 1	12.69	7.71	20.21	12.29	439.5	<0.001
Days Of Hospital Stay	9.14	4.54	13.43	4.64	634.5	0.039

Table 7: Trend of Ciwa-Ar Scores between Uncomplicated and Complicated Groups

Scores	Type Of Withdrawal	Mean Ciwa-Ar Score	Standard Deviation	Mann-Whitney U Score	P Value
CIWA-Ar day 1	Uncomplicated	12.69	7.712	391.00	0.002
	Complicated	20.21	12.29		
CIWA-Ar day 2	Uncomplicated	8.92	4.751	264.50	<0.001
	Complicated	19.58	11.91		
CIWA-Ar day 3	Uncomplicated	7.19	4.78	265.50	<0.001
	Complicated	15.42	10.35		
CIWA-Ar day 4	Uncomplicated	5.49	4.29	279.50	<0.001
	Complicated	11.47	9.14		
CIWA-Ar day 5	Uncomplicated	4.39	3.92	351.00	0.001
	Complicated	8.47	7.03		
CIWA-Ar day 6	Uncomplicated	4.16	3.80	416.00	0.410
	Complicated	6.32	5.45		
CIWA-Ar day 7	Uncomplicated	3.57	2.91	360.00	0.060
	Complicated	5.05	4.60		

By applying tests of normality among variables, it was found that many variables did not follow normative distribution and hence to study the strength of association between various variables, non-parametric tests of correlation using Spearman's rho test was run using SPSS

Table 8: Ciwa-Ar Rating On Day 1 With

	Correlation co-efficient [r]	P value
Audit Score	0.382	<0.001
Sadq Score	0.285	0.004
Day of CIWA-Ar Score ≤4 Is Reached	0.440	<0.001

Table 9: Days Taken To Reach Ciwa-A R Score ≤ 4 With

	Correlation co-efficient [r]	P value
AUDIT score	0.292	0.003
SADQ score	0.277	0.005
Total BZD Dose	0.298	0.003
Days of Hospital stay	0.403	<0.001
CIWA-Ar day 1	0.440	<0.001

Table 10: Total BZD Dose With

	Correlation co-efficient [r]	P value
Days Of Hospital Stay	0.738	<0.001
Day Of Ciwa-A R Score ≤4	0.298	0.003

Stepwise multiple logistic regression was conducted with CIWA-Ar score as ≤ 4 achieved in less than 7days as dependent variable, age, socioeconomic class, duration of alcohol use, age at first drink, amount alcohol/day(ml/day),units, grams, last drink, number of units on a typical day, H/O delirium tremens, H/O of withdrawal seizures, H/O previous deaddiction treatment received, family history of ADS, general physical examination, systemic examination, mental status examination, MCV, MCHC, counts, LFT, MINI diagnosis, AUDIT score, SADQ score, diagnosis, total BZD dose, days of hospital stay, days taken to reach CIWA-Ar score≤4, and CIWA-Ar day one were the independent variables. The model was significant with p<0.001 F=7.822. After controlling for all other factors, diagnosis, socioeconomic status, and family history emerged as significant predictors.

Table 11: Results of Stepwise Multiple Logistic Regressions in Those who Achieved Ciwa-Ar Score <4 within 7 Days

Variables	B	b(beta)	r2	p value
Diagnosis	0.434	0.289	0.095	0.004
Socio-Economic Status	0.770	0.285	0.184	0.005
Family History	0.933	0.198	0.223	0.047

B= regression co-efficient.
b= standardized co-efficient
r2= multiple regression co-efficient

Stepwise multiple logistic regression was conducted with CIWA-Ar score as ≤ 4 achieved after s 7days as dependent variable, age, socioeconomic class, duration of alcohol use, age at first drink, amount alcohol/day(ml/day),units, grams, last drink, number of units on a typical day, H/O delirium tremens, H/O of withdrawal seizures, H/O previous deaddiction treatment received, family history of ADS, general physical examination, systemic examination, mental status examination, MCV, MCHC, counts, LFT, MINI diagnosis, AUDIT score, SADQ score, diagnosis, total BZD dose, days of hospital stay, days taken to reach CIWA-Ar score≤4, and CIWA-Ar day one were the independent variables. The model was significant with p=0.006; F=8.340; after controlling for all other factors, total benzodiazepine dose and CIWA-Ar score on day one emerged as significant predictors.

Table 12: Results of Stepwise Multiple Logistic Regressions in Those Who Achieved Ciwa-Ar Score <4 after 7 Days

Variable	B	b(beta)	r2	p value
Total BZD dose	0.025	0.748	0.372	0.003
CIWA-Ar day 1	-0.084	-0.499	0.603	0.028

B= regression co-efficient.
b= standardized co-efficient
r2= multiple regression co-efficient.

Discussion

The severity of Alcohol dependence in our sample as measured by SADQ whose mean was 29.16 (sd 6.8).According to SADQ scores 3 % had mild dependence, 53 % had moderate dependence and 44 % had severe dependence, implying most sample had moderate to severe dependence.

