WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.074
Volume 8, Issue 7, 2175-2185. Research Article ISSN 2277– 7105

MORBIDITY AND MORTALITY OF ALCOHOLIC LIVER DISEASE AND ITS CORRELATION WTH TYPE, AMOUNT AND DURATION OF ALCOHOL CONSUMPTION

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Article Received on
21 April 2019,
Revised on 12 May 2019,
Accepted on 01 June 2019,
DOI: 10.20959/wjpr20197-15200

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ABSTRACT

Background and objectives: Alcoholic liver disease is a spectrum of clinical illness and morphological changes that range from fatty liver to hepatic inflammation and necrosis (alcoholic hepatitis) to progressive fibrosis (alcoholic cirrhosis). It is a result of over consuming of alcohol that damages the liver, build up of fats, inflammation and scarring. It can also be fatal. Hepatic encephalopathy, ascites and perotinitis are the complications of the alcoholic liver disease. The main aim of the study was to assess and compare the disease progression and mortality in Alcoholic liver disease patients in correlation with the type, amount and duration of alcohol intake. **Methodology:** A clinical based prospective and observational study by using patient medical records and the other relevant data was collected personally in a properly designed case report form. **Results:** During the study period 254 patients were included. The age group of 30-50 years was more in number. All the patients included were alcoholic. Majority of the patients consume Whisky > 60gm/day over a period of 15-20years. The laboratory parameters like albumin, bilirubin, prothrombin time was increased and abnormal. MELD was calculated and it was found 25.196% of patients were at the risk of severity and 42.125% of patients have improved quality of life because of cessation of alcohol. Life expectancy or mortality was calculated by using child pugh score for 50 patients and we found 18 patients (42.85%) with score 5-6, 21 patients (49%) with score 7-8, 3 (7.14%) patients with score 9-11. Our study shows that there is a moderate correlation between duration of alcohol intake with severity of disease and there may be possibly no correlation between amount of alcohol intake with disease severity. **Conclusion:** Only counselling may not effective to maintain the abstinence.

Counselling along with de addiction therapy is effective in maintaining the abstinence and decreasing the relapse rate in alcoholic liver cirrhosis patients. There is a greater correlation between duration of alcohol intake with severity than that of disease severity with quantity of alcohol. Cessation of alcohol has improved quality of life of many patients.

KEYWORDS: Liver Cirrhosis, Alcoholic liver disease, Child pugh score, model for end liver disease (MELD).

INTRODUCTION

Alcoholic liver disease is a spectrum of liver injury, ranging from simple steatosis to frank cirrhosis.[1] These later stages may also be associated with a number of histological changes which have varying degree of the presence of Mallory's hyaline, megamitochondria or perivenular and perisinusoidal fibrosis.[2] It also effects the functioning of liver.

ALD and its complications are major causes of morbidity and mortality worldwide. However, every person consuming alcohol does not develop the disease and a number of factors determine the overall risk which includes amount, duration, type of alcohol consumed nutritional status, co-morbid conditions and demographics.[3] It is invariable if consumption exceeds 80g of alcohol per day.[4]

Diagnosis is based on the history of alcohol consumption by questionnaire; LFT test like gamma-glutamyl transferace, serum transaminace levels ALT and AST, bilirubin levels, prothrombin time, CBP-anemia and leukocytosis is common in alcohol hepatitis, liver biopsy. The aim of the study was to study morbidity and mortality of alcoholic liver disease in correlation with amount, type and duration of alcohol consumption.

Symptoms includes

Fatty liver – asymptomatic, self limited and may be completely reversible with abstinence after 4-6 weeks.

Alcoholic hepatitis- Jaundice, nausea, vomiting, loss of appatite, weight loss.

Liver cirrhosis: Final stage of ALD, Irreversible, ascites, spleenomegaly, coagulation issues, hepatic encephalopathy.[5]

Complications: Ascites: Ascites is the lymphatic fluid accumulation in the peritoneal cavity. It is the clinical presentation of cirrhosis.

