CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.3875117

Available online at: http://www.iajps.com Research Article

TO DETERMINE THE DYSLIPIDEMIA IN LIVER CIRRHOTIC PATIENTS ATTENDING HOLY FAMILY HOSPITAL

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Article Received: April 2020 **Accepted:** May 2020 **Published:** June 2020

Abstract:
Aim: *To find the frequency of dyslipidemia in patients with cirrhosis presented in the Holy Family Hospital Rawalpindi.*
Methods: *The cross-sectional study was conducted from February 2019 to February 2020 in the Medicine department of Holy Family Hospital Rawalpindi. A total of 200 patients with cirrhosis participated in the study.*
Results: *200 patients with cirrhosis were included in the study. The mean age of patients was 39.65 ± 12.45. Dyslipidemia was reported in 168 (84%) patients. A significant relationship was observed between dyslipidemia and exacerbation of liver cirrhosis.*
Conclusion: *The results of this study show that dyslipidemia often occurs in patients with liver cirrhosis. Dyslipidemia increases with worsening childhood cirrhosis. However, there is no statistically significant relationship with age and gender.*
Key words: *infant cough class, liver cirrhosis, dyslipidemia, lipid profile, hepatitis, hepatitis B and C*

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Please cite this article in press Tayyaba Noor et al, ***To Determine The Dyslipidemia In Liver Cirrhotic Patients Attending Holy Family Hospital.,*** *Indo Am. J. P. Sci, 2020; 07(06).*

INTRODUCTION:

Cirrhosis is defined as a chronic liver disease characterized by degeneration of liver cells, followed by fibrosis and irregular regenerative nodules leading to portal hypertension and complications[1-2]. In 2001, cirrhosis was the 12th leading cause of male death and the 12th leading cause of female death in the United States, causing approximately 27,000 deaths[3-5]. In developing countries such as Pakistan, cirrhosis is more common than in developed countries[6]. In fact, hepatitis B virus (HBV) and hepatitis C virus (HCV) infections have become endemic in our society. About 2-3% of the world population infected with hepatitis C virus accounts for 40% of deaths due to chronic alcoholic liver disease, cirrhosis. These patients require frequent hospital visits to treat cirrhosis and its complications[7]. The Child Pugh classification is used to predict survival in patients with cirrhosis. Lipids are one of the basic ingredients that control cellular functions and homeostasis. The liver plays an important role in lipid metabolism at various stages of lipid synthesis and transport[8]. Therefore, it is reasonable to expect an abnormal lipid profile in people with severe hepatic impairment. In patients with severe hepatitis and hepatic insufficiency due to reduced lipoprotein biosynthesis, a marked decrease in cholesterol and triglyceride (TG) levels is observed. To reduce liver biosynthesis, chronic TG usually has low levels of TG and cholesterol. Although there are several studies around the world on dyslipidemia in liver cirrhosis, there is a lack of data on this topic in our local population[9-10]. Therefore, a study was conducted to determine the overall frequency or magnitude of dyslipidemia in cirrhosis and average lipid profile values in cirrhosis because the incidence of chronic liver disease is high in Pakistan. In addition, the etiology of chronic liver disease and dietary factors in our country are different than in developed countries. The results of this study will help develop protocols for detecting dyslipidemia in liver cirrhosis.

TOOLS AND METHODS:

This cross-sectional study was conducted from February 2019 to February 2020 in the Medicine department of Holy Family Hospital Rawalpindi. A total of 200 patients with cirrhosis, male or female, aged 15-65 were enrolled in the study. Prior to the examination, consent was obtained from the audit commission and written informed consent of each patient was taken. Patients with co-morbidities such as diabetes, hypertension and ischemic heart disease, patients with lipid-lowering or hepatotoxic drugs, patients with acute hepatitis, patients with end-stage renal disease were excluded from the study. Cirrhosis is defined as follows: patients with altered liver function tests, serum bilirubin> 2.0 mg / dl, presence of yellow sclera, acid during clinical examination, liver shrinkage and splenomegaly. The presence of one of them is marked as dyslipidemia; When the fasting lipid profile (after 12 hours of fasting overnight) is out of range below (triglycerides <150 mg / dl, HDL <40 mg / dl, LDL 100-129 mg / dl, total cholesterol <200 mg / dl). Fasting blood samples were taken from all patients and sent to the laboratory to obtain a lipid profile, and the results were recorded in a previously designed form with the demographic profile of the patients. All collected data were entered and analyzed using the SPSS 16 version. The mean and standard deviation for numerical variables and frequencies were calculated, and the percentages were calculated for categorical variables. A full chi-square / fisherman test was used to check the level of significance. A p value <0.05 was considered statistically significant.

