

Evaluation of Lipid Profile In Subjects Diagnosed With Non-alcoholic Fatty Liver Disease.

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[OBJECTIVES: We aimed at assessing lipid profile and fasting blood sugar level in recently diagnosed subjects with nonalcoholic fatty liver disease and tried to find out correlation if any. **METHODS:** 100 individuals diagnosed with fatty liver disease by abdominal ultrasound were subjected to assessment of fasting blood sugar and serum lipid profile. Statistical analysis was done by unpaired t-test and Pearson's correlation test. **RESULTS:** Blood cholesterol level showed positive correlation with BMI, TG, LDL and HDL cholesterol. But fasting blood sugar did not show any significant correlation with other parameters in our chosen subjects. **CONCLUSIONS:** This study is not new in this field of research but we studied the patient population of our surrounding area to assess their lipid status at the outset of fatty changes in liver.]

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I. Introduction

Nonalcoholic fatty liver disease (NAFLD) is a pathological condition exhibiting a wide spectrum of lesions from nonalcoholic fatty liver (NAFL), to nonalcoholic steatohepatitis (NASH). It is established that NASH may progress to hepatic fibrosis, cirrhosis and hepatocellular carcinoma[1–3]. NAFLD is a systemic disease associated with obesity, insulin resistance, type 2 diabetes mellitus and metabolic syndrome[4–7]. The dramatic increase in such incidences that currently more than 1 billion individual makes NAFLD the most common cause of chronic liver diseases and a major public health problem worldwide[8–11]. The hallmark of fatty liver disease is the intra-cellular accumulation of lipids, resulting in the formation of lipid droplets into hepatocytes. This accumulation results from an imbalance between uptake, synthesis, export and oxidation of fatty acids[4,12–22]. Since not all lipids are created equal, lately in the search for markers of NASH, comprehensive lipidomic studies were performed from liver biopsies or sera using human samples or mouse models[12,23–27]. These studies revealed alterations in homeostasis of some lipids during the progression of NASH. NAFLD is the most common liver disorder in Western industrialized countries, affecting 20 to 40% of the general population [28]. NAFLD are now being increasingly recognized as a major health burden. The prevalence of fatty liver in India has been shown to be as high as 15%-30% [29], which is similar to that reported from some of the western countries [30, 31]. Estimates of prevalence of NAFLD in Asia-Pacific regions range from 5 to 30% .

We designed this study to assess lipid and fasting blood sugar status in individuals with recent onset nonalcoholic fatty liver disease.

II. Materials and Method

Patients evaluation:

We selected 100 patients (Male 50, Female 50) from Medicine OPD of Calcutta National Medical College who were recently diagnosed with Non-alcoholic Fatty Liver Disease (NAFLD) after doing routine USG of whole abdomen. We took detailed history to rule out significant intake of alcohol in the past as well as any chronic liver diseases in the form of viral hepatitis and cirrhosis of liver. All our subjects were unaware of their blood sugar status and no one was taking any antidiabetic drugs or insulin. We calculated BMI of every individual and blood lipid profile and fasting blood sugar were assessed in our Biochemistry department using standard reagents.

Statistical analysis:

We compared blood cholesterol level with other parameters like age of the individuals, BMI, fasting blood sugar (FBS), triglyceride(TG), LDL and HDL cholesterol using Unpaired t-test and Pearson's correlation coefficient. We also figured out comparison between fasting blood sugar and rest of the other

parameters using the same statistical analysis. Summarized data are presented using P value and correlation coefficient. Graphical representation of each dual comparison was cited for better understanding.

III. Results

In our subjects with diagnosed fatty liver disease mean age was (49.2+/-11.33). Mean cholesterol level and fasting blood sugar were (199.2+/-54.25) and (106.28+/-27.18) respectively. Mean BMI (31.16+/-4.07), serum TG (267+/-143.51), LDL (112.40+/-27.18)were above normal level.

