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"LFT AS A MARKER OF NAFLD IN GENERAL POPULATION"

Medicine

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ABSTRACT

INTRODUCTION :- The presence of Non-alcoholic Fatty Liver Disease (NAFLD) is a common benign finding in the ultrasonography reports of apparently healthy individuals and is associated with obesity, type 2 diabetes, dyslipidemia and hypertension. These conditions cluster to form the metabolic syndrome, which carries a high risk for cardiovascular disease. Mildly to moderately elevated serum levels of ALT (alanine aminotransferase) and/or AST (aspartate amino transferase) is the most common laboratory abnormality found in patients with NAFLD and a risk predictor of NAFLD.

AIM/OBJECTIVE:- To find out correlation of non-alcoholic fatty liver disease with LFT (liver function test) in general population by means of non-invasive methods. And To evaluate LFT as a risk factors for the development of non-alcoholic fatty liver disease in general population

MATERIAL & METHOD:- All adults patient attending the Medicine OPD in one and half year duration were enrolled in the study. Detailed history and clinical examination was done and Ultrasonography of whole abdomen and LFT was done for all the patients included in study.

RESULT:- The mean ALT level in cases with fatty liver was 51.4±26.7 and in those with no fatty liver the mean ALT level was 38.4±26.7 with p-value 0.001 is highly suggestive that people with fatty liver have higher level of ALT than those without fatty liver

The mean AST level in cases with fatty liver was 49.9 ±18.8 and in those with no fatty liver the mean AST level was 40.6±29.9 with p-value 0.033 is suggestive that people with fatty liver have higher level of AST than those without fatty liver.

CONCLUSION:- Liver enzymes such as AST, ALT increases in people with NAFLD thus making them an important marker for diagnosis of NAFLD. So Higher levels of AST and ALT are good predictors of NAFLD

KEYWORDS

NAFLD, ALT, AST, LFT

INTRODUCTION

The presence of Non-alcoholic Fatty Liver Disease (NAFLD) is a common benign finding in the ultrasonography reports of apparently healthy individuals. NAFLD refers to a wide spectrum of diseases ranging from simple fatty liver to non-alcoholic steatohepatitis to cirrhosis All stages have in common accumulation of fat in the liver cells[1]. The pathological picture resembles that of alcohol induced liver disease but occurs in those who do not abuse alcohol[2]NAFLD was initially believed to be a benign condition. Recent studies have shown it to be associated with obesity, type 2 diabetes, dyslipidemia and hypertension[3]. These conditions cluster to form the metabolic syndrome, which carries a high risk for cardiovascular disease[4].

Mild to moderately elevated serum levels of aspartate amino transferase (AST) and alanine aminotransferase (ALT) or both are the most common findings[5]. Mildly to moderately elevated serum levels of ALT and/or AST is the most common laboratory abnormality found in patients with NAFLD and a risk predictor of NAFLD. The AST/ALT ratio is usually <1. An AST/AL T ratio of > 1 is associated with advanced fibrosis in NAFLD. So this can be a helpful in timely diagnosis of NAFLD with ultrasonography.

Aim & Objective

To find out correlation of non-alcoholic fatty liver disease with LFT in general population by means of non-invasive methods.

To evaluate LFT as a risk factors for the development of non-alcoholic fatty liver disease in general population.

MATERIAL & METHOD

The study was a prospective observation study approved by the ethical committee of Sri Aurobindo medical college and Post graduate Institute, Indore (M.P.), and an informed written consent was obtained from each patient. The present study was conducted in the Department of Medicine. It was a 1 ½ year duration study in which 400 patients was taken for study was selected from medicine OPD and ward. Detailed history and clinical examination was done and Ultrasonography of whole abdomen and LFT was done for all the patients included in study

INCLUSION CRITERIA: -

1. All patients between Age: 30-65 Years.
2. All non-alcoholic and Alcoholic taking <30g/day in males and <20g/day in females

EXCLUSION CRITERIA: -

1. Alcohol intake >30g/day in males and >20g/day in females
2. Patients with pre-existing liver disease.
3. Patients with.diagnosed DM II

RESULT

A total of 400 cases aged between 30 to 65 years of both genders visiting OPD. Case group included 284 males and 116 females among them 110 people irrespective of the gender were found to be having NAFLD thus giving a prevalence of 27.5% in general population..**(Table-1)** NAFLD was defined as any degree of fatty liver in absence of alcohol intake. NAFLD, if present was classified based on standard Ultrasonography criteria. All the stastical analysis was done by SPSS software version-13.

Table-1: Distribution of study population stratified by Gender as per presence/absence of NAFLD

		Female	Male	Total
Total	**N**	**116**	**284**	**400**
Fatty Liver	**N**	**50**	**60**	**110**
Prevalence of NAFLD IN General population		**43%**	**21%**	**27.5%**
The Chi-square statistic is 9.9756. The P value is 0.001586. significant				

In our study we found that, the mean AST was higher in that group who have fatty liver than those with no fatty liver. The mean AST level in cases with fatty liver was 49.9 ±18.8 and in those with no fatty liver the mean AST level was 40.6±29.9 with p-value 0.033 is suggestive that people with fatty liver have higher level of AST than those without fatty liver.**(Table-2 & Fig 1)**

In our study we also found that, the mean ALT was higher in that group who have fatty liver than those with no fatty liver. The mean ALT level in cases with fatty liver was 51.4±26.7 and in those with no fatty liver the mean ALT level was 38.4±26.7 with p-value 0.001 is highly suggestive that people with fatty liver have higher level of ALT than those without fatty liver. **(Table-2 & Fig 1)**