The severity of withdrawal at presentation as measured by CIWA-Ar was 14.5 (sd 9.28).

In a study by Chandrasekaran et al, it was reported that the mean SADQ score was 23.95(SD 9.04).[6] In the study by Kumar CN 7 et al 2009 as described above, the mean score of SADQ was 23.6 and the severity of withdrawal at presentation measured by CIWA-Ar was 10.52(sd4.09) which was comparable to our study.

In our study, the mean dose of Lorazepam equivalent used per day was 10.8mg (SD 4.4).

In the study by Kumar CN et al 2009 as described above, the mean dose of Lorazepam used was 8mg/day, which was comparable to our study.

When compared to a study by Cynthia et al,[8] 1983 the mean Lorazepam equivalent dose used per day was 4.8mg.

Higher doses of benzodiazepines were used in our study which could be due to the severity of withdrawal as well as mostly symptom triggered benzodiazepines dose schedule was followed.

The mean number of days of hospital stay in our study was 9.74 days (sd 4.7).

In a hospital based study by Shaw et al, 1998 the mean number of days of hospital stay was 7.81 days and the SADQ score was 30.74.[9]

In our study, though the mean SADQ scores comparable to the above study, the mean number of days in hospital were higher which could be due to the fact that our study sample had more severe withdrawal symptoms and complicated withdrawals.

Comparison between Patients Who Achieved CIWA-Ar Score ≤4 In Less Than 7 Days and More Than 7 days

CIWA-Ar scores of 8 points or fewer correspond to mild withdrawal, scores of 9 to 15 points correspond to moderate withdrawal, and scores of greater than 15 points correspond to severe withdrawal symptoms.

A score of ≤4 was taken as successful detoxification and time taken to achieve this score is the main dependent variable in our study. CIWA-Ar scores of less than 8 correspond to few withdrawal symptoms as mentioned by the authors of the scale.[10] Thus, in our study, 50% of the cut-off score, ie 4, mentioned by the authors was used as cut-off so that even minor withdrawal symptoms, which usually tend to be ignored, are included.

Withdrawal phenomena are likely to begin within approximately 8 hours of abstinence, peak in intensity on the second or third day, and markedly diminish by the fourth or fifth day.

A similar study comparing outcome after inpatient alcohol detoxification by Foster JH et al 2000,[11] they divided the groups based on the length of hospital stay as 7days and >7days as minimum period required for usual detoxification is 7 days.

In a study by Shaw et al 1998 out of one hundred sixty patients one hundred and thirty-two of the patient sample were treated by detoxification only and were in hospital for less than seven days and total a mean of 7.81 days.

Hence, we divided the sample into those who achieved CIWA-Ar score of 4 in less than 7 days and who took more than 7 days for statistical analysis and to arrive at the outcome of our study, which was to find the determinants of time for successful detoxification.

In our 86% of the sample achieved this score (≤4) in less than 7 days and 14% took more than 7 days.

In those who achieved the cut-off in less than 7 days, duration of alcohol use is 15.77 years, age at first drink is 20.03 years, amount of alcohol per day is 422.91 ml (14.30 units = 171.49 grams)

And who took more than 7days duration of alcohol use was 17.79yrs, age at first drink was 17.86yrs, amount of alcohol use per day is 591.43ml (i.e. 20.14 units = 236.57 grams).

This indicates that the age at first drink is earlier and duration of alcohol use is more in the group who took >7days to achieve CIWA score of <4.

In a similar study by Cynthia et al, 1983 no significant correlation was evident between withdrawal severity and number of years of heavy drinking as in our study.

Last drink in the group who took less than seven days to achieve successful outcome was within12-24hrs and in the group who took more than seven days to achieve successful outcome was within 6 to 12hrs respectively.

Mean amount of alcohol use per day (ml/day) in former group was 422.9ml (171.5 g) /day and for latter group it was 590.4 ml (236.6g) /day. It indicates that patients who required more than 7days for achieving successful outcome had more mean consumption of alcohol.

AUDIT score and SADQ scores were slightly higher in the latter group though statistically not significant.

Total benzodiazepine dose required was significantly higher in latter group (108.9mg) compared to the former (71.8 mg) (equivalent Lorazepam dose).

No of days of hospital stay was 9 days for the former when compared to 13 days of stay required by latter group.

In a similar study by Shaw GK et al 1998 comparable findings were obtained. Mean age was 44 years with a mean SADQ score of 32.6 in this study which were similar in our study. Average daily drinking was 31.2 units/day, which was significantly higher than our study group (23 units/day).

CIWA-Ar score at presentation was significantly different between two groups which mean to say that people who presented with less withdrawal symptoms which were significantly more among people who remitted fast.

People who remitted earlier had significantly lesser AUDIT score.

