CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.1562377

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

AN ASSESSMENT OF LIPOPROTEIN STATUS ALONG WITH LEVEL OF LIPID SERUM IN THE PATIENTS SUFFERING FROM HIGH BLOOD PRESSURE ISSUES

[1]Dr. Aisha Munir, [2]Dr. Junaid Ahmed Rana, [3]Dr. Shama Benazir

[1]DHQ Hospital Hafizabad

[2]Latin American School of Medicine Havana, Cuba

[3]Punjab Medical College, Faisalabad

Abstract:

Objective: *The purpose of the research was to find out the status of lipoprotein along with serum lipids in primary high blood pressure patients.*

Methods and Materials: *The researched was performed at Sir Ganga Ram Hospital, Lahore from September 2016 to August 2017. The number of primary high blood pressure patients enrolled for our research are thirty, having age category of twenty-two to seventy-five years. Researcher selected thirty normal subjects of almost similar age category and gender as a reference (control) as well as expelled all those patients with drug management record in the past and diuretics, diabetes mellitus, entire obese patients, all patients having family record of hyperlipidemia, patients with kidney and liver collapse, patients with endocrine complications, patients with utilization of systematic narcotics and smoker along with alcohol utilizers. Researcher take written approval from entire patients and reference subjects along with blood and urine sampling, used enzymatic technique along with turbid meter immunoassay instrument for level calculation of serum lipids and lipoprotein. The researcher also measured urine sugar along with proteins, serum fasting blood sugar, and serum creatinine and blood urea additionally through laboratory procedure.*

Results: *Serum TC, LDL-C, TG, very low-density lipoprotein (VLDL-C) and HDLL status did not determine to be statistically expressive in dual categories. Patients with primary hypertension displayed expressively huge serum level of lipoprotein comparatively reference subjects.*

Conclusion: *Primary high blood pressure patients, dyslipidemia and lipoprotein may be an agent importing great hazards of coronary heart complications, subsequently, the researcher also determined that lipoprotein is probably an autonomous hazardous agent for atherosclerosis in high blood pressure patients.*

Keywords: *Blood Pressure (BP), Lipoprotein Lp (a) and Very Low-Density Lipoprotein (VLDL).*

Corresponding author:

Dr. Aisha Munir,

DHQ Hospital,

Hafizabad

QR code

Please cite this article in press Aisha Munir et al., ***An Assessment of Lipoprotein Status Along With Level of Lipid Serum in the Patients Suffering From High Blood Pressure Issues.,*** *Indo Am. J. P. Sci, 2018; 05(11).*

INTRODUCTION:

Primary hypertension is declared as global health issue due to its huge commonness and associated hazard of kidney and cardiovascular complications [1]. It is generally nonsymptomatic, preferably identifiable, comfortably manageable, and frequently advance to lethal complexness if left without treatment. Researcher specified it as a prime hazardous agent for fatality and graded as the third factor of incapacity accommodated life years. A fresh report on "Global burden of hypertension" express that almost one thousand million adults had primary hypertension in 2002 and this supposed to expand up to sixteen hundred million in 2025 approximately [1]. Combining of epidemiological research present that high blood pressure exists in twenty-five percent urban as well as ten percent rural population of India. It was identified as a factor of entire of ten million causalities in India in 1990 along with cardiovascular complication with almost 2.3 million (twenty-five percent) causalities. An entire of 1.2 million expirations was because of coronary heart complications and half of the million are because of stroke. It has been presumed that up to 2020, there would be one hundred and eleven percent expansion in cardiovascular causalities in India. High blood pressure is declared accountable for fifty-seven percent of entire stroke causalities and twenty-four percent of entire coronary heart complication causalities in India [3]. For those states who are in the 2nd phase of progress, epidemic disease Burdon is decreased as well as complication concerning to high blood pressure, just like haemorrhage stroke and high blood pressure emerge as most frequent. For example, in the research of the seven states lesser CHD was noticed in Mediterranean states as well as Japan with higher CHD percentage in the United States of America and Finland. The contraries in a huge area were analyzed by diverge nutrition plan, serum cholesterol and blood pressure [4].

