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ORIGINAL RESEARCH

To study lipid profile in alcoholic and non alcoholic fatty liver disease

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ABSTRACT

Aim- To study lipid profile of patients with Alcoholic fatty liver disease and comparing it with the lipid profile of patients with Non Alcoholic fatty liver disease.**Material and methods-**A total of 100 patients with Fatty Liver disease proven by ultrasound were included in the study, which included 50 Alcoholic patients and 50 Non-alcoholic Patients. Venous blood was drawn from the subjects and Lipid Profile samples sent. Biomarker indices including Total cholesterol, Serum Triglyceride, Serum HDL, Serum LDL and serum VLDL values were evaluated. Data analysis was done using SSPS software.**Results-** The mean age of patients with ALD and NAFLD was 50.08 years and 44.88 years respectively. Total cholesterol and Serum Triglyceride levels were increased in both the groups but the increase was relatively more in the NAFLD group. HDL levels were decreased in both the groups, but more decreased in NAFLD group. LDL and VLDL were raised in NAFLD group. Serum transaminase levels (SGOT/SGPT) were seen slightly raised in the ALD group. **Conclusion-** Fatty liver diseases – both Alcoholic fatty liver disease (ALD) and Non-alcoholic Fatty liver disease (NAFLD) have increased risk for significant dyslipidaemia. Although, Lipid profile was deranged in both the groups, but the derangements were more profound in the NAFLD group.

Keywords- liver, alcoholic, fatty

INTRODUCTION

Fatty Liver Disease (FLD) has emerged as a significant global public health concern in recent years. Fatty Liver Disease is currently divided into Alcoholic Fatty Liver Disease (ALD) and Non Alcoholic Fatty Liver Disease (NAFLD) based on the history of alcohol consumption.[1] Studies have shown that the prevalence of fatty liver in India is as high 15-30%.[2] Fatty liver, also known as Steatosis, corresponds to abnormal accumulation of fat within the hepatic cells and this condition occurs when the normal processes of fat synthesis and elimination are impaired. There are several causes of this condition, including obesity, diabetes, and alcoholism.[3]Fatty Liver Disease (FLD), is a chronic disorder that is defined by lipid accumulation in the liver beyond the normal range of 5% of liver wet weight. This disease includes two main categories: Alcoholic Liver Disease (ALD) and Non Alcoholic Liver Disease (NAFLD). Fatty Liver Disease encompasses a morphological spectrum that consists of hepatic steatosis and steatohepatitis which can progress to cirrhosis and hepatocellular carcinoma. [4]Therefore the aim of the study was to study lipid profile of patients with Alcoholic fatty liver disease and comparing it with the lipid profile of patients with Non Alcoholic fatty liver disease.

MATERIAL AND METHODS

A total of 100 patients with Fatty Liver disease proven by ultrasound were included in the study, which included 50 Alcoholic patients and 50 Non-alcoholic Patients. Venous blood was drawn from the subjects and Lipid Profile samples sent. Biomarker indices including Total cholesterol, Serum Triglyceride, Serum HDL, Serum LDL and serum VLDL values were evaluated. Data analysis was done using SSPS software.

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RESULTS

Table 1: Age-wise distribution of patients

Age group (years)	Alcoholic fatty liver disease		Non-alcoholic fatty liver disease	
	Number	Percentage	Number	Percentage
20 to 30	4	8	4	8
31 to 40	8	16	6	16
41 to 50	11	22	14	28
51 to 60	17	34	16	32
More than 60	10	20	8	16
Total	50	100	50	100
Mean	50.08		44.88	
SD	11.47		12.72	
P value	0.034 (Significant)			

34 percent and 22 percent of the patients of the Alcoholic fatty liver disease patients belonged to the age group of 51 to 60 years and 41 to 50 years respectively. 32 percent and 28 percent of the patients belonged to the age group of 51 to 60 years and 41 to 50 years respectively. Mean age of the patients of the alcoholic fatty liver disease and non-alcoholic fatty liver disease group was 50.08 years and 44.88 years respectively. While comparing statistically, mean age of the patients of the alcoholic fatty liver disease group was significantly higher among patients in comparison to patients

Table 2: Comparison of total cholesterol levels

Total cholesterol (mg/dL)	Alcoholic fatty liver disease	Non-alcoholic fatty liver disease
Mean	164.73	184.06
SD	41.16	49.74
p- value	0.036 (Significant)	

Table 3: Comparison of triglycerides levels

Triglycerides (mg/dL)	Alcoholic fatty liver disease	Non-alcoholic fatty liver disease
Mean	194.15	250.31
SD	82.45	102.59
p- value	0.003 (Significant)	

Total cholesterol and Serum Triglyceride levels were increased in both the groups but the increase was relatively more in the NAFLD group.