We found significant positive correlation with blood cholesterol level and BMI, TG, and LDL cholesterol. A significant negative correlation with HDL cholesterol was also established. But we found no significant correlation with fasting blood sugar and other parameters.

Table 1:

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FEMALE	25	50.0	50.0	50.0
	MALE	25	50.0	50.0	100.0
	Total	50	100.0	100.0	

Table 2:

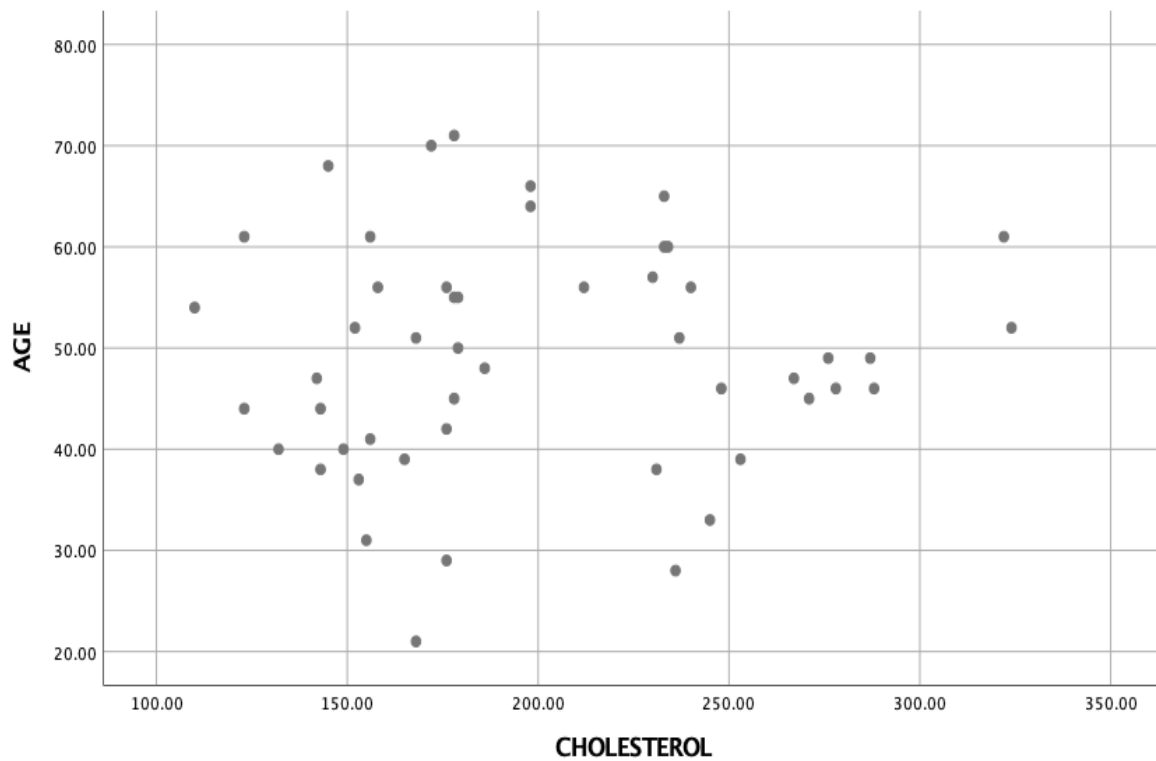
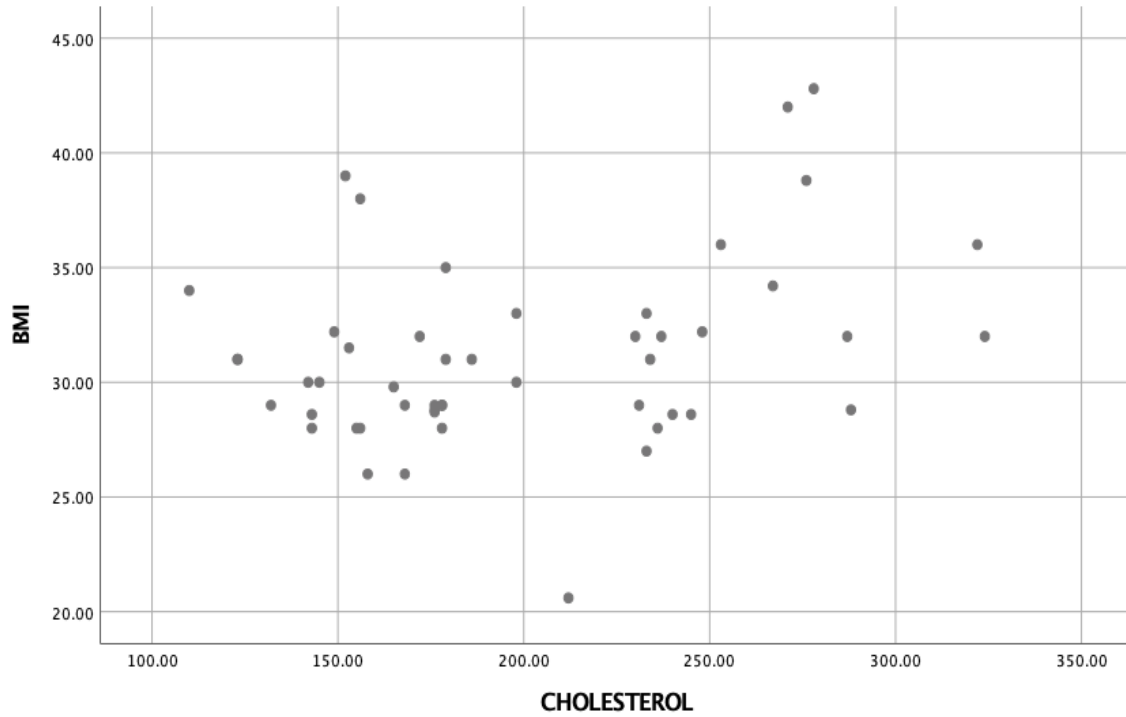
SEX		BMI	AGE	CHOLESTEROL	TG	LDL	HDL	FBS
FEMALE	Mean	29.9120	47.0000	178.4800	246.5200	110.6400	41.1200	102.8000
	N	25	25	25	25	25	25	25
	Std. Deviation	3.40726	12.71810	43.85024	134.92162	27.97004	7.45162	17.14400
MALE	Mean	32.4160	51.4000	219.9200	288.6400	114.1600	37.5200	109.7600
	N	25	25	25	25	25	25	25
	Std. Deviation	4.36345	9.51315	56.50437	151.40368	26.82766	9.28763	19.53476
Total	Mean	31.1640	49.2000	199.2000	267.5800	112.4000	39.3200	106.2800
	N	50	50	50	50	50	50	50
	Std. Deviation	4.07570	11.33533	54.25563	143.51436	27.18193	8.52952	18.52636

