

Clinical profile of patients with non alcoholic fatty liver disease

Kamble Ganesh¹, S P Srinivas^{2*}

¹Associate Professor, ²Assistant Professor, Department of Physiology, Gandhi Medical College, Secunderabad, Telangana, INDIA.

Email: drganeshgmc@gmail.com

Abstract

Background: With the ecumenical spread of sedentary lifestyle and diet westernization, the prevalence of non-alcoholic fatty liver disease (NAFLD) has incremented in many countries among children and the elderly. Non-alcoholic fatty liver disease (NAFLD) is a major chronic liver disease that can lead to liver cirrhosis, liver cancer, and ultimately death. Prevalence of this disease is estimated to be around 32 % of general Indian population due to poor knowledge regarding the burden and risk factors of NAFLD is limited, more so from rural areas and prevalence is higher in females than in males. **Objective:** The aim of this study was to study the clinical profile of patients of Non-Alcoholic Fatty Liver Disease. **Design:** This was a hospital based descriptive study. **Duration:** One Year i.e. from June 2018 – June 2019 **Setting:** This study was conducted at Department of Physiology, Gandhi Medical College, Secunderabad. **Participants:** 100 patients diagnosed as fatty liver disease by abdominal Ultrasonography aged more than 18 years were included in the study. **Methods:** Detailed history, sociodemographic profile and serum markers including haemoglobin, lipid profile, ALT, AST, fasting blood sugar, serum uric acid, hs CRP, fasting insulin level were estimated in each patient. Diagnosis of NAFLD was made using ultrasonography and patients were grouped. Data were presented in the form of statistical Tables and charts. SPSS software version 20 was used for statistical analysis. **Results:** A total of 100 cases ultrasonographically diagnosed as NAFLD were included in the study, 52% were male and 48% female and reports showed 71%, 20% and 9% of cases had grade I, II, and III fatty liver **Conclusion:** Symptoms and signs of NAFLD are non-specific and occur later in the course of the disease hence the physician should have a high index of suspicion in order to detect NAFLD early in the course of the disease. Early detection would help not only in modifying the disease course and delaying its complications.

Key Words: Fatty Liver, Non Alcoholic Fatty Liver disease, NAFLD, Clinical Profile.

*Address for Correspondence:

Dr. S. P. Srinivas, Assistant professor, Department of Physiology, Gandhi Medical College, Secunderabad, Telangana, INDIA.

Email: drganeshgmc@gmail.com

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INTRODUCTION

The largest organ of our body located in upper right quadrant of the abdomen and tucked underneath the ribs is liver, which is vital for life and weighs approx 1.5 kg. The accumulation of triglycerides and other fat cells in the liver results is a condition known as fatty liver which

occurs in all age groups. It is normal for liver to store some fat by itself. In some patients excess fat in liver may be accompanied by hepatic inflammation and liver cell death also referred to as hepatic steatosis. Steatohepatitis can lead to cirrhosis (fibrosis, scarring and hardening of liver). The fatty liver disease is classified into two types, NAFLD Non-Alcoholic Fatty Liver Disease and AFLD Alcoholic Fatty Liver Disease The pathophysiology includes increase in endogenous fatty acid synthesis, decreased mitochondrial fatty acid beta oxidation and deficiency in incorporation of triglycerides as very low density lipoprotein [VLDL]. Fatty liver is reversible at an early stage but it sometimes progresses to advanced liver disease. The causes of fatty liver are obesity, Insulin resistance, high intake of refined carbohydrates, Impaired gut health. Symptoms may include fatigue and weakness, elevated levels of liver enzymes, elevated insulin and triglyceride levels. Excess alcohol consumption results in

alcoholic fatty liver / simple steatosis. Steatosis in early stages is reversible with weight loss, cessation of alcohol consumption, Steatohepatitis may progress to liver fibrosis and cirrhosis can result in liver morbidity and mortality. Treatment mostly includes lifestyle changes to reverse fat accumulation i.e exercise and gluten free diet in NAFLD patients and in AFD patients abstaining alcohol is must.

MATERIALS AND METHODS

Place Of Study: Department of Physiology, Gandhi Medical College, Secunderabad.

Type Of Study: This was a hospital based descriptive study.

Sample Collection: Sample size : 100 patients.

Sampling Methods: Consecutive sampling.

Inclusion Criteria: All patients diagnosed as fatty liver disease by abdominal Ultrasonography aged more than 18 years.

Exclusion Criteria:

1. Patients with a history of alcohol intake more than 30 grams/day in males and more than 20 grams/day in females
2. Patients with a history of jaundice or HBsAg positive
3. Patients with history of following drug intake - steroids, synthetic estrogens, heparin, and calcium channel blockers, amiodarone, valproic acid, antiviral agents.
4. Unwilling patients.

Statistical Methods: Data were presented in the form of statistical Tables and charts. SPSS software version 20 was used for statistical analysis.

Ethical Approval: Approval was taken from the Institutional Ethics Committee prior to commencement of the study.