Portal hypertension: The classical symptom of portal hypertension is development of varices. Varices is the abnormal blood flow from the portal to systemic circulation, bypassing the liver.[6]

Hepatic encephalopathy: Hepatic encephalopathy occurs with significant liver dysfunction with a reversible neuropsychiatric complication namely portosystemic shunting, metabolic dysfunction and alteration of blood brain barrier. Symptoms like impaired judgment, altered personality, euphoria or anxiety occur in the low grade encephalopathy.[7]

Management: Abstinence is corner stone of therapy. Fatty liver and portal hypertension can be reversible as early 2 weeks of alcohol discontinuation.[8]

Counselling also plays a role in abstinence of alcohol and decreased in GGT (gamma glutamate levels) was observed in 32 clinical trials.[9]

ALD patients have clotting abnormilities which can't be treated with administration of vitamin K because the liver is unable to utilize it.
Nutritional support

METHODOLOGY

A study was a clinical based prospective and observational study conducted in Rohini multispeciality hospital, Sandeep Reddy gastro liver clinic and Dr PNR gastro clinic and helping hands NGO centre, Warangal, Hanamkonda, India between febrauary – september 2018. Total of 254 patients diagnosed with ALD were enrolled in the study and their alcohol consumption pattern was taken. Patients care sheets served as the information source. Patients with hepatitis B positive, pregnant and who were not diagnosed for ALD were excluded. An appropriate data collection form was designe, data was collected and subjected to analysis.

Data analysis

The care sheets and alcohol consumption pattern of each patient was analysed for the prognostic markers, lab reports, past medical history, medication, social habits and MELD score and child pugh score was calculated. Paired t test was also done.

RESULTS

A study on clinical based prospective and observational study on association between type, amount and duration of alcohol with the disease severity was conducted in three study sites. A total number of 254 patients were taken under study.

Distribution of patients according to gender

Table 1: Gender wise distribution of patients.

Gender	No of patients	%	Confidence interval[C.I]
Male	244	96.06	92.9 – 98.1
Female	10	03.93	1.9 – 7.1
Total	254	100	

Distribution according to age criteria

In this study population it was observed that the maximum number of patients were in the age group of 31-40 years [35.82%], followed by 41-50years [30.31%] and then 51-60 years [16.53%]. The number of patients in the other age group were low. This data when plotted in a bar graph showed a bell shaped curve. A lower prevalence is seen in extreme age groups and maximum prevalence in the centre between 30-50 years of age. **(Figure 1).**

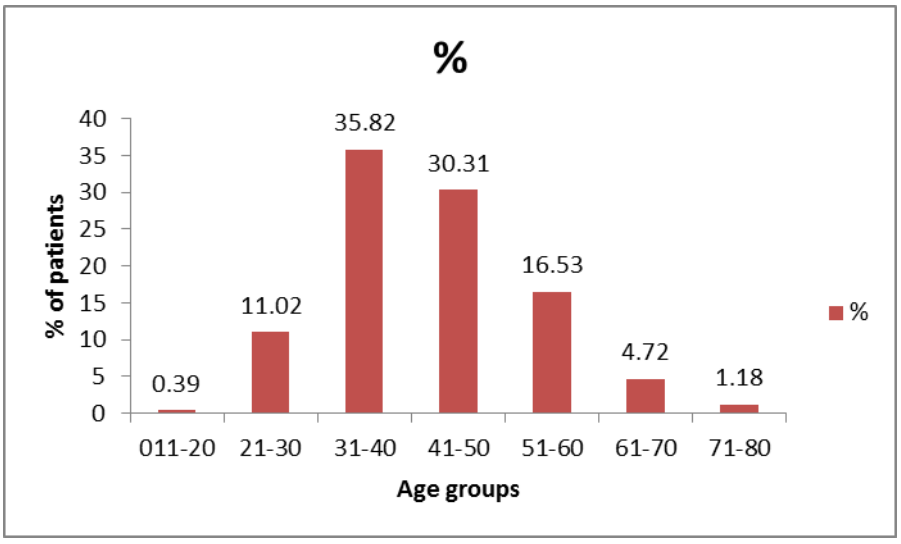

Figure 1: Graph of distribution according to age criteria.

Distribution of patients according to type of alcohol intake

Table 2: Distribution of patients according to type of alcohol intake.

Type of alcohol	No of patients	%
Whisky	229	90.15
Beer	12	4.72
Toddy	12	4.72
Cheap liquor	01	0.39
Total	254	100

Long term use is detrimental to individuals and the same is seen in our study In the study population most of the patients affected are consuming whisky [90.15%], remaining were the patients who consume beer and toddy. Full bottle of whisky [750ml] contains 250 g of alcohol**. (Table 2).**

Distribution of patients based on amount of alcohol intake

In our study includes 254 ALD patients. Among them 123 patients are consuming 250 grams of alcohol per day (250 g of alcohol in 750 ml of whisky). 52 patients are consuming 60 grams of alcohol per day**. (Figure 2).**

