

Risk factors for alcohol use relapse after abstinence in patients with alcoholic liver disease

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ABSTRACT

Introduction: In patients with alcoholic liver disease, abstinence from alcohol is an important aspect of treatment. Once abstinence is achieved, the challenge is to avoid relapse of alcohol use. This study aims to analyse the significant risk factors for alcohol relapse thereby identifying the patients with high risk for recidivism to have an early social and medical intervention. **Methodology:** This was an observational and a retrospective type of study. Patients with chronic liver disease and had alcohol use relapse after abstinence were classified into Group A. Patients who did not have relapse after abstinence were classified into Group B. The two groups were compared for various social and personal and disease related factors. Student “t” test was used for raw data and Chi square test was used for consolidated data to find significant difference between variables. **Results:** Overall nine factors were analysed. The factors which were found to be significant for predicting relapse are quantity of alcohol consumption per week, duration of abstinence, associated smoking, marital status, severity of liver disease (Child-Pugh scoring system). The other factors like age of starting alcohol consumption, duration of alcohol consumption, family history of alcohol intake and MELD score were not statistically significant. **Conclusion:** This study identifies the risk factors associated with alcohol relapse in patients with alcoholic liver disease. The data from this study can be used to identify individuals who are high risk for relapse and treat them with pharmacological and psychosocial methods to prevent relapse.

Keywords: Alcohol abstinence, alcohol relapse factors, alcohol use relapse, chronic liver disease

Introduction

Alcoholic liver disease is one of the most common causes of advanced liver cirrhosis, portal hypertension and Hepatocellular Carcinoma. It is the second most common indication for liver transplantation after cirrhosis caused by viral hepatitis.^[1] Fat accumulation in liver cells (Fatty Liver) is the earliest response to alcohol consumption. It can be found in about 90% of heavy drinkers. Fatty liver due to alcohol is reversible once the person stops consuming alcohol. However once cirrhosis develops, it

becomes irreversible. Cirrhosis can develop in about 10% of patients who consume alcohol heavily within five years.^[2]

During treatment of alcoholic liver disease, the most important aspect to be addressed by the physician is abstinence to alcohol. The primary care physicians who treat these patients should adequately counsel the patients and relatives regarding the need of complete abstinence for proper recovery from liver disease. Various tools have been used to detect alcohol relapse in patients who have achieved abstinence. Among them Carbohydrate-deficient transferrin has been proved to be a useful supplementary tool for detecting alcohol relapse.^[3] Once abstinence is achieved, the biggest challenge during treatment is avoiding recidivism. The morbidity and mortality due to alcoholic liver disease is much higher in those with the relapse of alcohol

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use compared to those who are abstinent.^[4,5] So there is a need to identify the risk factors for relapse of alcohol use in patients of alcoholic liver disease. This study aims to analyse the significant risk factors for alcohol relapse thereby identifying the patients with high risk for recidivism to have an early social and medical intervention.

Materials and Methods

This was an observational and a retrospective type of study. For the purpose of the study, patients with alcoholic liver disease who relapsed after abstinence and who stayed without relapse after abstinence were operationally defined. Alcohol use disorder (AUD) was defined based on the fifth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-5) published by the American Psychiatric Association.^[6]

Abstinence was defined as “adults between the age of 18 and 65 years who had met the DSM-5 criteria for AUD and is now abstinent for a minimum period of 3 months”. Relapse was defined as “adults who had met the DSM-5 criteria for AUD and were abstinent for at least 1 month, after which they relapsed and are now fulfilling the DSM-5 criteria for at least 1 month”.

Approval for the study was obtained from the Institutional Ethics Committee (04-08-2017). Patients who gave written informed consent were included in the study. All consecutive patients who attended the Gastroenterology outpatient department during the period of research (January 2019 to December 2019) with the diagnosis and follow up of alcoholic liver disease with past history of alcohol dependence were included in the study.

The patients who were enrolled were categorised into two groups. The patients who developed alcohol use relapse after its abstinence were categorized into Group A. The patients who stay without relapse to alcohol use after its abstinence were categorized into Group B.

A detailed personal data was taken from the patient's record regarding the age of starting the alcohol consumption, the years of alcohol use and the time of alcohol abstinence and time period of its relapse. History regarding social factors for alcohol relapse including marital status, occupation, socio-economic status were also be obtained from the medical records and telephonic conversations. The various significant risk factors that contributed to the relapse were also elicited from the history.

