



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1450804>Available online at: <http://www.iajps.com>

Research Article

**A CROSS-SECTIONAL RESEARCH TO ASSESS
DYSLIPIDAEMIA OCCURRENCE IN LIVER CIRRHOSIS (LC)
PATIENTS AND ITS ASSOCIATION WITH AGE & GENDER**¹Dr. Syeda Sajila, ²Dr. Malik Muhammad Adil, ³Dr. Mariam Rafiq¹Mayo Hospital Lahore²Div. HQs Teaching Hospital Mirpur AJK³Aziz bhatti shaheed teaching hospital Gujrat**Abstract:****Objectives:** The research objective is to evaluate the frequency of dyslipidemia among the patients of liver cirrhosis.**Methods:** The study methodology was cross-sectional, conducted at the Medicine Department of Mayo Hospital, Lahore from March 2017 to August 2017. A sample size of 200 patients with liver cirrhosis disease was selected.**Results:** Mean age of the subjects was noted as (39.6 ± 12.4) years with 84% (168) presence of dyslipidemia out of 200 patients. This shows a great association between LC and dyslipidemia.**Conclusion:** The outcomes of this study show a higher frequency of dyslipidemia among LC patients. Child-Pugh Classification finds the severity of LC directly proportioned to the severity of dyslipidemia. However, dyslipidemia has no significant association with gender and age statistically.**Keywords:** Liver Cirrhosis (LC), Lipid Profile (LP), Dyslipidemia, Chronic Liver Disease (CLD), Child-Pugh Class (CPC) and Hepatitis.**Corresponding author:****Dr. Syeda Sajila,**
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Please cite this article in press Syeda Sajila et al., *A Cross-Sectional Research to Assess Dyslipidaemia Occurrence in Liver Cirrhosis (LC) Patients and Its Association with Age & Gender*, *Indo Am. J. P. Sci*, 2018; 05(10).

INTRODUCTION:

LC is a chronic liver disorder where liver cells start to degenerate, followed by regeneration nodules disorder and fibrosis which leads to portal hypertension and other such complications [1]. In the United States, LC was rated as the 10th and 12th leading cause of death among males and females respectively in the year 2001, causing 27 thousand deaths [1]. The prevalence of LC is higher among developing countries i-e Pakistan comparing to developed countries [2]. Both hepatitis B & C viruses are now very common in our community [3]. A survey shows two to three percent of the world's population is the victim of hepatitis C [4]. Because of LC, forty percent deaths are caused by the chronic alcoholic liver disease. Patients with LC needs proper hospital visits to treat the disease. To predict the survival ratio among LC patients, Child-Pugh Classification is used [5]. The necessary component in controlling the homeostasis and cellular functions is Lipids. The liver is one of the essential organs because it takes a great deal in lipid synthesis, its metabolism and transportation [7]. It is understood then, that liver dysfunction causes abnormal LP. If the lipoprotein biosynthesis is reduced, a distinct decline in the levels of triglyceride and plasma cholesterol with hepatic failure and severe hepatitis will be observed. Among the patients with chronic liver disease, reduction of the capacity of liver biosynthesis causes a reduction in the levels of triglyceride and cholesterol [8]. Even though several studies have been completed worldwide, regarding dyslipidemia in LC but there is still a scarcity of data in our local population regarding this disease. Therefore, this study was conducted with the purpose of evaluating the frequency of dyslipidemia and mean LP values in LC due to a higher prevalence of chronic liver diseases in our region. This study is important because of the different diet factors and chronic liver etiology in Pakistan as compared to countries that are developed. The outcomes of this study will aid in protocols making for dyslipidemia screening in cirrhotic.

MATERIAL AND METHODS:

The study methodology was cross-sectional, conducted at the Medicine Department of Mayo Hospital, Lahore from March 2017 to August 2017. A sample size of 200 patients, both genders, with an age group of 15 to 65 years was selected. Informed consent in written from each patient and approval from institutional review committee was taken. The