RESULTS:

200 patients with cirrhosis were selected for this study. The mean age of patients was 39.65 ± 12.45. Dyslipidemia was observed in 168 (84%) patients. In total 120 (60%) men constituted 80 (40%) women. Dyslipidemia occurred in 68 (85%) women in 100 (83.33%) men. A slight relationship between gender and dyslipidemia was observed (p = 0.8450) (Table 1). Patients' age division was made and two groups were formed, 15–40 years and 41–65 years. Dyslipidemia was observed in 89 (83.18%) of 107 patients (53.5%) in the 15-40 age group. Dyslipidemia was observed in 79 (84.95%) of 93 patients (46.5%) in the 41-65 age group. A trifle (p = 0.8472) was observed between the age of the patients and dyslipidemia (Table 2). Patients were divided according to the severity of liver cirrhosis. Total 40(20%) patients were found with mild liver cirrhosis followed by 58(29%) moderate and 102(51%) with moderate liver cirrhosis. Dyslipidemia was found in 13(33.5%) patients with mild liver cirrhosis, 53(91.38%) moderate liver cirrhosis and 102(100) with severe liver cirrhosis. Statistically significant (P=0.000) association of severity of liver cirrhosis with dyslipidemia was noted (Table 3).

Table 1: Gender distribution of the patients

Gender	Dyslipidemia		Total
	Yes	No	
Male	100(83.33%)	20(16.67%)	120(60%)
Female	68(85%)	12(15%)	80(40%)
Total	168(84%)	32(16%)	200

P value 0.8459

Table 2: Age distribution of the patients

Gender	Dyslipidemia		Total
	Yes	No	
15-40	89(83.18%)	18(16.82%)	107(53.5%)
41-65	79(84.95%)	14(15.05%)	93(46.5%)
Total	168(84%)	32(16%)	200