The baseline laboratory and radiological investigations were obtained from the old records to assess the severity of liver disease and its correlation with abstinence and relapse. The severity of their disease was graded according to Child-Pugh scoring system^[7] and the Model for End stage Liver Disease (MELD)^[8] scoring systems.

The data were entered in Microsoft excel datasheet. The demographic data and the baseline investigations of chronic liver disease of both the group of patients were documented. Data analysis was performed by using SPSS 16.0 (IBM SPSS statistics, New York, USA). Student “t” test was used for raw data and Chi square test for consolidated data to test the significance of difference between variables. A ‘p’ value which is less than 0.05 is taken to show significant association.

Results

A total of 77 patients were enrolled in the study after obtaining informed consent. The patients who developed alcohol use relapse after its abstinence were categorized into Group A (n = 35). The patients who stayed without relapse of alcohol use after its abstinence were categorized into Group B (n = 42). Individual factors were analysed for significance between the two groups. Overall nine factors were analysed which included age of starting alcohol consumption, duration of alcohol consumption before abstinence, quantity of alcohol consumption per week, duration of abstinence, associated habits like smoking, marital status, family history of alcohol intake, severity of liver disease (Child-Pugh scoring system and MELD score).

The factors which predict the chance of alcohol relapse with statistical significance are enlisted in Table 1. The quantity of alcohol intake was found to be a significant factor in predicting alcohol relapse. Those who were consuming more than 500 gm alcohol per week were found to have more chance for relapse than those who were consuming less than 500 gm (p = 0.04). When the duration of abstinence was compared between the two groups, it was found that, higher the duration of abstinence, better is the chance of abstinence and the association was significant (p < 0.001).

When the marital status of the participants of the study was compared, it was found that those who were married had significantly less chance of alcohol relapse than those who are single (p = 0.011). Those who smoke had more chance for alcohol relapse than those who do not smoke (p = 0.019). When the participants were classified according to the severity of liver disease according to the Child-Pugh scoring system, those who had severe liver dysfunction had significantly higher alcohol relapse rate (p = 0.004).

The factors which did not have a statistical significance between alcohol relapse group and abstinence group are enlisted in Table 2. It was analysed whether the age of starting alcohol consumption had an effect on recidivism, however it was statistically significant (p = 0.166). There was no significant difference between the two groups in the duration of alcohol consumption before abstinence (p = 0.053). The family history of alcohol consumption was analysed between the two groups; however, it was not statistically significant (p = 0.268). When the severity of liver disease was classified according to the MELD

Table 1: Factors significant for predicting alcohol use relapse

Characteristics	Total	Group A (Relapse)	Group B (Abstinent)	P
Duration of abstinence (Months)				
≤6	31	21	10	<0.001
7-12	12	4	8	
13-24	14	9	5	
25-60	9	1	8	
>60	11	0	11	
Marital Status				
Married	65	25	40	0.011
Single	12	10	2	
History of smoking				
Yes	45	26	19	0.019
No	26	9	23	
Quantity of alcohol consumption (gm per week)				
<500	43	15	28	0.04
≥500	34	20	14	
Cirrhosis Stage				
Child A	13	3	10	0.004
Child B	46	18	28	
Child C	18	14	4	

Table 2: Factors not significant for predicting alcohol use relapse

Characteristics	Total	Group A (Relapse)	Group B (Abstinent)	P
Age of starting alcohol (years)				
≤20	10	6	4	0.166
21-30	38	19	19	
31-40	19	6	13	
>40	10	4	6	
Duration of alcohol use (years)				
≤10	33	11	21	0.053
11-20	28	13	15	
21-30	13	8	5	
≥31	4	3	1	
Family History of alcohol intake				
Yes	42	22	20	0.268
No	35	13	22	
MELD score				
0-10	12	1	11	0.051
>10 and <18	38	18	20	
>18 and <24	19	12	7	
>24	8	4	4	

score, there was no statistically significant difference between the two groups ($p = 0.051$).

Discussion

Our study analyses the different factors which may contribute to the relapse of alcohol use after abstinence in patients with alcohol related chronic liver disease. We analysed nine factors and found that five factors are significantly associated with alcohol relapse.