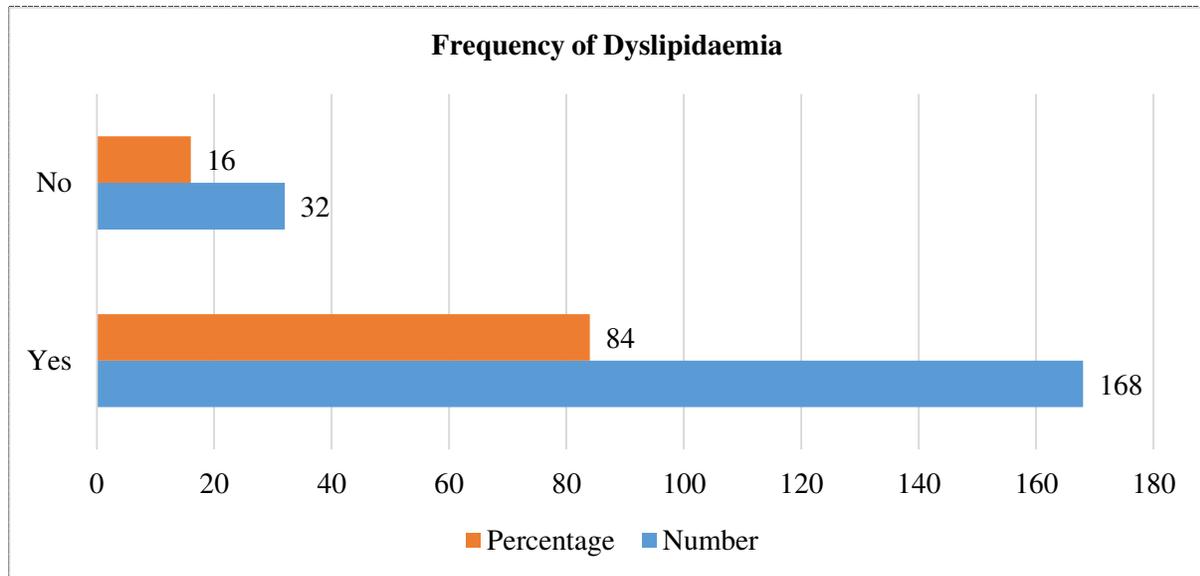
criteria of exclusion were patients with diseases of diabetes, ischemic heart, and hypertension, acute hepatitis, patients with the last stage of renal disease and patients on hepatotoxic/lipid-lowering drugs. The presence of all was noted with LC label. The definition of LC was given as patients with serum bilirubin more than 2 mg/dl, deranged tests of the function of the liver, splenomegaly on ultrasonography, shrunken liver, yellowness of sclera, and ascites on clinical examination. Dyslipidemia was considered in the presence of; when fasting LP after twelve-hour fasting is out of range as follows: HDL more than 40 mg/dl, Triglycerides more than 150mg/dl, Cholesterol more than 200 mg/dl, and LDL from 100 to 129 mg/dl. Blood samples of fasting were taken from each patient and examined for LP in the laboratory. A pre-designed proforma was used to note lab findings and demographic profile of each patient. The software used for data analysis was SPSS. Numerical and categorical variables were calculated as mean & standard and percentage & frequencies respectively. Chi-Square test was used to find significant p-value as ≤ 0.050 statistically.

RESULTS:

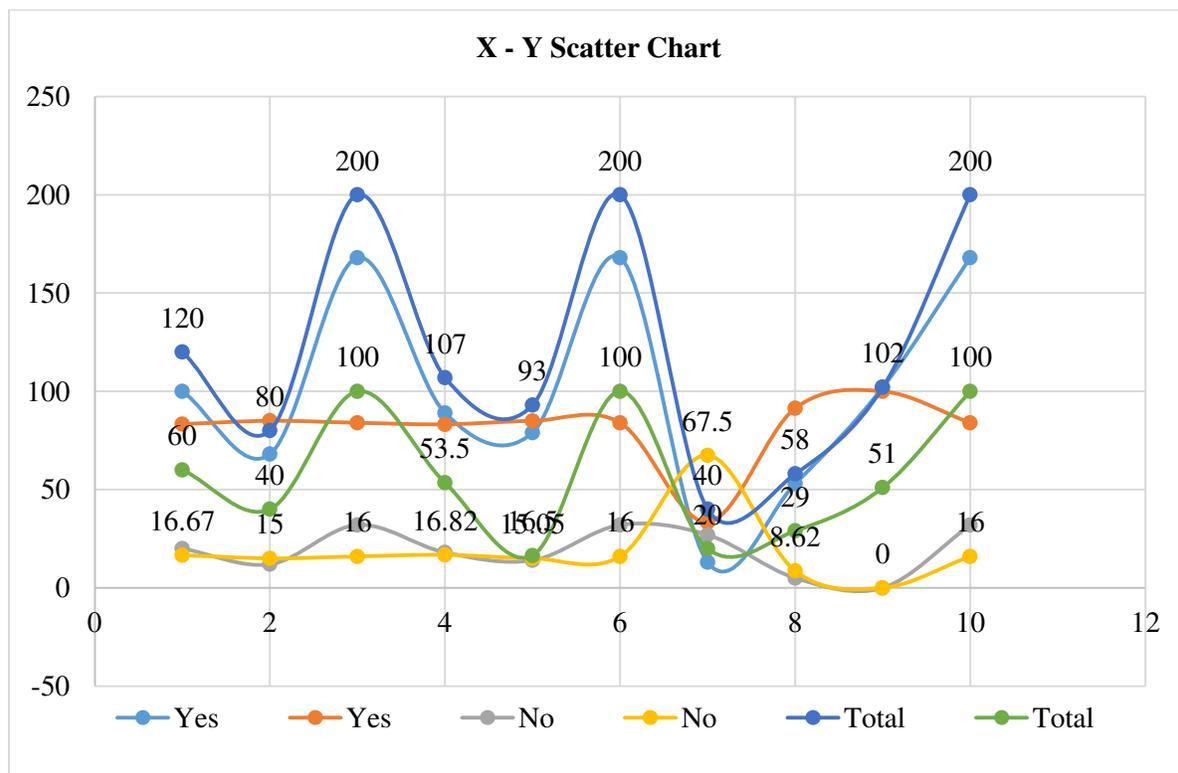
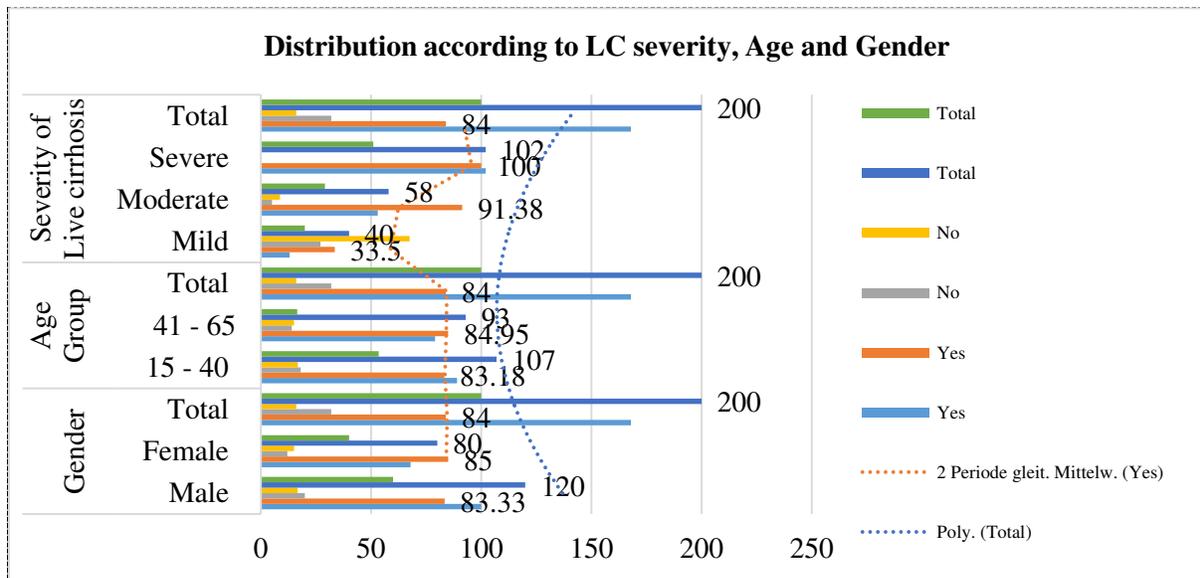
Subject size of 200 patients with mean age of (39.6 ± 12.4) was taken. The frequency of dyslipidemia was found in 84% (168/200) patients (Table – I). The number of male and female patients was 60% (120) and 40% (80) respectively. The frequency of dyslipidemia was found among male and female patients as 83.3% (100) and 85% (68) respectively. The association of dyslipidemia with gender was insignificant with p-value 0.8450 (Table – II). Patients were divided into two groups based on age as Group-A (15 to 40 years) and Group-B (41 to 65 years). A number of patients in Group-A and Group-B was 53.50% (107) and 46.50% (93) respectively. Dyslipidemia was recorded as 83.1% (89) and 84.9% (79) among the patients of Group-A and Group-B respectively with an insignificant p-value 0.8472 (Table – II). Patients were also distributed in accordance with the severity of LC. The number of patients found with mild, moderate, and severe LC as 20% (40), 29% (58), and 51% (102) out of 200 patients respectively. The frequency of dyslipidemia with mild, moderate, and severe LC was found among 33.50% (13/40), 91.38% (53/58), and 100% (102/102) patients. The association of LC severity with dyslipidemia was noted as significant (p-value=0.000) statistically (Table – II).

