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Frequency of Low HDL Levels among Patients of Acute Myocardial Infarction

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ABSTRACT

Objective: the aim of the study was to evaluate the frequency of decrease levels of HDL in those patients that have MI.

Methodology: the study was cross-sectional and was carried out at the department of cardiology of the LUMHS in the year 2017 April-September. The study included the participants with age range of 20-60 years. The ethical committee associated with hospital permitted the study conduction. Consent from all the participants were taken. 12 hours of fasting to analyze the levels of lipid as well as levels of HDL in participants was carried out to be included in the study. SPSS version 16 was used to analyze the data statistically.

Results: About 100 participants were the part of the study with mean age of 51.05±6.22 years. 60 participants out of 100 were men. The mean HDL levels were 39.03mg/dl. About 20 patients displayed isolated low HDL levels. Age as well as the gender was found to be insignificantly affecting the frequency of isolated decreased HDL levels.

Conclusion: The decreased levels of HDL wasfound to be associated with higher frequency 22% among acute MI patients.

Key Words
Dyslipidemia, Isolated low HDL, Acute myocardial infarction

Introduction

The atherosclerotic cardiovascular disease (ASCVD) is found to be common globally more specifically the obstructive diseases associated with coronary arteries. The abnormality in the lipid levels in blood is referred to as Dyslipidemia. It involves the increased TC (total cholesterol) as well as TG (triglycerides) levels. The high-density lipoprotein levels i.e HDL is also included which may cause atherosclerosis of the coronaries as well as other arteries of the body. According to many studies, the increased level of high-density lipoprotein indicates less chances of having diseases associated with cardiovascular system. [1] lipid disorders can be either genetic as well as acquired or secondary. Because lipid readings are constant, the 99th percentile is used to determine unhealthy values. Since there is a linear relationship among the level of lipid and the risk of heart disease, it is argued that the less the levels, the reduce the probability of Coronary artery disease. As with another continuous variable, the normal level is defined as the point where the advantage is the greatest. According to many recent researches, there is an inverse connection among high-density lipoprotein as well as coronary artery disease yet the evidence does not support this in contrast to the low-density lipoprotein as well as coronary artery disease

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relation. [2][3].It is really worth noting that lower HDL itself is not a danger factor; in numerous studies, it is proven to be functioning irrespectively of levels of LDL. According to a study, low levels of high density lipoprotein was reported for being 34.1 percent in 4 individuals with CAD, whereas in another study, the findings showed 22.4 percent in Asians and 14.5 percent in non-Asians.

Material and Methods

This cross-section study was carried out at cardiology department of LUMHS from April 2017 to September 2017. Participants of age range 20-60 years were the party of this study. The exclusion criteria include patients having MI for >48 hours, congenitally associated dyslipidemia, patients on statins or other drugs for dyslipidemia. The ethical committee associated with hospital permitted the study conduction. Consent from all the participants were taken. The demographic information was recorded on a performa. 12 hours of fasting to analyze the levels of lipid as well as levels of HDL in participants was carried out to be included in the study. SPSS version 10 was used to analyze the data statistically. the mean values as well as SD was estimated to analyze the variables such as age, frequency of smoking and high-density lipoprotein levels quantitatively. To evaluate the gender as well as high density lipoprotein levels, percentage and frequency was computed. The impact variables such as age, gender, and the quantity of smoked packets were controlled using stratification. In order to evaluate the impact of these on isolated decreased levels of HDL frequency, chi square test was done. The p-value of less than 0.05 was taken which was quite significant.

Results

Table.1. Patient allocation based on age, gender, as well as mean HDL level. n=100

Variables	Frequency n (%)
Mean Age	51.05±6.22 years
Males	60 (60.0%)
Females	40 (40.0%)
Mean HDL	41.03±8.96