The quantity of alcohol consumption per week was more in the relapse group than in the abstinence group which means that more the addiction to alcohol, more is the chance for relapse.

The presence of another addiction like smoking increased the risk of alcohol relapse. So, deaddiction for smoking should be considered along with deaddiction of alcohol. The duration of abstinence was another factor that significantly predicted relapse in our study. As the duration of abstinence increased, the chance of relapse decreased. So, it should be understood that the pharmacological therapy and psychosocial support are more important in the initial period of abstinence.

Another important factor that predicted relapse was the marital status. The possible explanation was that those who were married had better social support to prevent relapse. The relapse rate was significantly higher in those who were single. When the

chronic liver disease was graded according to the Child-Pugh scoring system, those who had advanced liver disease had higher chance of relapse. This may be due to the fact that those who had advanced liver disease had the previous tendency for non-compliance to drugs and so not compliant to alcohol abstinence also.

Only few studies are available in English literature regarding the risk factors leading to recidivism after alcohol abstinence.^[9,10] Rongbin *et al.*^[11] conducted a study on risk factors for alcohol use relapse among patients with psychiatric illnesses. They recruited 451 patients and analysed various factors responsible for alcohol use relapse. They found that duration of psychiatric symptoms, marital status, and deception about alcohol use correlated with alcohol use relapse. They concluded that those who are single had high risk for alcohol use relapse and the relapse was higher between first and fifth years of onset of psychiatric symptoms.

Satapathy *et al.*,^[12] formulated a scoring system called HALT score to predict harmful alcohol relapse post liver transplantation (LT) based on four variables which included age at LT, non-alcohol related criminal history, pre-LT abstinence period and number of drinks per day. They found that the HALT score identified LT candidates at significant risk for alcohol relapse, potentially guiding transplant centres for pre- and post-LT interventions for improved patient outcomes. In a recent review by Hera Schlagintweit *et al.*,^[13] the studies regarding the behavioural and psychosocial interventions to prevent alcohol relapse were analysed. They concluded that behavioural interventions are a fundamental component of alcohol use disorder treatment, however limited research was available in evaluating behavioural alcohol interventions among alcoholic liver disease patients. In a comprehensive review by Akhil Shenoy *et al.*,^[14] it was concluded that multidisciplinary treatment that includes medications and psychotherapies along with support groups, family engagement would reduce the chance of alcohol relapse.

There is very little Indian data available in this context. Kailash Suresh Kumar *et al.*^[15] studied the various demographic, clinical and psychosocial factors associated with relapse in 66 patients with alcohol dependence. They found that among the demographic factors, family history of substance dependence and past history of relapses were significantly associated with alcohol use relapse. Among the clinical variables, younger age of onset of dependence and shorter time to develop dependence were significantly associated with relapse. In a review of various studies on alcohol relapse, Narendra Choudhary *et al.*, concluded that main predictors of relapse are pretransplant abstinence, psychiatric comorbidities, and lack of social support. They concluded that studies which had active involvement by psychiatrist had lower relapse rate.^[16]

The other social and clinical factors which were analysed in our study including the age of starting alcohol, duration of alcohol consumption, family history of alcohol consumption, MELD

score did not have any statistically significant difference. Our study can be used to identify patients who come under the high risk criteria for relapse, who are to be comprehensively treated with both medical and psychosocial therapies in order to prevent their relapse after abstinence.

Our study has a few methodological limitations such as being a retrospective study, which might have a recall bias. The sample size is small due to a shorter duration of study. However, this research can be set as a stepping stone for further studies in future with more variables and longer study period. To summarize our study, the risk factors which were significantly associated with alcohol relapse were marital status, presence of another addiction, quantity of alcohol consumption, duration of abstinence and presence of advanced liver disease.

Conclusion

This study has been conducted to identify the risk factors associated with alcohol relapse in patients with alcoholic liver disease. Among the social and clinical variables analysed, marital status, duration of abstinence, quantity of alcohol consumption, smoking and cirrhosis staging according to the Child-Pugh scoring system were found to be the factors with significant difference. The data from this study can be used to identify the subset of patients who are at high risk for relapse and treat them with pharmacological and psychosocial methods to prevent relapse.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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