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# AN ASSESSMENT OF ABNORMAL LIPID PROFILE (DYSLIPIDEMIA) AMONG CIRRHOTIC PATIENTS AND ITS ASSOCIATION WITH AGE AND GENDER

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**Abstract:**

***Objective:*** *This research studies the liver cirrhosis patients who presented an abnormal lipid profile at Sir Ganga Ram Hospital, Lahore.*

***Material and Methods:*** *Our cross-sectional research was carried out at Sir Ganga Ram Hospital, Lahore (Medicine Department). The research span over eight months starting from February 2017 to September 2017 at medicine department. We studied a total of 110 liver cirrhosis patients in the course of this research with reference to their lipid profile.*

***Results:*** *The age bracket of (15 – 65) years patients were selected with a mean age of (39.77 ± 12.84) years. Further age groups distribution was such that 60 out of 110 patients were in the age bracket of (15 – 40) years (54.55%) and 50 out of 110 patients were in the age bracket of (41 – 65) years (45.45%). Both the age bracket of (15 – 40) years and (41 – 65) years included 88 and 43 patients of dyslipidemia. The respective proportion of dyslipidemia was 80% and 86% with respect to their respective age bracket total patients. There was a significant statistical correlation between dyslipidemia and age group (PValue = 0.2310). Whereas, the significant statistical correlation between dyslipidemia and gender was also present (P-Value = 0.6255).*

***Conclusion:*** *This research presents higher dyslipidemia occurrence in the liver cirrhosis patients. Whereas, an insignificant correlation of dyslipidemia was present with respect to gender and age of the patients.*

**Keywords:** *Liver Cirrhosis, Child-Pugh Classification, Dyslipidemia, Hepatitis B (HBV), Lipid Profile and Hepatitis C (HCV).*

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## INTRODUCTION:

Liver Cirrhosis refers to fibrosis progression and development to a certain limit where there is regenerative modules formation and architectural distortion takes place [1]. Cirrhosis is among deadly onset as it causes a huge mortality rate in the population of USA. Alcoholic liver disease and chronic viral HCV are leading factors of cirrhosis [2]. Chronic HCV infection is common in almost every region and area as it affects 200 million souls which accounts for two to three percent of the global population [3]. Asian and USA inhabitants are respectively affected by a proportion of 3.5% and 1.3% [4]. Liver cirrhosis is an offshoot of chronic alcoholic liver disease which causes forty percent of the total deaths [1].

According to the outcomes of research conducted back in 2012, HCV causes the occurrence of cirrhosis among 61.66% patients; moreover, HBV causes cirrhosis in 18.94% patients and alcoholic liver disease attributes for 3.2% liver cirrhosis patients [5]. These affected individuals need proper disease management, multiple hospitalizations, frequent hospital visits and excessive economic burden along with associated complications. Classification of Child Turcotte Pugh predicts survival of cirrhotic patients [6 – 7]. Abnormalities in the lipid profile are also existent in the cirrhotic patients. The liver has a vital role to play in synthesis, lipid metabolism, clearance and transportation [7]. Patient with severe liver dysfunction also present an abnormal lipid profile; therefore, chronic liver disease patients present low levels of cholesterol and triglycerides [8].

A number of international studies focused on the incidence of dyslipidemia among cirrhotic patients, but there is a scarcity of locally available literature. So, we carried out a research to study the liver cirrhosis patients who presented an abnormal lipid profile. This effort will ultimately benefit the forthcoming disease management protocols.

## MATERIAL AND METHODS:

Our cross-sectional research was carried out at Sir Ganga Ram Hospital, Lahore (Medicine Department). The research span over eight months starting from February 2017 to September 2017 at medicine department. We studied a total of 110 liver cirrhosis patients in the course of this research with reference to their lipid profile. We did not include any patient of a co-morbid disease, hypertension, diabetes mellitus, ischemic heart disease, intake of lipid reducing/hepatotoxic drugs, BMI above 30, end-stage renal disease and acute hepatitis. We documented demographic data including the address, gender, age and name of the patient. We retrieved blood samples for INR, PT, bilirubin, albumin and fasting lipid profile after overnight fasting for more than twelve hours by laboratory analysis. A consultant radiologist performed ultrasonography for every patient. Research made statistical analysis through SPSS software and calculated categorical data such as frequencies, percentage and average values.

