PREVALANCE OF HYPERTRIGLYCERIDEMIA IN NAFLD

General Medicine

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ABSTRACT

Non-alcoholic fatty liver disease (NAFLD) is now being recognised as one of the most common form of chronic liver disease in developing countries with the estimated prevalence 25-30% in general population. It is a major cause of liver related morbidity and mortality because of its potential progression to liver cirrhosis and subsequent liver failure.

AIM: To evaluate the lipid abnormality in NAFLD patients and their comparison with normal patients

MATERIAL AND METHODS: A total of 143 patients were admitted and evaluated for the study. From these, fasting lipid profile, fasting blood glucose levels and post prandial blood glucose levels were taken. Abdomen ultrasonography was done to divide the patients into two groups- with fatty liver (controls) and with normal liver (cases).

RESULTS: The study showed that there was no significant correlation of blood glucose between the cases and controls group. However when lipid parameters were compared, there was significant correlation between control and cases for triglycerides (TG).

CONCLUSION: Hypertriglyceridemia is an independent marker for NAFLD.

KEYWORDS

NAFLD , Triglycerides

INTRODUCTION

Non-alcoholic fatty liver disease is defined as hepatic steatosis without secondary hepatic fat accumulation, including alcohol consumption, steatogenic medication or hereditary disorder. (1) On histology it is defined as fat accumulation of >5% of liver weight (2).The spectrum of disorder included in NAFLD are benign macrovascular hepatic steatosis , non-alcoholic steatohepatitis , hepatic fibrosis , cirrhosis of liver and hepatocellular carcinoma. (3) The prevalence of NAFLD increases with age, type 2 DM, obesity, and hypertriglyceridemia. (4). Hence the current study is designed to evaluate the presence of hypertriglyceridemia and fatty liver.

MATERIAL AND METHODS

A total of 143 patients were taken into study. All patients were above 18 years of age and had given written consent for the study. Patients were divided into two groups. The cases group had fatty liver on abdomen ultra-sonography and were above 18 years of age. The patients who were positive for hepatitis B antigen and hepatitis C antibody, evidence of liver cirrhosis, diagnosed cases of auto-immune hepatitis, having gall stones were excluded from the study. The fasting lipid profile, fasting blood glucose and post prandial blood glucose samples were taken for those enrolled on the study.

STATICAL ANALYSIS

Data was analysed using statistical package for social sciences version 23 (SPSS Inc, Chicago). Results for continuous variables are presented as mean standard deviation, whereas results for categorial variables are presented as number (percentage). The level P <0.05 was considered as the cut-off value or significance.

RESULTS

Out of the total 143 patients that were evaluated 43 patients were excluded from the study. These excluded patients had proven evidence of hepatitis either B or C. The rest 100 patients were taken into study. These were divided into two groups – Cases and Controls.
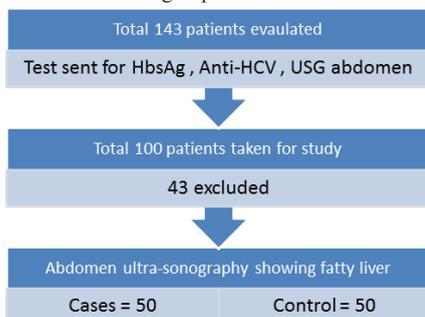
The cases group had fatty liver on abdomen ultrasonography ranging from fatty liver grade I to III. The control group had normal liver morphology and echo-texture.

There was a higher prevalence of Type 2 DM in patients of controls (54%) as compared to the controls (42%).This is due to the fact that insulin resistance predisposes the patients for dyslipidaemia the most prominent being triglyceride deposition in the liver.(2)

	Cases (%)	Controls (%)
Type II DM	27 (54)	21 (42)
Non Diabetic	23 (46)	29 (58)
Total	50 (100)	50 (100)

Although Type 2 is an important independent marker for NAFLD glucose comparison between the cases and controls was non-significant. This implied for both fasting (p=0.1) and post prandial (p=0.6).

Investigations	Cases(mean±SD)	Controls (mean±SD)	p-value
FBS (mg/dl)	105.3±19.4	99.1±20.2	0.124
PPBS (mg/dl)	232.2±106.1	194.6±91.2	0.061

On comparing the lipid parameters, serum triglycerides were found to be statically significant between the cases and controls.

Investigations	Cases (mean±SD)	Controls (mean±SD)	p-value
HDL (mg/dl)	33.42±13.19	34.06±16.89	0.833
LDL(mg/dl)	82.14±40.37	99.62±56.39	0.077
VLDL (mg/dl)	31.98±17.77	33.2±21.60	0.758
S. Cholesterol (mg/dl)	151.98±46.62	160.0±73.48	0.516
S. Triglyceride (mg/dl)	229.8±70.38	158.48± 59.94	<0.01

DISCUSSION

The study shows hypertriglyceridemia is prevalent among patients with NAFLD. This finding is consistent with Ma el al who showed that TG is an independent marker of NAFLD among the 949 patients. (5) Sung et al who had followed 430 patients for a duration of 4.5 years also concluded that the TG was independently associated with increase incidence of NAFLD. (6) This is because NAFLD is associated with insulin resistance and hepatic triglyceride accumulation and subsequent lipotoxicity which results in lipid abnormality. (7) The similar results were obtained by Keping Peng et al where they concluded positive correlation between dyslipidaemia and NAFLD.(8) A study by Bhoji Mal Tanwani concluded lipid abnormality in NAFLD patient the most important being raised triglycerides. Hence it can be concluded that hypertriglyceridemia is associated with fatty liver and prompt treatment for the same could hasten the disease progression.

CONCLUSION

NAFLD or Non Alcoholic Liver Disease is characterised by having fatty liver as seen on ultrasonography. Though Type 2 DM is an independent risk factor but coupled with other it can lead to cirrhosis in later stages. There is hypertriglyceridemia seen in patients of NAFLD which is the most common lipid abnormality which can be targeted for treatment.

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