Table 4: Comparison of HDL levels

Total cholesterol (mg/dL)	Alcoholic fatty liver disease	Non-alcoholic fatty liver disease
Mean	164.73	184.06
SD	41.16	49.74
p- value	0.036 (Significant)	

HDL levels were decreased in both the groups, but more decreased in NAFLD group.

Table 5: Comparison of LDL levels

LDL (mg/dL)	Alcoholic fatty liver disease	Non-alcoholic fatty liver disease
Mean	113.07	126.92
SD	40.46	46.68
p-value	0.116	

Mean LDL levels among patients of alcoholic fatty liver disease group and Non-alcoholic fatty liver disease group were 113.07 mg/dL and 126.92 mg/dL respectively. Although non-significant, mean LDL levels were found to be higher among patients with Non-alcoholic fatty liver disease in comparison to patients with alcoholic fatty liver disease.

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Table 6: Comparison of VLDL levels

VLDL (mg/dL)	Alcoholic fatty liver disease	Non-alcoholic fatty liver disease
Mean	34.49	40.42
SD	17.52	16.14
p-value	0.002 (Significant)	

Mean VDL levels among patients of alcoholic fatty liver disease were 34.49 mg/dL and was found to be significant lower in comparison to patients of the non-alcoholic fatty liver disease group (40.42 mg/dL).

Table 7: Comparison of SGOT levels

Serum SGOT (mg/dL)	Alcoholic fatty liver disease	Non-alcoholic fatty liver disease
Mean	48.6	23.4
SD	38.02	11.14
p-value	0.001 (Significant)	

Table 8: Comparison of SGPT levels

Serum SGPT (mg/dL)	Alcoholic fatty liver disease	Non-alcoholic fatty liver disease
Mean	44.34	22.74
SD	32.76	10.46
p-value	0.000 (Significant)	

Serum transaminase levels (SGOT/SGPT) were seen slightly raised in the ALD group.

DISCUSSION

Non-alcoholic fatty liver disease (NAFLD) is a leading cause of chronic liver disease with an estimated global prevalence of 24%. NAFLD is the accumulation of excess fat in the liver, without a clear secondary cause of lipid accumulation (e.g., significant alcohol consumption, use of steatogenic medication, or genetic disorders). NAFLD ranges from simple hepatic steatosis to non-alcoholic steatohepatitis (NASH) characterized by hepatic inflammation and hepatocellular injury. NAFLD and NASH can progress to cirrhosis and hepatocellular carcinoma (HCC).[5,6]

In our study the mean age of patients with ALD and NAFLD was 50.08 years and 44.88 years respectively. Mean total cholesterol levels among patients of alcoholic fatty liver disease was 164.73 mg/dL and was found to be significant lower in comparison to patients of the non-alcoholic fatty liver disease group (184.06 mg/dL). Similar to our results, in a study conducted by Ramesh et al, mean total cholesterol levels among subjects having alcoholic fatty liver disease was 146.4 mg/dl and non-alcoholic fatty liver disease was 226.57 mg/dL (p-value < 0.05).[7] Hence; non-alcoholic fatty liver disease patients were associated with higher total cholesterol levels. Singla et al, in another previous study conducted on NAFLD patients reported the mean serum total cholesterol levels to be 244.92 mg/dL.[8] Zahoor A et al in the present study, reported the mean total cholesterol levels among NAFLD patients to be 178.78 mg/dL.[9]

Also HDL levels were decreased in both the groups, but more decreased in NAFLD group. LDL and VLDL were raised in NAFLD group. Serum transaminase levels (SGOT/SGPT) were seen slightly raised in the ALD group.Evaluating the lipid profile in both alcoholic and non-alcoholic fatty liver disease is crucial for understanding the metabolic disturbances associated with these conditions. Differences in lipid levels can provide valuable insights into the progression of liver disease and help guide targeted treatment strategies.[10] Monitoring and managing lipid levels in patients with fatty liver disease are essential for reducing the risk of cardiovascular complications and improving overall liver health. Further research into the specific lipid alterations in these two forms of liver disease could lead to more effective therapies and better patient outcomes.

CONCLUSION

Fatty liver diseases – both Alcoholic fatty liver disease (ALD) and Non-alcoholic Fatty liver disease (NAFLD) have increased risk for significant dyslipidaemia. Although, Lipid profile was deranged in both the groups, but the derangements were more profound in the NAFLD group.

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