## RESULTS:

The age bracket of (15 – 65) years patients were selected with a mean age of (39.77 ± 12.84) years. Further age groups distribution was such that 60 out of 110 patients were in the age bracket of (15 – 40) years (54.55%) and 50 out of 110 patients were in the age bracket of (41 – 65) years (45.45%). Both the age bracket of (15 – 40) years and (41 – 65) years included 88 and 43 patients of dyslipidemia. The respective proportion of dyslipidemia was 80% and 86% with respect to their respective age bracket total patients. There was a significant statistical correlation between dyslipidemia and age group (PValue = 0.2310). Whereas, the significant statistical correlation between dyslipidemia and gender was also present (P-Value = 0.6255). Detailed outcomes of gender, age and dyslipidemia are available in the given tabular data (Table – I & II).

**Table – I:** Stratification of Dyslipidemia

| Dyslipidemia | Number | Percentage |
|---|---|---|
| Yes | 88 | 80 |
| No | 22 | 20 |

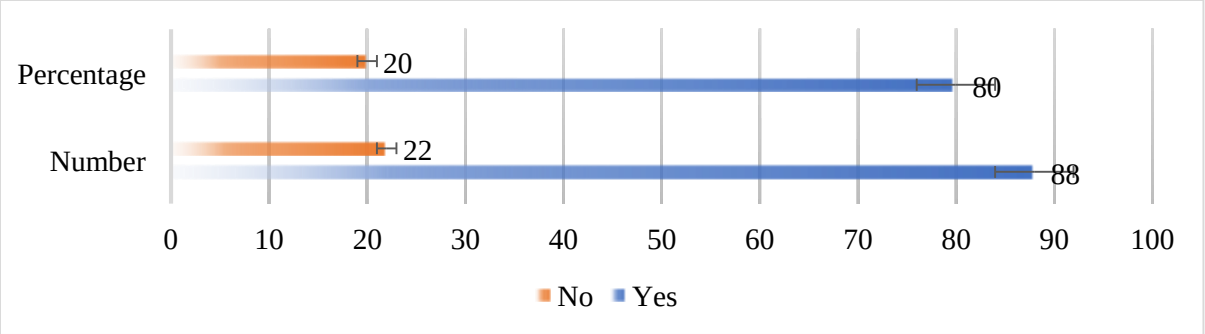
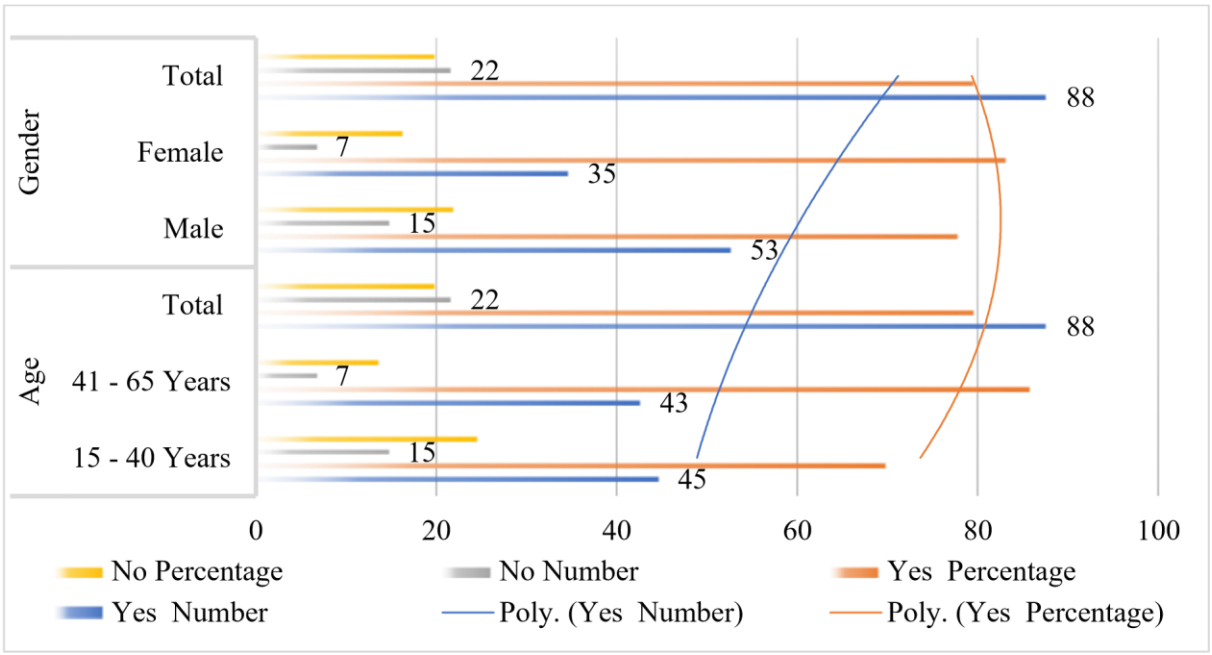



