

CROSS-SECTIONAL STUDY OF RELATIONSHIP BETWEEN ALCOHOL CONSUMPTION AND LIVER ENZYMES IN NORTH MAHARASHTRA

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Abstract

Alcoholic Liver Diseases (ALD) is caused by excessive consumption of ethyl alcohol. Thus, ethanol is the only essential etiological Alcoholic Liver Diseases (ALD) is caused by excessive consumption of ethyl alcohol. Thus, ethanol is the only essential etiological factor needed for the development of this disease for the development of this disease. This chronic alcohol consumption leads to several diseases amongst which alcoholic liver disease (ALD) is the commonest. In this study, the change in liver enzymes which is directly related to alcoholic liver damage will be evaluated.

Keywords: Cross-Sectional, Alcohol. Consumption. Liver, Enzymes

INTRODUCTION

Alcoholic Liver Diseases (ALD) is caused by excessive consumption of ethyl alcohol. Thus, ethanol is the only essential etiological factor needed for the development of this disease. [1] Alcoholic Liver Disease is one of the major problems affecting the world and is the primary cause of at least 60 major types of systemic diseases, according to the World Health Organization on alcohol in the year 2011. [2]

Daily consumption of 60–80 g of alcohol in men and 20 g in women for a period of 10 years or longer will cause an advanced form of liver disease in about 40% of those contracting liver diseases. [3] The burden of the alcohol-related liver diseases and liver mortality are related to the amount of alcohol consumed at the population level. [4][5]

There are many crucial factors that contribute to ALD susceptibility including diet, heredity, gender, environment and other co-morbidity. [6] In a recent follow-up study, a dose dependent increase in the risk of severe liver disease was demonstrated even among persons consuming less than 30 g of alcohol per day. [7]

The problem is not only with adults, but alcohol abuse starts in late teenage years. According to a new study, more and more adolescents are turning to liquor because it's cool, adult-like and trendy. Others drink out of curiosity or to cope with rough patches due to stresses, peer pressure or disturbed childhood. [8]

Although alcohol is the only essential etiological factor needed for development of ALD, there is wide variation in individual risk among persons consuming similar amounts of alcohol. Thus, recognition of other potential risk factors of ALD are important for health promotion, both on an individual level and in society.

The prevalence of alcohol consumption in Dhule district is very high especially among people of 20-60 years of age. This chronic alcohol consumption leads to several diseases amongst which alcoholic liver disease (ALD) is the commonest. In this study, the change in liver enzymes which is directly related to

alcoholic liver damage will be evaluated. Also, HDL-C known as good cholesterol will be estimated and it will be studied to see if there is any correlation between it and the consumption of alcohol.

OBJECTIVE

To study the effect of alcohol consumption on liver function.

METHODOLOGY

A cross-sectional observational study was conducted on study subjects visiting Medicine OPD of tertiary care centre, Dhule. Subjects between 20 to 60 years, of either gender, taking at least 180 ml of alcohol daily for minimum one year were included in the study via a non-probability consecutive sampling technique. Exclusion criteria included pregnant women, elderly (above 60 years) and subjects below 20 years of age. Also the subjects addicted to drug other than alcohol were excluded from the study. Patients suffering from liver cancer, non-alcoholic fatty liver disease, chronic heart disease and free from any other liver disease were also not included in the study. Data collection was done for the duration to get sample size of 130.

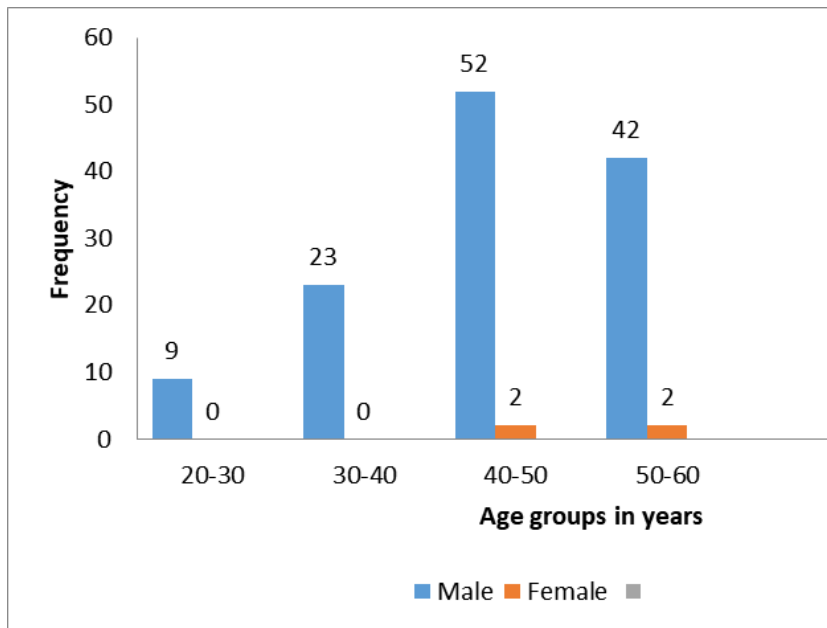
After taking informed written consent in the language understood by the participants from all the participants. Contents of the consent were read out to the illiterate participants. Detailed history was taken and noted in a case study form which had questions on socio-demographic factors, co-morbidities & alcohol consumption of the participants in the form of questionnaire. The questionnaire did not include name or any other information which might reveal the identity of the subject.