Table – I: Frequency of Dyslipidaemia

Yes / No	Number	Percentage
Yes	168	16
No	32	84

**Table – II:** Distribution according to LC severity, Age and Gender

Dyslipidemia		Yes		No		Total		P-Value
		Number	Percentage	Number	Percentage	Number	Percentage	
Gender	Male	100	83.33	20	16.67	120	60	0.8450
	Female	68	85	12	15	80	40	
	Total	168	84	32	16	200	100	
Age Group	15 – 40	89	83.18	18	16.82	107	53.5	0.8472
	41 – 65	79	84.95	14	15.05	93	16.5	
	Total	168	84	32	16	200	100	
Severity of Live cirrhosis	Mild	13	33.5	27	67.5	40	20	0.0000
	Moderate	53	91.38	5	8.62	58	29	
	Severe	102	100	0	0	102	51	
	Total	168	84	32	16	200	100	



DISCUSSION:

The liver has a huge part in the metabolism of lipid. It helps in endogenous and exogenous lipid cycles as well as lipids transportation through the plasma. Homeostasis and cellular function are controlled by metabolic regulators, free molecules and biological membranes, and lipids are the essential elements of them. The process of Apo-lipoproteins synthesis takes place in the liver. Apo-lipoproteins work in the lipoproteins structure and assembly. In the process of

absorbing dietary cholesterol, fat-soluble vitamins, and long-chain fatty acids, lipoproteins make a huge contribution. The liver is the main organ that formats and clears lipoproteins. This depicts that the part of the liver in lipid transport and lipid metabolism is very big. Thus, lipid metabolism is hugely affected due to the severity of liver disease [9, 10]. Our study observed 84% patients of LC with dyslipidemia. Most of these patients were in their middle age, we found the mean age of (39.6 ± 12.4) years.

Dyslipidemia was recorded as 83.1% (89) and 84.9% (79) among the patients of Group-A (15-40 years) and Group-B (41 – 65 years) respectively. Roesch-Dietlen et al. in his study show comparable results of 76.9% of dyslipidemia while Shimizu H et al. shows contrary outcomes of 61% dyslipidemia rate among LC patients [11, 12]. Patients with LC require continuous and frequent hospital check-ups and hospitalizations to manage cirrhosis and prevent its complications. However, the selection of an appropriate plan of treatment can be chosen by finding type, severity and extent of LC. Child-Turcotte-Pugh criterion is used to evaluate cirrhosis [10]. According to CPC, dyslipidemia occurs in severe LC cases. The outcome of our study shows 100% dyslipidemia in the cases of severe LC. The study of Sposti et al. shows a correlation of each group i-e A, B, and C and the ratio of HDL-c: Apo A1 and function of the liver, according to CPC. The ratio (HDL-c: Apo A1) difference between group A and C and group B and C was found statistically significant [13]. The study of EL Khabbany ZA et al. shows a higher frequency of dyslipidemia among patients with CLD [14]. After carrying forty studies the frequency of hypercholesterolemia, high LDL, low HDL, and hypertriglyceridemia was found 20% (8), 22.50% (9), 42.50% (17), and 32.50% (13) [14]. The study of Abbas et al. also found hypercholesterolemia to be common among decompensated CLD patients, also, having a significant association with CPC [15]. With the increase in the dysfunction of the liver, the proportionality these levels decrease. Findings also show that the frequency of hypercholesterolemia is higher among males than females [15]. The subjects of our indoor study were hospitalized patients. The prevalence of CLD in our community is higher. Mortality and morbidity is commonly observed among patients of dyslipidemia. Immediate management with effective screening can decrease both mortality and morbidity among patients of CLD. Further community-based studies are required in this regard to make generalized findings.

CONCLUSION:

This study concludes that patient of LC frequently develop dyslipidemia. The severity of dyslipidemia is directly proportioned to the severity of liver cirrhosis according to CPC. No statistically significant association of dyslipidemia with gender and age was found.

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