Research on public proposed that the BP is a consecutive variant with no specific division point in normal and abnormal values. It is a heterogeneous complication in which patients could be categorized in pathophysiological properties that have a blunt aspect on the potency of particularly objected anti-high blood pressure treatment, on the identification of possibly recoverable types of high blood pressure and on the hazard of cardiovascular difficulties [5]. High blood pressure is an indication of opposition to a particular complication and indicates numbers preferably than qualitative differences from average so every definition is consequently irrational [6].

High blood pressure is general most cirrhosis genetic complication with common averaging of thirty percent. Similar to many factorial human fractures, it results from the exchange of several hazardous genes and different environment agent.

The "threshold model of multifactorial inheritance" those with an inherited genetic accountability higher to the definite limit will promote high blood pressure. Particularly when disclosed to the exasperating environment cause [7].

The origination of primary high blood pressure is not apparently expressed. Distinctive research has suggested the kidney, the supplementary opposition vessels and the tolerant nervous system as the command of main irregularity [6]. It is connected with operational and morphological variations of the endothelium. Because of its location in the bloodstream as well as smooth muscle cells, the endothelium is accounted to be both target conciliator of arterial high blood pressure. The nil functioning of endothelium and smooth the preservation of raised supplementary opposition, which would accommodate the incidents of difficulties just like atherosclerosis. The raised vascular opposition in primary high blood pressure is connected to the inconstant of function vasodilator and vasoconstrictors [8].

Systematic blood pressure increased with age factor and occurrences of cardiovascular complication is exactly associated with modest blood pressure at entire ages, exactly when the blood pressure readings are in limit so-called normal range. The counter consequences of high blood pressure basically comprise of the blood vessels, the retina, the central nervous system as well as kidney and heart [6]. In a patient with high blood pressure, there is frequentness of coronary hazard agent. A remodelling of lipid profile has been noted in these patients with a huge limit of overall cholesterol, low blood concentration, triglycerides, LDL-C, the high plasma concentration of lipoprotein has been identified as a hazardous agent for cardiovascular complications in these particular patients [9, 10]. LP (a) is a circuitous lp macromolecule that comprises [apo (a)] which exchange resemblance with plasminogen. It pretends as a challenging crimper of tissue forms plasminogen activator and thereby assists immodulatory the fibrinolytic system homogeneous with an atherogenic character [10].

There is too short research identifying the connection between lipoprotein (a) abundance and primary hypertension, so we assume this research to assist lipid profile and lipoprotein (a) level in primary hypertension patients.

METHODOLOGY:

The researched was performed at Sir Ganga Ram Hospital, Lahore from September 2016 to August 2017. The number of primary high blood pressure patients enrolled for our research are thirty, having age category of twenty-two to seventy-five years. The researcher selected thirty normal subjects of almost similar age category and gender as a reference (control). The detection of high blood pressure was found with respect to the approval of WHO, an international society of hypertension. The number of primary high blood pressure patients enrolled for our research are thirty, having age category of twenty-two to seventy-five years. Researcher expelled all those patients with drug management record in the past and diuretics, diabetes mellitus, entire obese patients, all patients having a family record of hyperlipidemia, patients with kidney and liver collapse, patients with endocrine complications, patients with the utilization of systematic narcotics and smoker along with alcohol utilizers.

MATERIALS AND METHODS:

Researcher take written approval from all the patients as well as reference cases along with 5ml of the venous sample just after overnight fasting of ten to twelve hours. The researcher also takes a blood sample for analyzing, serum total cholesterol, blood sugar serum triglycerides, blood urea etc. along with urine sampling for analyzing of sugar and protein, carried out assessment instantly after collection of samples and segregation of serum. The researcher analyzes the composed facts by using SPSS software and computed average and SD for quantitative data and periodicity for systematic data.

