Original Article

Lipid Profile in Hypertensive Patients

Evaluation of Serum Lipid Profile in Hypertensive Patients in one of Tertiary Care Hospital

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ABSTRACT

Objective: The objective of this study to evaluate serum lipid profile in hypertensive patients in one of tertiary care hospital

Study Design: Cross-sectional study

Place and Duration of Study: This study was conducted at the Department of Biochemistry and Physiology, Avicenna Medical College Lahore from March 2017 to January 2019.

Materials and Methods: We selected 100 participants in which 70 hypertensive patients and 30 control normal subjects. We measured total cholesterol level (TG), Low density Lipoprotein (LDL), High density Lipoprotein (HDL) and Triglycerides in hypertensive patients and normal patients (Control). We also measured blood pressure (Systolic and Diastolic Pressure) for both groups. For measuring lipid profile (TG, HDL, LDL, and Total Cholesterol), we used Mirolab 300 and we used Merk kits of analysis the samples of both groups (Hypertensive Patients and Control Normal patients.

Results: The mean of the blood pressure (systolic BP - 24 hours (mmHg) of test subject was 148.9 $\pm$ 10.2 mmHg and for Control was 135.4 $\pm$ 8.3 mmHg. And Diastolic blood pressure of the test patient was 97.6 $\pm$ 6.3 mmHg. The total Cholesterol level was higher in test subject (hypertensive patients) as compare to control the total cholesterol in Test subject (hypertensive patients) was 240.8 ± 14.8 mg/dl and in control was 194.6 ± 32.5mg/dl. Result showed that triglyceride level was higher in hypertensive patient as compare to control. The total level of triglyceride in hypertensive patients was 170.3 ± 37.5 mg/dl and in control was 146.2 ± 34.2mg/dl. High density lipoprotein level in hypertensive patient was 59.6 ± 10.5 mg/dl and in control was 45.5 ± 11.2mg/dl. The result showed that HDL level is high in hypertensive patient. The low density lipoprotein in LDL was higher in hypertensive patient as compare to control. The mean value of LDL in hypertensive patient was 127.9 ± 23.5mg/dl and in control was 118.5± 20.5 mg/dl.

Conclusion: High lipid profile is risk of cardiovascular disease and stroke so it should be treated as soon as possible and it means that abnormal lipid profile caused cardiovascular disease.

Key Words: Hypertension, Lipid profile, cardiovascular disease

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INTRODUCTION

Major risk factor of hypertension and CVD are morbidity and mortality and also abnormal lipid metabolism and lipoprotein.

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The blood pressure guide line of WHO is 130/85 mmHg and old guide line was for blood pressure was140/90 mmHg .[1-6]

Hypertension also caused renal disorders and diseases.[7] [Micro] albuminuria and micro albuminuria patients are associated with hypertension.[8,9] Dyslipidemia is major cause of cardiovascular disease and risk factor[10] and it is also called dyslipidemia hypertension and for essential hypertension it is independent risk factor.[12,13] When lipid level is increased which ultimately increased blood pressure so it untreated hypertensive than normotensive it is more common dyslipidemia.[14, 15] World facing more health issues in which hypertension is major health issue and it is also economic issue of the world.[16, 17] Balance metabolism is essential for normal body function any abnormality occurred in body ultimately caused metabolic disorders and this abnormal metabolism also related with associated factor which link with other diseases specifically when any alteration occurred in lipid metabolism and lipoprotein caused hypertension .[18] Lipid abnormality and other

metabolic abnormality synergistically caused atherosclerosis and also produced CVD. It means that hypertension is produced from abnormality of lipid metabolism and other metabolic disorder and combination of metabolic disorders caused hypertension. [19]

MATERIALS AND METHODS

This study was conducted at the Department of Biochemistry and Physiology, Avicenna Medical College Lahore from March 2017 to January 2019. We selected 100 participants in which 70 hypertensive patients and 30 control normal subjects. We measured total cholesterol level (TG) , Low density Lipoprotein (LDL) , High density Lipoprotein (HDL) and Triglycerides in hypertensive patients and normal patients (Control). We also measured blood pressure (Systolic and Diastolic Pressure) for both groups. For measuring lipid profile (TG, HDL, LDL, and Total Cholesterol), we used Mirolab 300 and we used Merk kits of analysis the samples of both groups (Hypertensive Patients and Control Normal patients**.**

RESULTS

The mean of the blood pressure (systolic BP - 24 hours (mmHg) of test subject was 148.9 ± 10.2 mmHg and for Control was 135.4 ± 8.3 mmHg. And Diastolic blood pressure of the test patient was 97.6 ± 6.3 mmHg. The total Cholesterol level was higher in test subject (hypertensive patients) as compare to control the total cholesterol in Test subject (hypertensive patients) was 240.8 ± 14.8 mg/dl and in control was194.6 ± 32.5mg/dl.