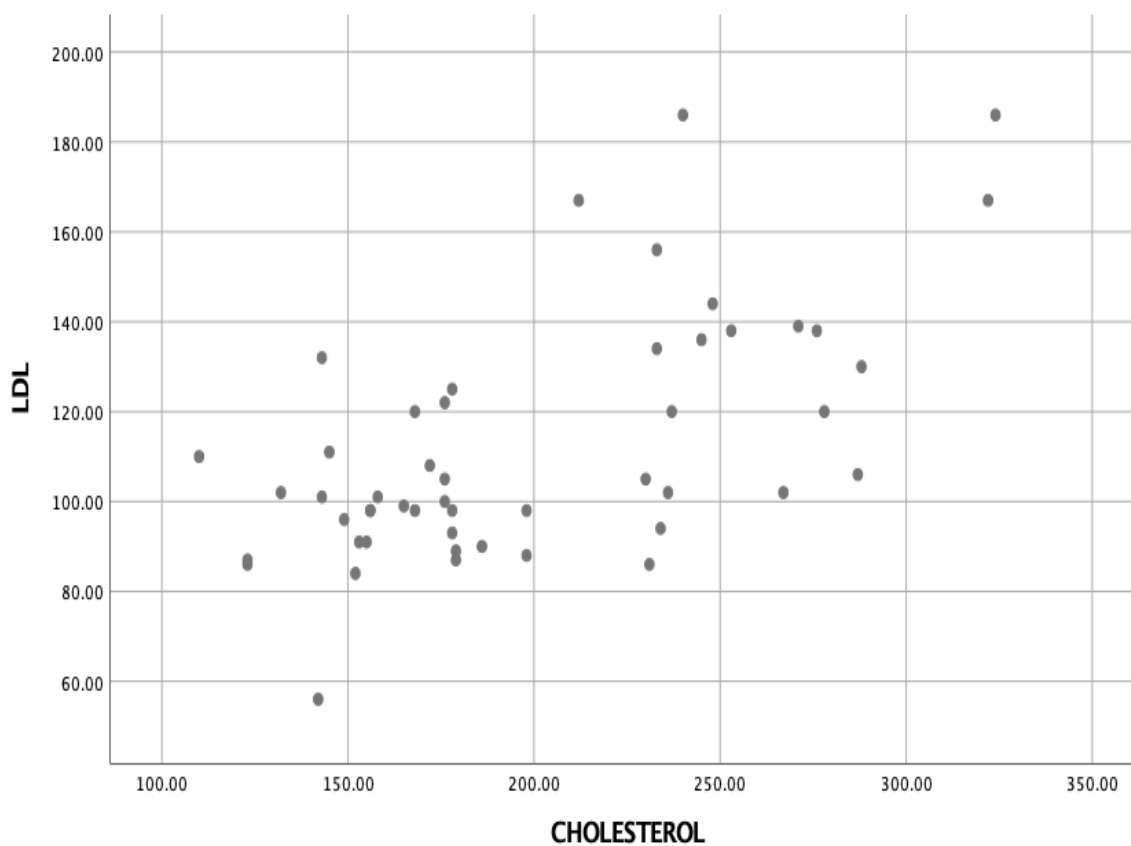
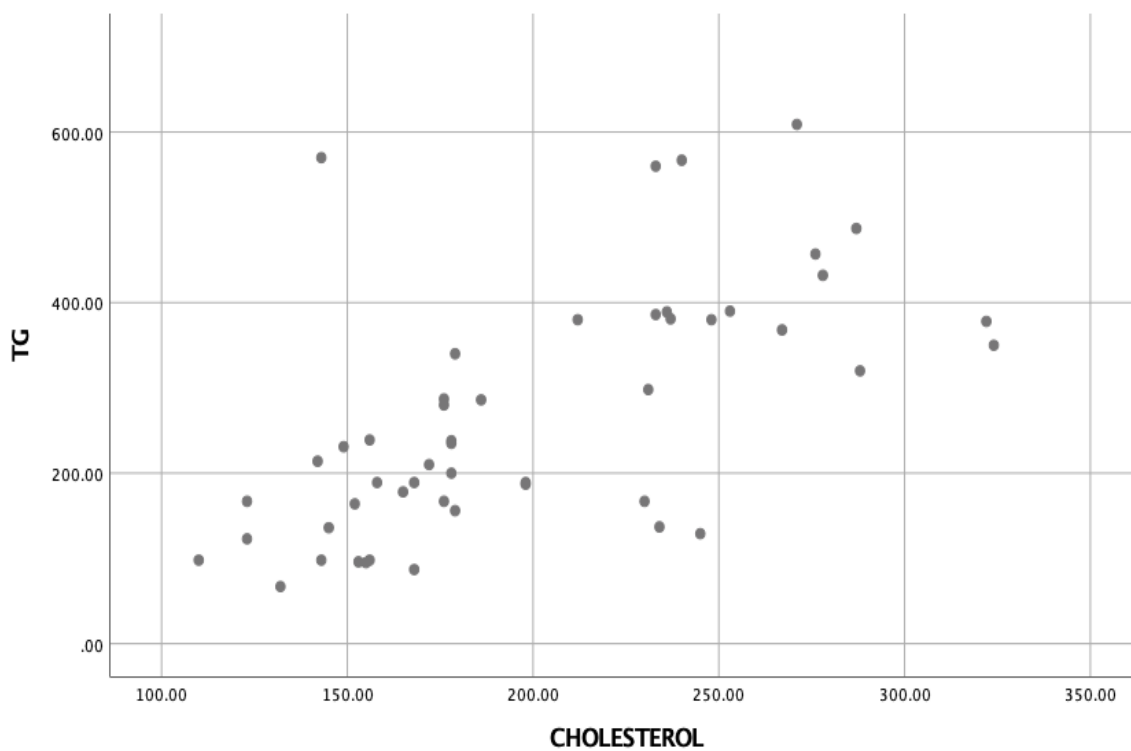
Table 3: Correlation with Cholesterol