RESULTS:

The purpose of the research was to find out the status of lipoprotein along with serum lipids in primary high blood pressure patients. The number of primary high blood pressure patients enrolled for our research are thirty, having age category of twenty-two to seventy-five years. The researcher selected thirty normal subjects of almost similar age category and gender as a reference (control). 30 high blood pressure patients are subsequently classified with respect to their blood pressure, such as mild, moderate and severe hypertension patients. The numbers of patients in mild, moderate and severe hypertension category are six, fourteen and ten patients respectively.

The age of thirty healthy cases, taken as a reference was forty-five to sixty-six years with a male-female ratio of 11:19. The age of thirty hypertension patients was in between forty-four to sixty-seven with female and male ratio of 19:11. The average entire cholesterol level in reference group was 183.07 + 39.36 & 183.07 - 39.36, however in patients of high blood pressure, it was 195.10 + 30.36 & 195.10 - 30.36. When correlated with the reference cases, increased in the average serum entire cholesterol range in the patient was not statically expressive (P = 0.190)

The level of average serum triglyceride, serum LDL-C, serum VLDL-C, and entire cholesterol HDL-C was greater in hypertension cases as compared to reference group and variation was statically not expressive with P-value =0.059, 0.323, 0.0056 and 0.021 respectively. The level of serum HDL-C was lesser in primary hypertension patients as compared to controls and variation was also statically not important with a value of P = 0.45. The range of LDL/HDL ratio was statically uniform in both the categories with p-value = 0.233. The level of Lp (a) was higher as correlate to the reference group with variations are statically important (P value is less than 0.001).

Table – I: Severity of Blood Pressure (BP)

BP	Number	Percentage
Mild	6	20.00
Moderate	14	46.70
Severe	10	33.30
Total	30	100

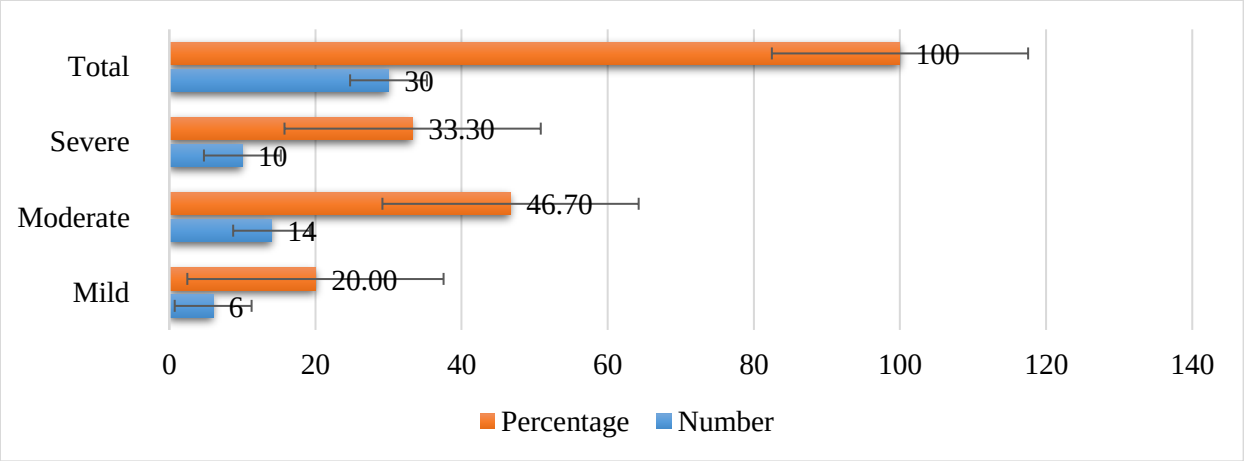


Table – II: Age, Gender and BMI Stratification

Variables		Control		Cases	
		Number	Percentage	Number	Percentage
Age	36 - 40 Years	3	10.00	3	10.00
	41 - 50 Years	6	20.00	7	23.30
	51 - 60 Years	10	33.30	10	33.30
	61 - 70 Years	9	30.00	8	26.70
	Above 70 Years	2	6.70	2	6.70
Gender	Male	11	36.70	11	36.70
	Female	19	63.30	19	63.30
BMI (kg/m2)	18 - 25	26	86.60	24	80.00
	25.1 - 30	4	13.40	6	20.00
	Above 30	0	0.00	0	0.00