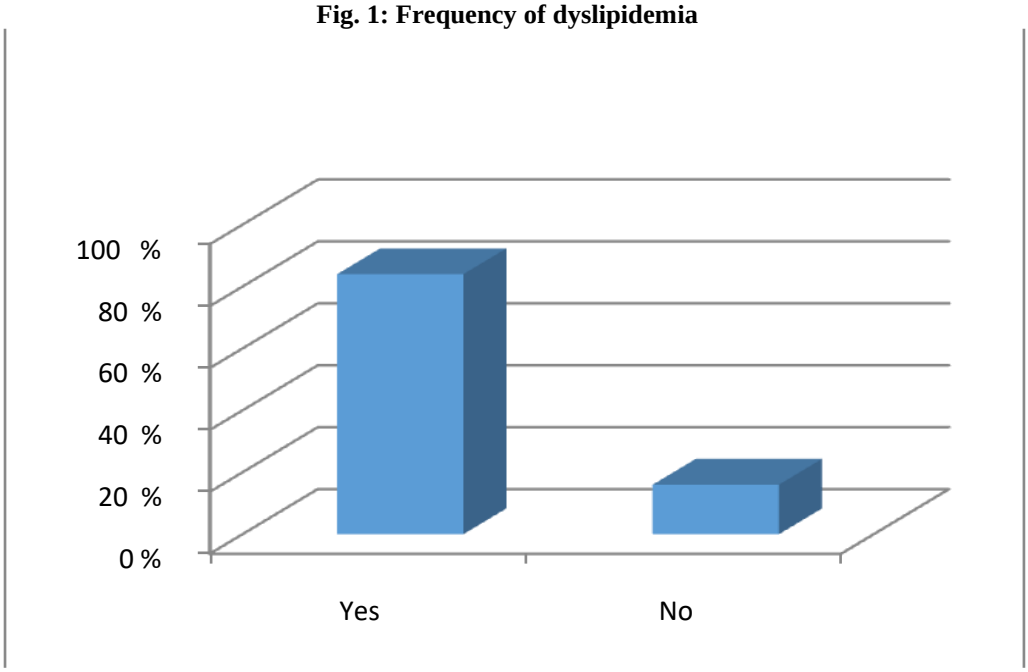
P value: 0.8472

Table 3: Distribution of patients according to severity of liver cirrhosis

Severity of liver cirrhosis	Dyslipidemia		Total
	Yes	No	
Mild	13(33.5%)	27(67.5%)	40(20%)
Moderate	53(91.38%)	5(8.62%)	58(29%)
Severe	102(100%)	0	102(51%)
Total	168(84%)	32(16%)	200

P value 0.000

Fig. 1: Frequency of dyslipidemia



DISCUSSION:

The liver plays an important role in lipid metabolism. It contributes to both the exogenous and endogenous cycle of lipid metabolism and plasma lipid transport[11]. Lipids are essential components of biological membranes, free molecules and metabolism regulators that control cell function and homeostasis. The synthesis of many apolipoproteins takes place in the liver. Apolipoproteins are necessary for the assembly and construction of lipoproteins. Lipoproteins play an important role in the absorption of dietary cholesterol, long-chain fatty acids and fat-soluble vitamins. The liver is the main site for the formation and elimination of lipoproteins[12]. This indicates that the liver plays a role in many stages of lipid metabolism and lipid transport. Therefore, in severe liver disease, lipid metabolism is very diverse. In this study, dyslipidemia was observed in 84% of patients with cirrhosis. It belongs to most of the middle age groups and the average age was 39.65 ± 12.45 years. Dyslipidemia was found in 83.18% of patients aged 15–40 years, and dyslipidemia was found in 84–95% of people aged 41–65 years. These

dyslipidemia results are comparable to the Roesch-Dietlenetal study showing 76.92% dyslipidemia, but Shimizu H in Ohio, USA has found a 61% lower rate of dyslipidemia in patients with cirrhosis[12-13]. Patients with cirrhosis require frequent visits and numerous hospitalizations to treat cirrhosis or its complications. However, choosing the right treatment plan depends on its severity, type of liver damage, and the ability to assess its extent. Worsening of liver cirrhosis was more common in severely affected people than childhood dyslipidemia in the coughing class. Here, about 100% of the patients severely affected in our study had dyslipidemia. Sposti et al. A positive correlation was also found between the Child Pugh classification (A, B, C) of each group and the HDL-c: Apo A1 ratio and liver function[13]. A study by EL-Khabbany ZA showed that dyslipidemia is a common finding in a patient with chronic liver disease and worsening CLD. Eight (20%) of the 40 cases studied with CLD had hypercholesterolemia, 13 (32.5%) had hypertriglyceridemia, 17 (42.5%) had low HDL, and 9 (22.5%) had high LDL. Abbas et al. Hypocholesterolemia has also been found to be a common finding in decompensated chronic liver disease and has a significant relationship to the Child-Pugh class. These levels decreased proportionally with the increase in liver function severity. The results also showed that men are more hypocholesterolemic than women. Our study is a closed study of hospitalized patients[15]. Chronic liver disease is one of the most common diseases in our society. Dyslipidemia also contributes to the commonly observed morbidity and mortality. Its effective detection and rapid management can be helpful in reducing morbidity and mortality due to chronic liver disease. To further generalize the results, more research in this area is recommended, especially at community level.

CONCLUSION:

The results of this study show that dyslipidemia often occurs in patients with cirrhosis. Dyslipidemia worsens with severity of liver cirrhosis according to child Pugh classification. However, there is no statistically significant relationship with age and gender.

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