**Table – II:** Stratification of Gender and Age

| Age and Gender | | Yes | | No | | Total | | P-Value |
|---|---|---|---|---|---|---|---|---|
| | | No | % | No | % | No | % | |
| Age | 15 – 40 Years | 45 | 70.0 | 15 | 25.0 | 60 | 54.6 | 0.2310 |
| | 41 – 65 Years | 43 | 86.0 | 7 | 14.0 | 50 | 45.5 | |
| | Total | 88 | 80.0 | 22 | 20.0 | 110 | 100.0 | |
| Gender | Male | 53 | 77.9 | 15 | 22.1 | 68 | 61.1 | 0.6255 |
| | Female | 35 | 83.3 | 7 | 16.7 | 42 | 38.2 | |
| | Total | 88 | 80.0 | 22 | 20.0 | 110 | 100.0 | |




**DISCUSSION:**

This research studies the liver cirrhosis patients who presented an abnormal lipid profile with an age bracket of (15 – 65) years and the average age of (39.77 ± 12.84) years. Further age groups distribution was such that 60 out of 110 patients were in the age bracket of (15 – 40) years (54.55%) and 50 out of 110 patients were in the age bracket of (41 – 65) years

(45.45%). Both the age bracket of (15 – 40) years and (41 – 65) years included 88 and 43 patients of dyslipidemia. The respective proportion of dyslipidemia was 80% and 86% with respect to their respective age bracket total patients. There was a significant statistical correlation between dyslipidemia and age group (P-Value = 0.2310). Whereas, the significant statistical correlation between dyslipidemia and gender was also present (P-Value = 0.6255). The dyslipidemia outcomes reported in our research are in agreement with the outcomes presented by

Roesch-Dietlen F [9]. Roesch-Dietlen F reported the dyslipidemia occurrence as 76.92% [9]. Shimizu H reported reduced dyslipidemia occurrence of 61% in his series conducted at cirrhotic patients in USA [10]. EL-Khabbany ZA also studied cirrhotic patients for abnormal lipid profile and reported frequent onset of dyslipidemia in chronic liver disease patients [11]. In the total of forty CLD patients there were 8 hyper-cholesterol (20%), 13 hypertriglyceridemia (32.5%), 17 low HDL (42.5%) and 9 patients of high LDL (22.5%) [11]. Abbas and his colleagues also reported the common occurrence of hypocholesterolemia in the patients of decompensated chronic liver disease along with a correlation with the classification of Child-Pugh. Both the levels reduced with a proportionate decline with the liver dysfunction proportion. These outcomes also reflect male population domination over female population in terms of levels of hypo-cholesterol [12]. There is a scarcity of literature about the research material of liver disease severity and its association with lipid profile.

The patients of Cirrhosis need to frequently visit the physician and multiple hospital admissions with excessive economic burden along with related complications. However, proper management depends on liver damage type, the severity of the damage and disease diagnostic. Child-Pugh Classification may also play its role in the evaluation of Cirrhosis [13].

The frequency of Chronic liver disease is commonly reported in the community. Dyslipidemia is one of the contributing mortalities and morbidity factor among cirrhotic patients. The mortality and morbidity are controllable through proper and timely disease diagnosis and initiation of management therapy. Further research work will ultimately help in the better understanding of the association of abnormal lipid profile with liver cirrhosis disease.

## CONCLUSION:

This research presents higher dyslipidemia occurrence in the liver cirrhosis patients. Whereas, an insignificant correlation of dyslipidemia was present with respect to gender and age of the patients.

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