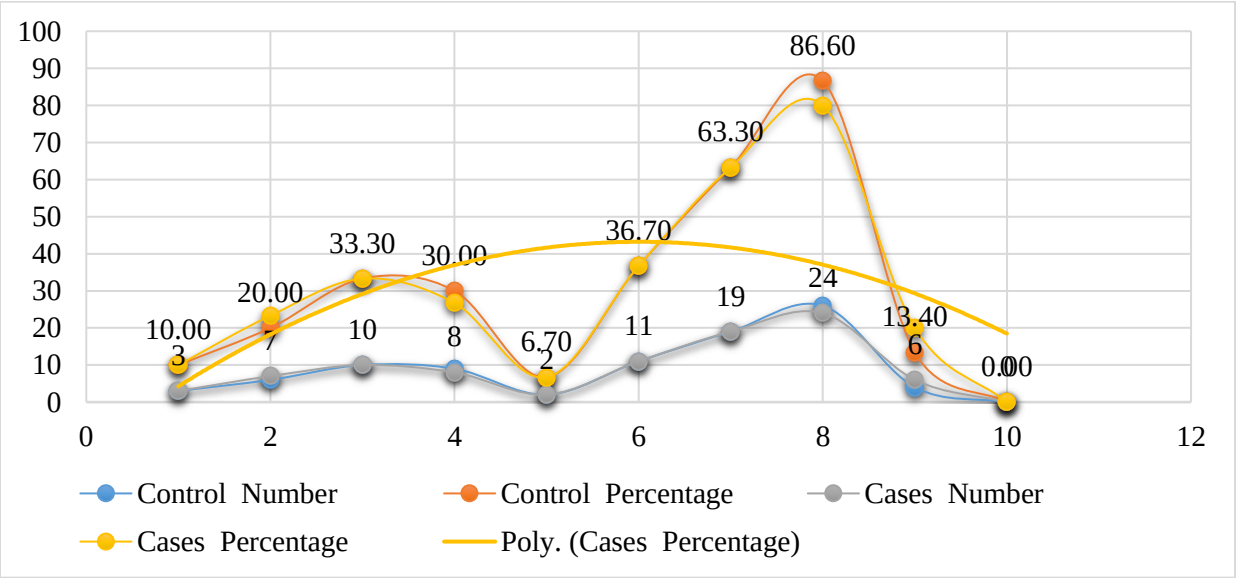
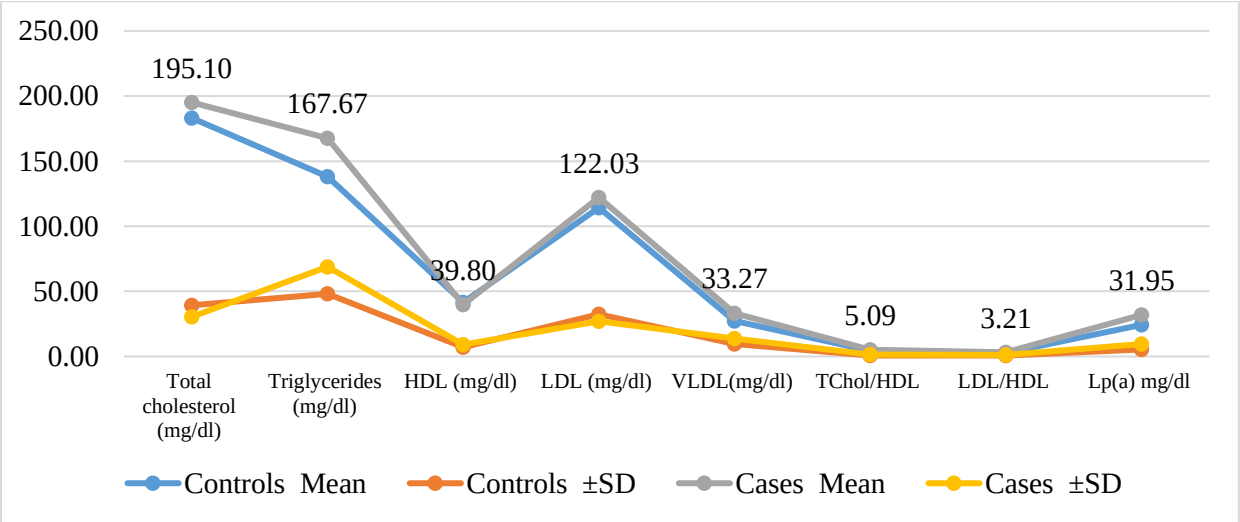