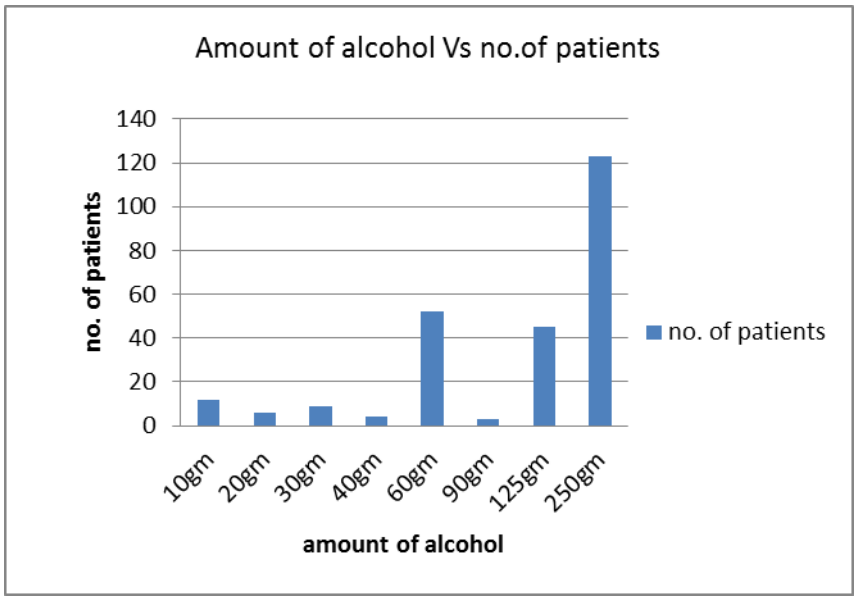

Figure 2: Graph of distribution of patients based on amount of alcohol intake.

Correlation between amount of alcohol and severity of disease

Table 3: Correlation between amount and severity of condition.

Amount of alcohol	MELD score
10gm	17.833
20gm	17.875
30gm	13.666
40gm	14.66
60gm	17.1346
90gm	13.55
125gm	15
250gm	13.522
Correlation	0.238716

In our study we have calculated MELD score for patients consuming different quantity of alcohol per day and correlation was calculated statistically. It was found to be 0.238716 which indicates there may be possibly no correlation between amount/quantity of alcohol and disease severity. **(Table 3).**

Percentage of people based on years of alcohol consumption

In the study maximum number of patients with ALD was consuming alcohol since 10 years which is followed by patients consuming since 20 years. Long term usage of alcohol affects the liver and this is shown in our study. **(Figure 3).**

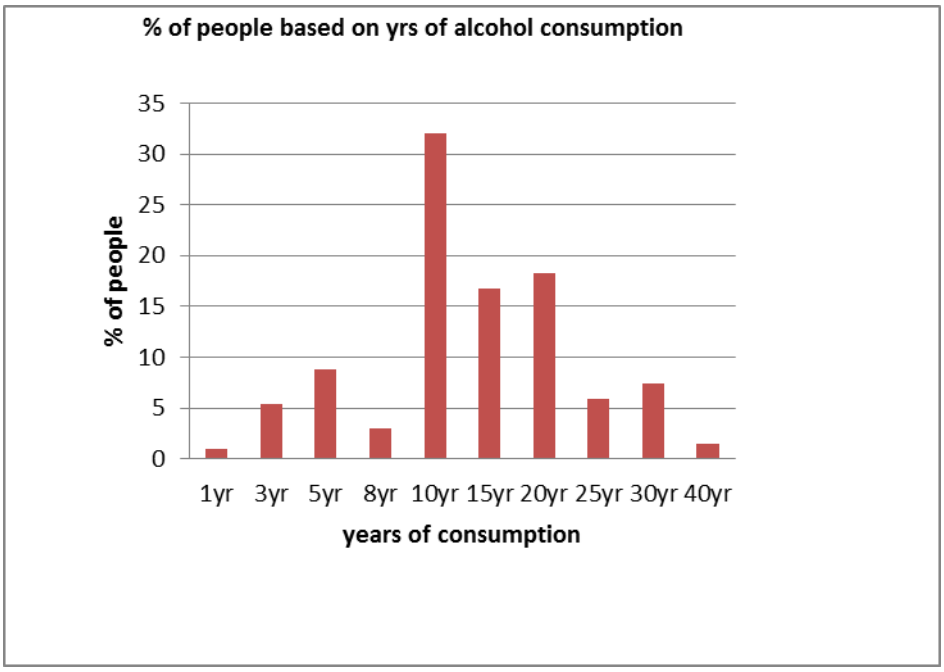

Figure 3: Graph of percentage of people based on years of consumption of alcohol.