Table-2 : PREVALENCE OF NAFLD AND SERUM AST(SGOT) LEVEL

AST	N	Mean AST	SD	SE Mean	t Test (p value)
Normal	290	40.6	29.9	2.5	2.15(.033)
Fatty Liver	110	49.9	18.8	2.5	Sig

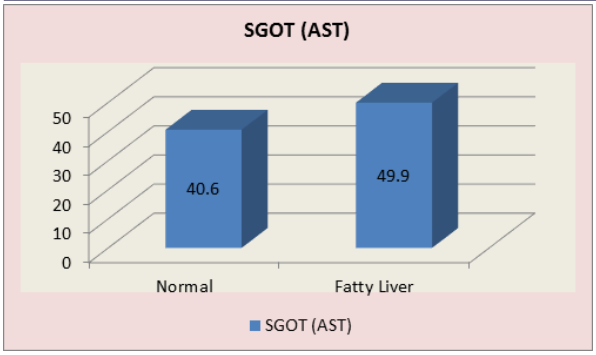

Fig 1 – SHOWING PREVALENCE OF NAFLD AND SERUM AST(SGOT) LEVEL

Table-2 PREVALENCE OF NAFLD AND SERUM ALT(SGPT) LEVEL

ALT	N	Mean ALT	SD	SE Mean	t Test (p value)
Normal	190	38.4	24.5	2.0	-3.29(0.001)
Fatty Liver	110	51.4	26.7	3.6	Sig

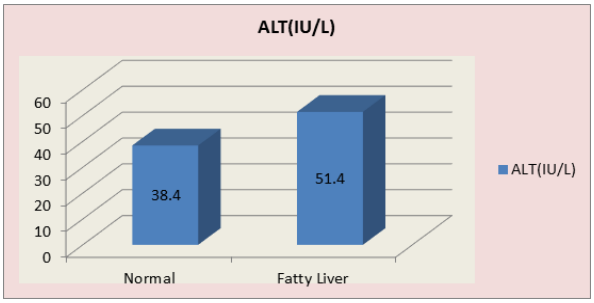

Fig 2 – SHOWING PREVALENCE OF NAFLD AND SERUM ALT(SGPT) LEVEL

In our study we also found that the mean ALP in NAFLD group was 94.5±25.1 IU/L and in those with no fatty liver the mean ALP level was 79.9±29.5 IU/L with p-value 0.268 showing it not to be significant. (**Table-3)** And the mean Total Bilirubin also found not to be significant with value of 0.816±0.379 mg/dl in NAFLD group and in those with no fatty liver the mean level was 0.928±0.710 mg/dl. **(Table-4)**

Table-3 Prevalence of NAFLD and Serum ALP(alkaline phosphatase) level

ALP	N	Mean ALP	SD	SE Mean	t Test (p value)
Normal	190	94.5	25.1	8.0	1.11(0.268)
Fatty Liver	110	79.9	29.5	4.0	Non Sig

Table-4 Prevalence of NAFLD and Total Bilirubin

TotalBilirubin	N	Mean Total Bilirubin	SD	SE Mean	t Test (p value)
Normal	190	0.928	0.710	0.059	1.11(0.267)
Fatty liver	110	0.816	0.379	0.051	Not Sig

DISCUSSION

In our study, population who were found to have fatty liver, the mean AST and ALT in that group was higher than those with no fatty liver. This was supported by number of studies. In a study by **Sanjay Kalra et al** in 2013 they also found That AST and ALT levels were significantly high in NAFLD population with mean value of 54.8±36.1 IU/L and 55.6±39.8 IU/L, respectively with significant p value.[6] In a study done in 2014 by **Erwa Elmakki et al** also found AST and ALT levels to be significantly associated with development of NAFLD population with mean of 30.6±1.6 & 23.8±1.4 with p value 0.000 and 35.3±1.8 & 26.3±1.6 with p value of 0.000 respectively on comparing NAFLD and non-NAFLD population.[7]

The present study also supports all the previous studies and found out that The mean AST level in cases with fatty liver was 49.9±18.8 and the mean ALT level was 51.4±26.7 in contrast those with no fatty liver mean AST was 40.6±29.9 and the mean ALT level was38.4±24.5with p value of 0.033 &0.001 respectively which is highly suggestive that people with fatty liver have higher level of AST and ALT than those without fatty liver. This implies that liver enzymes such as AST, ALT increases in people with NAFLD thus making it an important market for diagnosis of NAFLD.

It has also been found that the level of the mean ALP in that group was slightly lower in NAFLD population (79.9±29.5 IU/L)(p-value 0.268*) than those without NAFLD (94.5±25.1 IU/L) and level of Total Bilirubin is slightly lower in NAFLD population (0.816±0.379) than those without NAFLD (0.928±0.710).(p-value 0.267*) is showing it not to be significant.

CONCLUSION

NAFLD is now not a disease of developed Western countries only. It should be regarded as a global problem. With a prevalence of 27.5% in our study its prevalence is almost equal to Western countries which can be attributed to the fact with increasing pandemic of overweight and obesity in our society. This implies that liver enzymes such as AST, ALT increases in people with NAFLD thus making it an important market for diagnosis of NAFLD. So Higher levels of AST and ALT are good predictors of NAFLD. So AST and ALT can be used as Panel Markers for the Identification of Liver Steatosis, NASH Diagnosis and for Fibrosis in NAFLD beside the Ultrasonography.

Limitation of Study

Histopathology diagnosis of NAFLD was not done

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