Table No.1: Participant characteristics

	Test subject (n=70) Hypertensive patients	**Control (n=30)**
Age (years)	51.2 ± 7.2	51.5 ± 8.6
Male / Female (%)	42.2 / 57.8	36.5 / 63.5
Body weight (Kg)	71.2 ± 11.5	72.4 ± 11.4
BMI (kg/m2)	27.3 ± 2.7	27.4 ± 2.6
SBP sitting (mmHg)	148.9 ± 10.2	135.4 ± 8.3
DBP sitting (mmHg)	97.6 ± 6.3	85. 9 ± 6.5

Result showed that triglyceride level was higher in hypertensive patient as compare to control. The total level of triglyceride in hypertensive patients was 170.3 ± 37.5 mg/dl and in control was 146.2 ± 34.2mg/dl. High density lipoprotein level in hypertensive patient was 59.6 ± 10.5 mg/dl and in control was 45.5 ± 11.2mg/dl. The result showed that HDL level is high in hypertensive patient. The low density lipoprotein in LDL was higher in hypertensive patient as compare to control. The mean value of LDL in hypertensive patient was 127.9 ± 23.5mg/dl and in control was 118.5± 20.5 mg/dl**.**

Table No2: Ambulatory blood pressure monitoring. Mean values of blood pressure

Test subject (n=70) Hypertensive patients	**Control (n=30)**
Systolic BP - 24 hours (mmHg)	
148.9 ± 10.2	135.4 ± 8.3
Diastolic BP - 24 hours (mmHg)	
97.6 ± 6.3	85. 9 ± 6.5

TableNo.3: Lipid profile of Test subject and Control and Glucose level

Test Subject (n=70) Hypertensive patients	**Control (n=30**
Fasting Blood Glucose(mg/dl)	
98.8 ± 10.2	98.4 ± 9.4
Total Cholesterol (mg/dl)	
240.8 ± 14.8	194.6 ± 32.5
LDL (mg\dl)	
127.9 ± 23.5	118.5± 20.5
HDL (mg\dl)	
59.6 ± 10.5	45.5 ± 11.2
Triglycerides (mg\dl)	
170.3 ± 37.5	146.2 ± 34.2

DISCUSSION

We evaluate in this study the serum lipid profile in hypertension patient. We selected 100 participants in which 70 hypertensive patients and 30 control normal subjects. We measured total cholesterol level (TG) Low density Lipoprotein (LDL), High density Lipoprotein (HDL) and Triglycerides in hypertensive patients and normal patients (Control). We also measured blood pressure (Systolic and Diastolic Pressure) for both groups. For measuring lipid profile (TG, HDL, LDL, and Total Cholesterol), we used Mirolab 300 and we used Merk kits of analysis the samples of both groups (Hypertensive Patients and Control Normal patients .We observed high lipid profile in hypertension patients specially TC (Total cholesterol) , TG (Tri glyceride) and LDL (Low density Lipoprotein). The concentration is significantly higher in hypertension patients. This type result is also in other country studies such as Nigeria. Akintunde is also found this type of result that lipid profile is higher in hypertension patients. The observation showed that obesity and dyslipidemia are the risk factors of hypertension.[20] The mean of the blood pressure (systolic BP - 24 hours (mmHg) of test subject was 148.9 ± 10.2 mmHg and for Control was 135.4 ± 8.3 mmHg. And Diastolic blood pressure of the test patient was 97.6 ± 6.3 mmHg. The total Cholesterol level was

higher in test subject (hypertensive patients) as compare to control the total cholesterol in Test subject (hypertensive patients) was 240.8 ± 14.8 mg/dl and in control was 194.6 ± 32.5mg/dl. Result showed that triglyceride level was higher in hypertensive patient as compare to control. The total level of triglyceride in hypertensive patients was 170.3 ± 37.5 mg/dl and in control was 146.2 ± 34.2mg/dl. High density lipoprotein level in hypertensive patient was 59.6 ± 10.5 mg/dl and in control was 45.5 ± 11.2mg/dl. The result showed that HDL level is high in hypertensive patient. The low density lipoprotein in LDL was higher in hypertensive patient as compare to control. The mean value of LDL in hypertensive patient was 127.9 ± 23.5mg/dl and in control was 118.5± 20.5 mg/dl. When Serum cholesterol level is high, it is caused coronary heart disease (CHD) and stroke. It means that high cholesterol level role in developing the coronary heart diseases and stroke.[21]Atherogenic process is in inhibited by HDL (High Density lipoprotein) this biomolecule act as inflammatory and antioxidant. Low level HDL increases the risk of cardiovascular diseases. [22] It is essential that we evaluated the lipid profile in hypertension patient we treated early as possible if the concentration of the lipid profile is high**.**

CONCLUSION

High lipid profile is risk of cardiovascular disease and stroke so it should be treated as soon as possible and it means that abnormal lipid profile caused cardiovascular disease**.**

Author's Contribution:

Concept & Design of Study:	Syeda Ijlal Zehra Zaidi
Drafting:	Sumera Saghir
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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