Table – III: Comparison of Lipid levels and Lipoprotein

Variables	Controls		Cases		Significance		Effect Size
	Mean	±SD	Mean	±SD	t	P	
Total cholesterol (mg/dl)	183.07	39.36	195.10	30.36	1.33	0.19	0.34 (S)
Triglycerides (mg/dl)	138.13	48.09	167.67	68.84	1.93	0.059	0.50 (M)
HDL (mg/dl)	41.40	7.18	39.80	9.19	0.75	0.455	0.19 (N)
LDL (mg/dl)	114.37	32.38	122.03	27.00	1	0.323	0.25 (S)
VLDL (mg/dl)	27.30	9.58	33.27	13.72	1.95	0.056	0.50 (M)
T Chol/HDL	4.41	0.81	5.09	1.34	2.37	0.021	0.60 (M)
LDL/HDL	2.73	0.72	3.21	1.15	1.92	0.06	0.50 (M)
Lp (a) mg/dl	24.27	5.38	31.95	9.55	3.84	< 0.001	0.98 (L)



DISCUSSION:

The purpose of the research was to find out the status of lipoprotein along with serum lipids in primary high blood pressure patients. The research has presented that the dominance of high blood pressure is much greater in fifty-one to sixty years of age category patients. That is coherent with previously conducted research in Ibadan Nigeria. Many research studies conducted in developing as well as developed states have perpetually presented a positive association in BP and age [11].

High blood pressure and hyperlipidemia happen concurrently much frequent as compared to by chance expectation. Proofs are available to verify that hyperlipidemia lonely may stimulate to high blood pressure and lipid-lowering mediation may have health consequences on BP or minimum on vascular re-function. High blood pressure and hyperlipidemia have supplementary than accretive consequences on cardiovascular hazard and it's significant to assume them both along with another hazardous agent early commencing on drug treatment [12]. It was identified that there were greater TG, TC, and LDL-C in high blood pressure patients, however, the variation in both categories was statically expressive in our research. A research conducted on thirty-one hundred and eighty-two Indians high blood pressure patients diagnosed greater TC and lower HDL-C, however, nil interruption in LDL-C [12]. This research results regarding LDL-C are similar to our LDL-C value. An analysis on seven research's consist of forty-one thousand patients presented that significant association occurs in BP and higher TC, LDL-C along with TG [12]. In our research, there was no statically important variation in HDL-C level in high blood pressure patients as well as the reference category. These results are similar to Demu Dig et al

research's [11]. In our research, TC was not expressively developed however its ratio with HDL-C was developed importantly in patients. These results are similar to Halperin et al [13].

The major factor of bitterness and fatality in Pakistan are CHD and stroke with arterial high BP and in a lot of research's lipoproteins (a) has been identified as an expressive hazardous element for cardiovascular complication. The phenomenon through which lipoprotein raised the hazard of thrombosis is entirely unclear.