OBSERVATIONS AND RESULTS

Table 1: Demographic Characteristics

Parameters	Frequency
Average Age In Years	46.13 ± 8.09
Average BMI	24.55 ± 2.76
Males	58 (58%)
Females	42(42%)
Low Socio-Economic Status	29 (29%)
Middle Socio-Economic Status	57 (57%)
High Socio-Economic Status	14 (14%)

Table 2: Radiological profile

Parameters	Frequency
Mild Fatty Liver (USG)	71 (71%)
Moderate Fatty Liver (USG)	20 (20%)
Severe Fatty Liver (USG)	9 (9%)

Table 3: Biochemical Profile

Parameters	Mean Values
FBG (mg/dL)	96.11 ± 22.21
PGBS (mg/dL)	138.99 ± 52.78
TG (mg/dL)	200.01 ± 126.98
Cholestrol (mg/dL)	185.74 ± 37.32
HDL (mg/dL)	40.03 ± 6.78
LDL (mg/dL)	108.89 ± 31.66
VLDL (mg/dL)	35.88 ± 17.26
TC/HDL	5.13 ± 1.08
Total Bilirubin (mg/dL)	0.91 ± 0.53
SGOT (U/L)	39.88 ± 24.33
SGPT (U/L)	54.45 ± 33.45
SAP (U/L)	217.74 ± 76.51

Distribution of patients according to their clinical and biochemical profiles

RESULTS

Total of 100 cases, ultrasonographically diagnosed as NAFLD were included in the study and showed 71%, 20% and 9% of cases had grade I, II and III fatty liver respectively. Mean age in both males and females was 46.13 ± 8.09 years. Male to Female ratio was 4 : 3 with 52 % males and 48 % females. The biochemical profile showed mean FBG 96.11 ± 22.21, PGBS 138.99 ± 52.78 was observed in patients with NAFLD. Mean Hypertriglyceridemia observed in patients with NAFLD was (mg/dl) 200.1 ± 126.98. The mean HDL, LDL, VLDL was 40.03 ± 6.78, 108.89 ± 31.66, 35.88 ± 17.26.

DISCUSSION

Non-alcoholic fatty liver disease (NAFLD) is defined as the accumulation of fat in the liver in the absence of alcohol consumption and other causes of chronic liver disease such as viral hepatitis or drugs. NAFLD has emerged as the most commonest liver problem around the world and is found in up to one-third of the general population. The prevalence of fatty liver in the general population of western countries is 20-30%. The prevalence of NAFLD among United States children is 3-10%, rising up to 40-70% among obese children ¹. Taken together, the prevalence of fatty liver in obese children in China, Italy, Japan, and the United States has been reported to be between 10% and 77% ^{2,3,4}. The present study showed NAFLD to be a disease of middle age with mean age of 46.13 ± 8.09 years at presentation and men predilection - three-fourths being male. The prevalence of NAFLD was two-folds higher among men. Mohan *et al.* too have reported the preponderance of men. To estimate the prevalence and clinical profile of Non-Alcoholic Fatty Liver Disease (NAFLD) among patients at a tertiary care diabetes center in India. A total of 100 cases ultrasonographically diagnosed as NAFLD were included in the study, 52% were male and 48% female and reports

showed 71%, 20% and 9% of cases had grade I, II, and III fatty liver respectively. In the present study, it was observed that mean age of the patient was 46.13 ± 8.09 years. On physical examination findings showed the mean BMI was $24.55 \pm 2.66/m^2$, with different socio-economic statuses with 29% belonging to low, 57% to middle and 14% to high socio-economic statuses. The patients also profiled based on radiological examination into 3 different parameters. With highest 71% belonging to mild fatty liver, 20% to moderate fatty liver and lowest 9% to severe fatty liver (USG) category. Biochemical tests shows that mean Fasting plasma glucose (mg/dl) 96.11 ± 22.21 was observed in patients with NAFLD with metabolic syndrome, These findings are similar to study by Shivaram Prasad Singh *et al* and Kwon YM *et al*.^{5,6} while mean PGBS 138.99 ± 52.78 was observed in patients with NAFLD with metabolic syndrome and the difference was not significant. Mean Hypertriglyceridemia (mg/dl) 200.1 ± 126.98 was observed in patients with NAFLD with metabolic syndrome. The correlation was significant for fasting plasma glucose, PGBS, triglycerides, high-density lipoprotein similar to studies by Rakesh Gaharwar *et al*, Animesh Deb *et al* and Younossi ZM.^{7,8,9}

CONCLUSION

From our study, it can be concluded that symptoms and signs of NAFLD are non-specific and occur later in the course of the disease hence the physician should have a high index of suspicion in order to detect NAFLD early in the course of the disease. Higher prevalence of all the components in cases of NAFLD was observed. Liver biopsy is considered the gold standard for diagnosing NAFLD but is not practical and most patients are not willing to undergo the test. Thus, patients must be evaluated for the presence of NAFLD by abdominal Ultrasonography. Early detection would help in

modifying the disease course and delaying its complications.

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