Blood samples were collected from eligible study subjects and the liver enzymes & various biochemical parameters were measured in the laboratory of the tertiary care centre using standard clinical chemical methods.

Data was entered in MS Excel sheet. The SPSS 24 version, statistical software package was used for the statistical analyses. Mean and standard deviation were calculated for all continuous variables. Frequency and percentage were calculated for qualitative observations, and chi-square test was applied wherever relevant.

RESULTS

Fig.1 Distribution of study subjects as per age & sex.



One hundred thirty alcoholics were enrolled in this study. The mean age of the alcoholics was 44.7 years. Maximum 126 (96.9%) of the subjects were male. Youngest study subject was 21 year old while 58 years was the oldest one.

Table 1. Baseline characteristics of study subjects

	Mean	Std. Deviation
AST/OT-I	34.3	26.35
ALT/PT-I	51.9	31.24
AALP-N	103.77	29.03
GGT-I	64.31	30.96
HDL -D	40.11	11.66

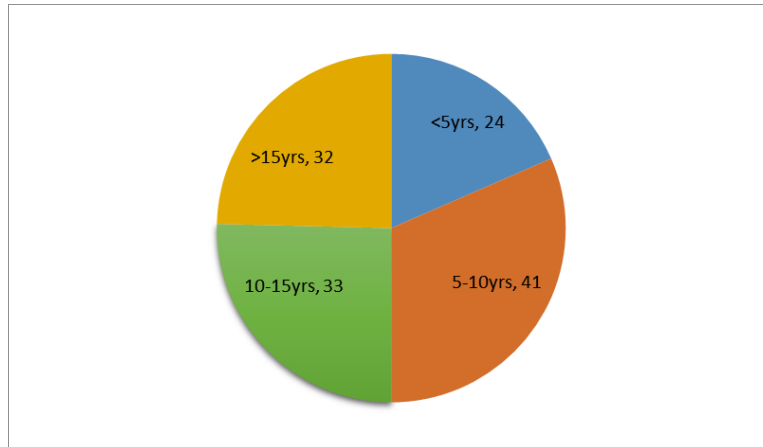
In this study, liver enzyme levels were raised significantly in study subjects. Details of baseline characteristics in terms of mean along with standard deviation is mentioned in Table 1.

Table 2. Distribution of study subjects according to normal & abnormal liver enzymes

	Normal	Abnormal
Total Protein	9 (6.9%)	121 (93.1%)
Total Albumin	4 (3.1%)	126 (96.9%)
SGOT	5 (3.8%)	125 (96.2%)
SGPT	4 (3.1%)	126 (96.9%)
AALP	3 (2.3%)	127 (97.7%)
HDL	7 (5.4%)	123 (94.6%)

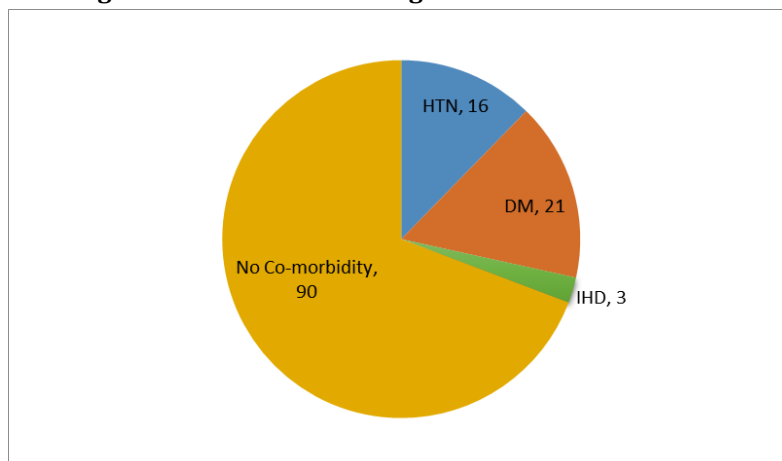
Out of the total of 130 study subjects, nearly one third that is 98 (75.4%) were with an abnormal levels of parameters like total protein, total albumin, SGOT, SGPT, AALP as well as HDL, While remaining 32 (24.6%) study subjects were with normal levels. More than one test can be abnormal for single study subject.

Fig. 2 Distribution according to duration of alcohol consumption.



The longest duration of alcohol abuse was 18 years while the shortest duration of abuse was 2 years. Mean duration of alcohol intake was 6.2 years. Out of the total of 130, 41 subjects were drinking alcohol since 5 to 10 years followed by 33 subjects from the period of 10-15 years while 32 study subjects were taking alcohol for more than 15 years. 24 study subjects out of 130, were addicted to alcohol since last 5 years

Fig. 3 Distribution according to co-morbid conditions.



Associated co-morbid diseases included diabetes (16; 12.3%), hypertension (n=21; 16.15%), and ischemic heart disease (n=3; 2.3%). While 90 (69.23%) were without any type of co-morbidity.

CONCLUSION

In our study, we observed that “Alcoholic Liver Disease’ is mainly a male-dominant disease. More frequent and higher amount of alcohol consumption was found to have adverse effects on the liver physiology.

RECOMMENDATION

We have evaluated very few biochemical parameters. We recommend further studies in this regard, using other biochemical parameters to differentiate ALD from non- ALD with certainty. Being a heavy drinker is a major risk factor for ALD and should be avoided. If consumption of alcohol is not preventable, one should be careful against heavy drinking.

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