	P VALUE	R
BMI	0.026	0.315*
AGE	0.722	0.052
TG	0.0001	0.639**
LDL	0.0003	0.624**
HDL	0.001	-0.470**
FBS	0.378	0.127

*= Correlation is significant at the 0.05 level (2-tailed).

** = Correlation is significant at the 0.01 level (2-tailed).





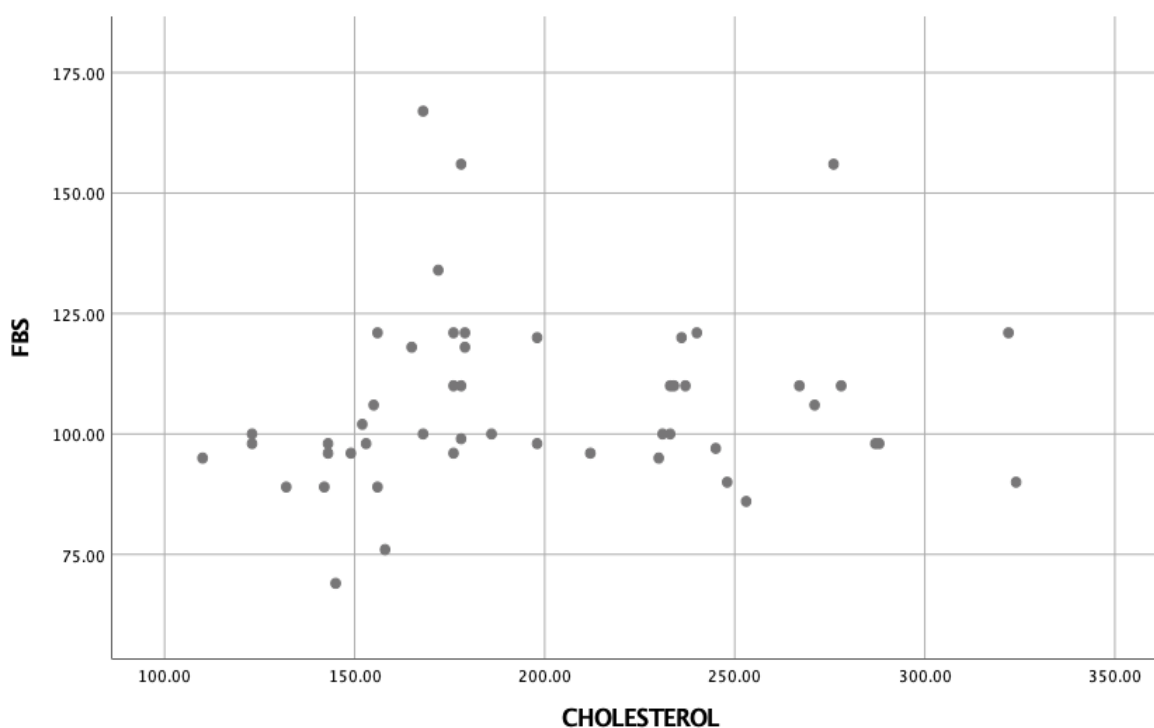
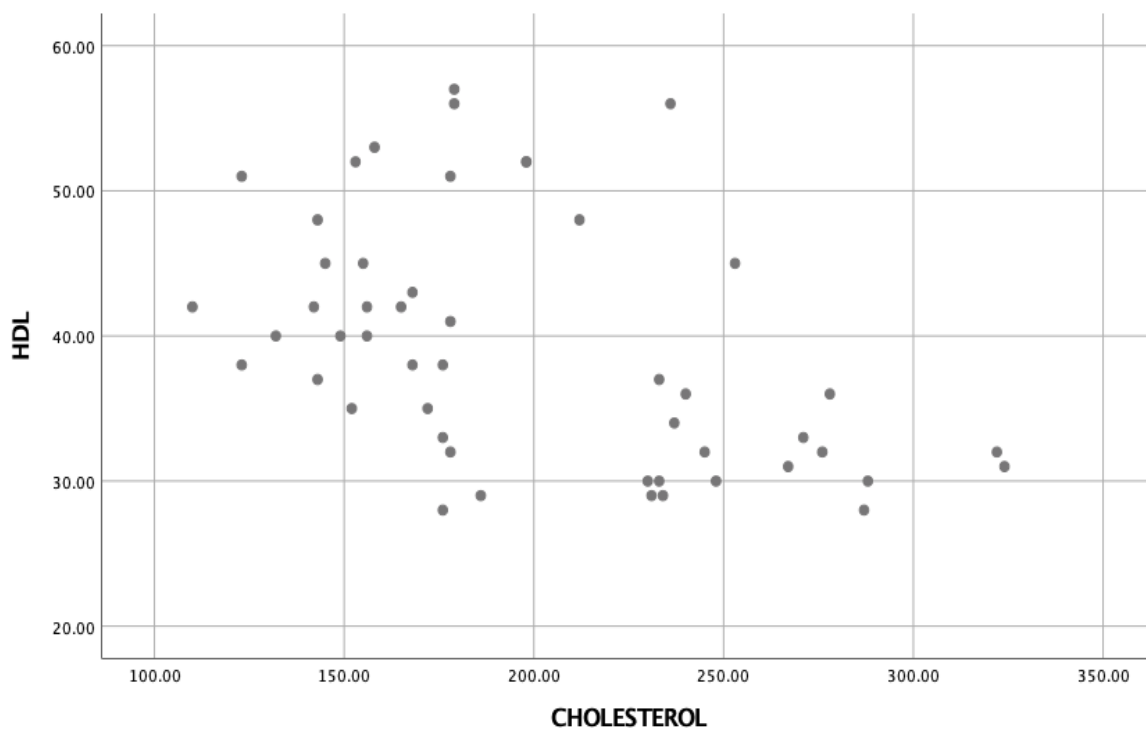


Table4: CORRELATION WITH FBS

	P VALUE	R
BMI	0.496	0.099
AGE	0.199	0.185
TG	0.580	0.080
LDL	0.405	0.120
HDL	0.747	0.047
CHOLESTEROL	0.378	0.127

IV. Discussion

This cross-sectional study was designed to see the relationship between blood cholesterol and fasting blood sugar level with other parameters like BMI, TG, LDL, HDL cholesterol in patients with a recent diagnosis with fatty liver disease. This study is not pioneer in this field of research but we studied the patient population of our surrounding area to assess their lipid status at the outset of fatty changes in liver.

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