Corelation between duration of alcohol intake and disease severity

Table 4: Correlation between duration of alcohol intake and severity of condition.

Year	MELD Score
1	12
3	13.6
5	15.666
8	20.375
10	14.424
15	14.6764
20	15.324
25	20.333
30	15.266
40	22.333
Correlation	0.637442

In our study we calculated correlation between duration of alcohol intake with the percentage of disease severity and it was found to be 0.637442 which indicates there is moderate correlation between duration and severity of ALD**. (Table 4).**

Distribution of patients based on scan reports

Table 5: Distribution of patients based on scan reports.

Scan report	No of patients	%
Fatty liver	152	59.84
Fibrosis	36	14.17
Cirrhosis	23	9.05
Hepatomegaly	05	1.96
Fattyliver +hepatomegaly	38	14.96
Total	254	100

Majority of the patients in the study population were diagnosed with fatty liver [59.84%] followed by fatty liver with hepatomegaly [14.96%] then by fibrosis [14.17%]. **(Table 5).**

Child Pugh score of 50 patients

Table 6: Child pugh score of 50 random patients from the study.

Child pugh score	% of patients	Confidence interval
5	28.571	15.7 -44.6
6	14.2857	5.4 -28.5
7	28.571	15.7 -44.6
8	21.42857	10.3-36.8
9	2.3809	0.1-12.6
11	4.7619	0.6-16.2

Child pugh score is calculated for 50 patients out of 254 patients in the study.

Class A: score 5 -6 indicates well function of liver and have life expectancy of 15 -20 yrs

Class B: score 7-8 indicates compromised liver functioning.

Class C: score 9-15 indicates decompensation of liver and have life expectancy of 1-3 yrs.

In our study we found 18 patients (42.85%) with score 5-6, 21 patients (49%) with score 7-8, 3 (7.14%) patients with score 9-11 **(figure 4).**

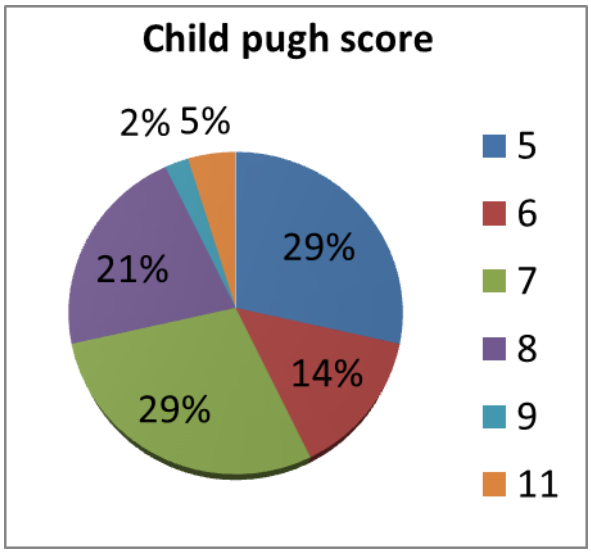

Figure 4: Child pugh score.

We have also calculated MELD score for all the patients before and after cessation of alcohol and paired **t test** was done. It was found to be 0.005583 which is significant.

DISCUSSION

In a study concludes that there is a dose dependent relation of complications, prognostic markers (DF score, MELD score and Child-Pugh score) and NLR with amount of alcohol intake but type of alcohol exposure don't have much effect on the same. Duration of alcohol didn't have an effect on most of the disease severity markers except Child-Pugh score and overall mortality. (Nitya Nand, *et al*., 2015). While this study concluded that duration of alcohol intake has moderate correlation with disease progression and amount and type of alcohol intake possibly do not have correlation with disease severity.

Liver disease was more common in those who consumed illicitly-brewed as compared to licit liquor and the average duration of alcohol consumption was 15 years. (Narawane, *et al*., (1998).[10]

In a study by Michael Roerecke et al,[11] they found that recent drinking as operationalized in the last decade compared to earlier drinking. They also found wine was associated with lower

risk compared to beer or spirits. While in this study most of the people having ALD have the duration of consumption to be 15 to 20 years. We found that duration has more related to disease compared to type and amount of alcohol.

In a study they showed a significant improvement in QOL of alcoholic dependence over three months abstinence.[12] This study showed the abstinence of alcohol in 107(42.125%) patients with counselling and medication.

A study by Raymond f. Anton, et.al[13] on 1383 alcohol dependent volunteers found that patients receiving naltrexone with combined behavioural intervention(CBI) showed better outcomes compared to only CBI and no other treatment other than naltrexone showed better results.