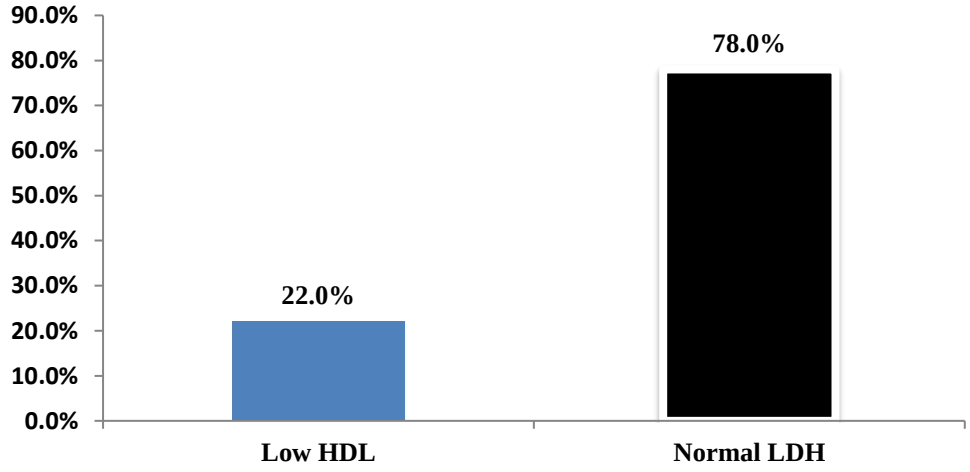

Fig: 1. Frequency of low HDL level n=100

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Table.2. Patient allocation based on age, gender, as well as mean HDL level. n=100

Variables	Normal HDL	Low HDL	Total	P-value
Gender				
Males	23	37	60	0.353
Females	18	22	40	
Age groups				
40-50 years	20	26	46	.652
51-60 years	28	36	54	

Discussion

According to many studies, the low-density lipoprotein and high-density lipoprotein were found to be inversely related to each other. [6][7]. It was also revealed that risk associated with decrease high density lipoprotein levels is irrespective of low density lipoprotein levels. [8] according to many studies decrease HDL level is almost equal as high level of LDL. [9][10].It is also demonstrated that the frequency of low HDL vary between populations, ranging from 6-34 percent. Previous research haven't been clear about whether or not to provide medicate to this group with medicines to lower their Coronary artery disease chances. [8][11].The study of Tromso Heart discovered that decrease level of HDL is prevalent as well as have 3 times increased chances of having the chances of getting Coronary artery disease in contrast to the level of LDL in patients of relatively similar group. In accordance with the study of Wilson in Framingham, the decreased high-density lipo-protein levels is strongly linked with coronary artery disease.[12] in the study of Castelli WP et al [13], the low level; of HDL and high level of LDL have similar strong connection in causing coronary artery disease. [14]. According to Michael Miller, the decrease high density lipoprotein is very prevalent disorder in patients having coronary artery disease and it can predict the cardio related events a well when the TC is normal. [15] decrease low density lipoprotein level also increases the chances of stroke and the lipid lowering drugs like statins reduces the hazardous results in these patients. [16] according to a Korean study, decreases level of HDL is major element in causing coronary artery disease. [17].Reduced HDL is found in about 1/3rd population. it seems to be definitely an early marker in individuals with ischemic heart disease, according to extensive studies.Reduced HDL is perhaps the most frequent lipid problem between these individuals, affecting about 66 percent of them. Reduced HDL-C is present in about 25 percent of individuals outside of Asia, that contributes to about 25 percent increased chance of coronary artery disease. Lower HDL is just as essential as elevated LDL in Coronary disease in Asians. According to the Data from Taiwan, about 25 percent population have decrease level of HDL. [18]. The data from Singapore revealed one-half of population of elderly people possess suboptimal HDL-C levels.Because of the significant frequency of decrease HDL in these groups, migration studies have found that South Asians possess 50 percent to 200 percent greater Coronary artery disease incidences than Europeans, even aftercontrolling the known risks including smoking, HT, as well as TC. [19] therefore, we cay say that rise in level of HDL through medicines or lifestyle modifications such as by adapting aerobic exercise as daily routine, increase intake of fruits as well as vegetables, preventing of smoking. There seems to be a great evidence-based probability that we can still significantly lower Coronary artery disease incidence, which is extremely crucial in Asians because every study have indicated that lower HDL is far more prevalent in them as well as CAD incidence is also higher in Asians than in Western populations.

Conclusion

It was concluded that low HDL level was noted to be higher frequency 22% among acute MI patients. HDL level should be screened regularly among suspected patients to decrease the cardiac morbidity.

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