Lipoprotein abundance may develop immature atherosclerosis through the subsequent phenomenon blockage of clot lysis through lipoprotein (a) advancing to a thrombogenic position, raised binding to proteoglycans or to the VLDL receptor. Lipoprotein also develops greater uptake through macrophages, blunt chemo enchantment of monocytes of monocytes with the entrance of monocytes chemotactic movement in endothelial cell and advancement of regular muscle cell growth by obstructing the plasmin- dependent stimulation of transportation of progress factor "B" (TGF-B). Oxidized lipoprotein may also present bluntly to the accumulation of lipid in macrophages [14].
In the current research, it was identified that high blood pressure patient had statically expressive huge plasma consolidation of lipoprotein as compared to controls. In a uniform research, Catalano et al presented impressively raised level of plasma lipoprotein (a) in one hundred and twenty-three Caucasian circular arterial high blood pressure patients. Research conducted on Indian peoples presented that lipoprotein (a) was an autonomous hazardous element for CAD in diabetes patients. In the current research maximum of high blood pressure patients had a range greater than 30mg/dl that is common and considered an as high hazardous level for atherogenesis [10].

CONCLUSION:

Primary high blood pressure patients, dyslipidemia and lipoprotein may be an agent importing great hazards of coronary heart complications, subsequently, the researcher also determined that lipoprotein is probably an autonomous hazardous agent for atherosclerosis in high blood pressure patients. Subsequent research is required to found out the effectiveness of lipoprotein in evaluating the hazard of cardiovascular complication in high blood pressure patients.

REFERENCES:

1. Sainani GS, Maru VG Role of Endothelial Cell Dysfunction in Essential Hypertension. JAPI 2004; 52:966-969.
2. Catalano M, Perilli E, Carzaniga G, Colombo F, Carolla M, Andreoni S. Lp(a) in hypertensive patients. J Human Hypertension 1998; 12:83-9.
3. Bhavani B.A., Padma T., Sastry B.K.S., Reddy N.Krishna. Plasma Lipoprotein(a) levels in patients with untreated essential hypertension. Indian Journal of Human Genetics 2003;9(2):65-8.
4. Idemudia J O, Ugwuja E I. Plasma Lipid Profiles in Hypertensive Nigerians. The Internet Journal of Cardiovascular Research. 2009; 6:45-49.
5. Tavasoli A A, Sadeghi M, Pourmoghaddas M, Roohafza H R. Lipid Profile in Non- Diabetic Hypertension. Iranian Heart Journal 2005;6 (3): 64-69.
6. Halperin RO, Sesso HD, Ma J, Buring J E, Stampfer M J, Gaziano J M. Dyslipidemia and the Risk of Incident Hypertension in Men. Hypertension. 2006; 47:45-50.
7. Tipsarevic Z, Kostic N, Dimkovic S, Brkic B, Cvetkovic R. Role of Lipoprotein(a) In the Development of Coronary Heart Disease in Patients with Essential Hypertension. Yugoslav Med Biochem 2003;22: 341-346.
8. Davidson's principle and practice of medicine, diseases of cardiovascular system 19th ed. PP 366-368.
9. Agarwal A, Williams G H, Fisher ND L. Genetics of human hypertension Trends in Endocrinology & Metabolism 2005;16(3):127-133.
10. Kearney PM, Whelton M, Reynolds K, Muntner P, Whelton K P, He J. Global burden of hypertension: analysis of worldwide data. Lancet 2005; 365: 217–23.
11. Naomi D.L. Fisher, Gordon H. Williams. Hypertensive vascular diseases, Harrison's principles of internal medicine 16th ed. Vol. 1. PP 1463.
12. Gupta R. Trends in hypertension epidemiology in India. Journal of Human Hypertension 2004; 18:73–78.
13. Yusuf S, Reddy S, Ôunpuu S, Anand S. Global Burden of Cardiovascular Diseases: Part I: General Considerations, the Epidemiologic Transition, Risk Factors, and Impact of Urbanization. Circulation 2001; 104:2746-2753.
14. Vikrant S, Tiwari SC. Essential Hypertension – Pathogenesis and Pathophysiology. Journal, Indian Academy of Clinical Medicine 2001; 2 (3):140-161.