CONCLUSION

Alcoholic liver disease (ALD) is a major cause of mortality and morbidity worldwide. However, every person consuming alcohol does not develop the disease and a number of factors like amount, duration and type of the alcohol consumed, nutritional status, co-morbid conditions, race, sex and genetic factors also determine the overall risk of developing the disease in a given patient.

Our study concludes that there is duration dependent relation of complications, prognostic markers (MELD score and Child-Pugh score) and the type and amount of alcohol exposure don’t have much effect on the complications.

In our study we assessed and compared the outcomes of ALD patients before and after cessation of alcohol by calculating MELD and it is found to have improvement in the quality of life of patient after cessation of alcohol.

Among all the age groups, the age group of 30- 50 were more prevalent with alcoholic liver disease and the persons who consume alcohol 60g/day over a period of 15-20 years were more prone to get ALD and patient consuming 250g /day for 5 years had no liver problem. Therefore, in our study we find relation with duration of alcohol intake with disease progression and not with the amount and type.

Most of the patients of ALD in study were consuming whisky. It might be due to the alcohol percentage was more in that particular brands (Whisky 42% and Brandy 42%).

It has also concluded that only counseling may not effective to maintain the abstinence. Counseling along with de-addiction therapy is effective in maintaining the abstinence and reducing the relapse rate in ALD patients.

REFERENCES

1. Robert S.O`shena, et al. Alcoholic liver disease. The American Journal of Gastroenterology. 2010 January, 105.
2. Lefkowitch JH. Morphology of alcoholic liver disease. Clin Liver Dis., 2005; 9: 37-53.
3. Nitya Nand, et al. Clinical profile of alcoholic liver disease in a teritiary care centre and its correlation with type, amount and duration of alcohol consumption. Journal of the association of physicians of india, 2016 June; (23): 14-18.
4. Kevin walsh, Graeme Alaxender, et al. Alcoholic Liver disease. Postgraduate medical. Journal, 2000; 76: 280-286.
5. Meddrey WC. Alcoholic hepatitis: Clinicopathologic features and therapy. Semin Liver Dis., 1988; 8(1): 91-102.
6. Julie M.Sease, Edward G.Tlmm and James J.Stragand. Portal Hypertension and Cirrhosis In: Joseph T.Dipiro, R L.Talbert, Gary C.Yee, G.R Matzker, B.G.Wells, L.Michael posey. Pharmacotherapy A pathophysiological approach, seventh edition, M C Graw-Hill Companies, 2008; 635-644.
7. P.Kennedy and J.G.O`Grady. Liver disease. In: Roger Walker, Cate Whittlesea, editors. Clinical pharmacy and therapeutics, fifth edition, Elsevier publishers, 2012; 238-250.
8. Mohannad Dugum and Arthur McCullough. Diagnosis and management of Alcoholic liver disease. Journal of clinical and Translation Hepatology, 2015; (3): 109-116.
9. Gail D Onofrio, et al, preventive care in the emergency department: Screening and Brief intervention for alcoholic problems in the emergency department. Academic emergency medicine, 2002, June; (9): 627-637.
10. Narawane, et al., consumption of country liquor and its correlation to alcoholic liver disease in Mumbai. Journal of association of physician of India, 1998; (46): 510-513.
11. Michael R lucey, Parul Dureja,. The place of liver transplantation in the treatment of severe alcoholic hepatitis. Journal of Hepatalogy, 2010; 52: 759-764.
12. Shruthi srivastav and manjeet s bhatla: study on quality of life on Quality of life on alcoholic dependent patients.
13. Raymond f.Anton et.al on combine pharmacotherapy's and behavioural interventions for alcoholic dependence, 259(17): 2003-17.

14. A Gramenzi, et al. Review article: alcoholic liver disease pathological aspects and risk factors. Alimentary pharmacologically and Therapeutics, 2005 October; 13: 1151-1961.
15. Hemang suthar et al. Clinical profile of cases of alcoholic liver disease DOI: 10.5455/ijmsph.2013.2.408-412
16. Khan and khanam. Funadamentals of Biostatistics., third edition, Ukaaz publications, 2004; 50-51 and p.119.
17. Yasar, Mary F. Complications of end stage Liver Disease. In: Koda-Kimble, Young, Brain, Robin, Joseph, Wayne, editors. Applied therapeutics the clinical use of drugs, ninth edition. Lippincott Williams and Wilkins, 2009; 28p2-p22.