We defined complicated withdrawal according to ICD 10 as those having delirium with or without seizures and seizures without delirium. On grouping patients on the basis of withdrawal as uncomplicated and complicated, following were the salient features:-

In our study, statistically significant differences in variables between groups having complicated and uncomplicated withdrawal were observed in total Benzodiazepine dosage (p=0.003), Length of hospital stay (p=0.014), CIWA scores at presentation (p<0.001) and continued to be statistically significant up to day 6 only, but no differences after 7th day. Both groups were statistically different in time taken to achieve successful outcome (p=0.001).

Thus, people with complicated withdrawal needed statistically more Benzodiazepine doses, more number of days of stay in hospital and had greater withdrawal scores than those with simple withdrawal.

There were no statistically significant differences noted between both the groups in age at presentation, duration of alcohol use, amount of alcohol consumed/day, AUDIT and SADQ scores.

On comparing to a similar study by Foy a et al which compared withdrawal among uncomplicated and complicated types revealed that length of stay was strongly correlated with the development of complications. The median length of stay for uncomplicated patients was 5 days and for complicated 9 days (p=0.001).

In our study 77% had simple withdrawal, 23% complicated withdrawal, of which about 19 patients had delirium, out of which 6 patients had seizures.

In similar study (Foy A et al 1997) a total of 539 episodes of alcohol withdrawal were monitored, 113 patients had complications of alcohol withdrawal in the form of seizures, hallucinations or delirium.[14]

Severity of the withdrawal at presentation as recorded by CIWA-Ar score on day-1 was positively correlated with severity of dependence indicated by SADQ scores (r=0.285 p=0.004), AUDIT score (r=0.382 p<0.001) and time taken for successful outcome i.e., number of days taken to reach CIWA scores of ≤4 (r=0. 440 p<0.001).

Time taken for successful outcome i.e., CIWA scores of ≤4 is in turn correlated to severity of dependence as indicated by SADQ scores (r=0.277 p=0.005), AUDIT scores (r=0.292 p=0.003), days of hospital stay (r=0.440 p<0.001).

This indicates that more the severity of dependence, more the severity of withdrawal and hence longer the time taken to achieve successful outcome of CIWA scores ≤ 4.

Analysis using Multiple Logistic Regression to predict factors influencing duration for successful outcome

On applying step-wise multiple logistic regression to predict the factors influencing successful outcome, it was found that diagnosis of the type of withdrawal (B=0.434) socio-economic class (B=0.770) and family history (B=0.933) predicted the outcome in statistically significant levels Socioeconomic class could predict the outcome because 80% sample belonged lower socioeconomic class (class IV and V). As stated earlier in this discussion, a study by Gururaj et al 2006 15showed that lower and middle income groups were found to have higher alcohol use and formed the majority of the sample in previously cited studies.

Family history of alcohol use could predict the outcome which could be due to the fact that 85% of sample had a positive family history, and it is known that positive family history of alcohol dependence is associated with a more severe dependence and withdrawal.

In a study by Shaw GK et al, it was found that the number of previous detoxifications (B = 0.943), severity of dependence on alcohol (B = 0.327), previous experience of withdrawal symptoms (B = 6.100) and a family history of alcoholism (B = 2.069) predicted severity of withdrawal.

However, in our study, neither the number of previous detoxifications nor the severity of dependence could predict the outcome. This could be due to the fact that very few of our sample had received previous detoxification and most of our sample had severe dependence as reflected in SADQ scores unlike the quoted study where people had varying levels of dependence and history of detoxification.

For those people who did not achieve CIWA-Ar of ≤4 within one week, total Benzodiazepine dose (B=0.025) and CIWA-Ar score on day one (B=-0.499) could predict those who could not achieve cut-off score within one week with statistical significance. It could be due to the fact that these people had more severe withdrawal symptoms at presentation and needed greater BZD doses and thus had higher CIWA-Ar scores on Day one.

By 4th day, 50% of the withdrawal symptoms (as recorded by mean CIWA scores of whole sample) remitted and by 7th day, 70% of the withdrawal symptoms had remitted.

When CIWA-Ar scores were compared in the groups of complicated and uncomplicated withdrawal types, mean CIWA-Ar scores were different in two groups which were statistically significant till day-5 where complicated groups had much higher scores. This is also reflected in the regression analysis where type of withdrawal predicts the outcome in statistically significant manner.

In a study by Foy A et al 1997, who conducted an observational study of 539 episodes of alcohol withdrawal in a general hospital, it was reported that withdrawal symptoms began with a median time of onset of 5 hrs (complicated-7hrs, uncomplicated- 4hrs) and median time of resolution of withdrawal symptoms was 33hrs and median length of stay for uncomplicated withdrawal was 5 days and complicated withdrawal was 9 days.

Conclusion

Severity of alcohol withdrawal at the time of presentation is significantly correlated with time taken for successful outcome.

Family history, diagnosis and socio economic class can predict time for remission of withdrawal symptoms

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