



ORIGINAL RESEARCH PAPER

General Medicine

THE STUDY OF CORRELATION BETWEEN DYSLIPIDEMIA AND HYPERTENSION AND ITS COMPLICATIONS IN 30-70 YEARS AGE GROUP

KEY WORDS: Dyslipidemia, Hypertension, Obesity, Coronary Vascular Disorders.

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| Dr. M.K.Sagar | Professor, General Medicine, Maharajah's Institute of Medical Sciences, Nellimarla, Vizianagaram, Vizianagaram Dist, India. |
| Dr. Vineesha* | Junior Resident, General Medicine, Maharajah's Institute of Medical Sciences, Nellimarla, Vizianagaram, Vizianagaram Dist, India. *Corresponding Author |
| Dr. D. Jaswanth | Senior Resident, General Medicine, Maharajah's Institute of Medical Sciences, Nellimarla, Vizianagaram, Vizianagaram Dist, India. |

ABSTRACT

Dyslipidemia and hypertension were the two widely recognized independent key risk factors for development of coronary vascular disorders (CVD). Therefore, Dyslipidemia and hypertension can serve as an easy clinical approach to know persons at greater risk for the and timely interference directed to decrease CVD events.

Aim: To correlation between dyslipidemia and hypertension and its complications among 30-70 years age group in a tertiary care hospital in Andhra Pradesh.

Materials and Methods: The present work was a hospital based, analytical cross sectional study conducted in the department of General Medicine in a tertiary care hospital at Andhra Pradesh over the period of two years from June 2017 to May 2018. A total of 200 HTN patients and 100 non hypertensive controls were recruited for the study. The patients were in the range of 30-70 years age group. Both known hypertensive patients who were on treatment for a varying period of time and newly diagnosed hypertensive patients were included in the study. The hypertensive and healthy controls were selected in to the study by systematic random sampling. A structured and validated designed case report form (CRF) was used for data collection. The tool was validated by including the inputs from five experts in the subject area. The blood samples were drawn from all the patients after 10 to 12 hours of fasting. FBS, PPBS and Lipid profile values were obtained as per the prescribed.

Result: There were 200 hypertension patients and 100 controls were included in the final analysis. Among the hypertension patients 86% of them were males and 14% were females. The HDL value was lower in hypertensive patients, compared to control group (39.78±6.37 Vs 54.5±4.2). Statistically significant difference was observed in total cholesterol, LDL cholesterol, TC/HDL ratio and LDL/HDL ratio between obese and non obese as well as in CVA, IHD among hypertensive patients relatively with healthy volunteers.

Conclusion : Biochemically there was significant difference was observed in total cholesterol, LDL cholesterol, TC/HDL ratio and LDL/HDL ratio between obese and non obese hypertensive patients. The similar discrepancy was noticed in CVA, IHD patient population. The HDL value was low down in all hypertensive patients compared to control group.

I. Introduction

South Asian general populations wrap an elevated incidence of cardiovascular risk factors and earlier onset of cardiovascular disease (CVD) in spite of a normal body mass index as per international values [1, 2]. Dyslipidemia and hypertension were the two widely recognized independent key risk factors for development of CVD [3-5] and these may constitute Metabolic syndrome (MetS) [6, 7]. MetS is a group of clinical and biochemical abnormalities that confer a greater risk factor for type-2 DM and CVD [8]. The risk is associated with concomitant hypertension and dyslipidemia, is an additional sum of the individual risk factors [9, 10]. Some of the studies found that the treatment of dyslipidemia has favorable effects on both coronary and cerebrovascular events, than to independent decrease the blood pressure benefit [11, 12]. Therefore, Dyslipidemia and hypertension can serve as an easy clinical approach to know persons at greater risk for the and timely interference directed to decrease CVD events [13]. To this purpose, we evaluated the correlation between dyslipidemia and hypertension and its complications among 30-70 years age group in a tertiary care hospital in Andhra Pradesh.

II. Aims And Objectives

1. To study the correlation between dyslipidemia and hypertension and its complications among 30-70 years age group in a tertiary care hospital in Andhra Pradesh.

III. Materials And Methods

Place of study: Maharajah's Institute of Medical Sciences, Nellimarla, Vizianagaram.

Type of study: Analytical cross sectional study

Study population: The patients of 30-70 years age group. Both known hypertensive patients and newly diagnosed hypertensive patients.

Duration of study: June 2017 to May 2018

Sample size: 200 patients and 100 controls

3.1 Inclusion criteria

- Patients with essential hypertension with or without complication of hypertension and on medication were included for study.
- SBP > 140 mmHg and DBP >90 mmHg on two average readings or one in case of known hypertensive and on anti hypertensive medication, recorded by standard mercury sphygmomanometer, with appropriate cuff size and patient in supine position after 5 minutes of relaxation. All diagnosed cases of cirrhosis with portal hypertension admitted in medical and gastroenterology wards in maharajah's institute of medical sciences during the study period. The etiologies of cirrhosis includes alcoholic cirrhosis ,HBV, HCV, Others(Wilsons disease, hemochromatosis, Alphas antitrypsin deficiency, Autoimmune hepatitis, and Non-alcoholic steatohepatitis, Biliary cirrhosis, Cardiac cirrhosis& Cryptogenic cirrhosis.)

3.2 Exclusion criteria

- Secondary hypertensive subjects.
- Patients with acute illness like high grade fever and first two weeks following surgery
- Patients with diabetes mellitus, hypothyroidism and those receiving lipid-altering drugs were excluded.

3.3 Overview of data collection:

- Data regarding history and clinical examination findings were collected using a proforma.
- Fasting for 10h to 12hours
- Blood sample taken from cubital fossa of 10ml blood was transferred to vacutainer and within 2 hours of collection, serum was separated by centrifugation at 5000 RPM for

10minute.

3.4 Investigations used

- Complete blood count
- Complete urine examination
- 12 lead ECG
- Fasting lipid profile-Total cholesterol, HDL, LDL,VLDL,Triglycerides.
- Fasting plasma glucose, 2 hour PPBS
- 2D ECHO, cardiac isoenzymes, chest x ray CT / MRI Brain in relevant cases.

IV. Observation And Results

The entire range of lipid profile parameters excluding HDL cholesterol was higher in hypertensive subjects, compared to control group.

| Parameter | Hypertension (N=200) | Healthy (N=100) | P-value |
|-------------------|----------------------|-----------------|---------|
| Total Cholesterol | 194.0±39.49 | 155.6±15.4 | <0.001 |
| Triglycerides | 163.6± 60.8 | 125.5±22.7 | <0.001 |
| HDL cholesterol | 39.78±6.37 | 54.5±4.2 | <0.001 |
| LDL cholesterol | 121.0±41.2 | 76.1±11.4 | <0.001 |
| VLDL cholesterol | 32.7±12.2 | 25.3±4.5 | <0.001 |
| TC/HDL ratio | 4.96±1.31 | 2.8±0.2 | <0.001 |
| LDL/HDL ratio | 3.10±1.25 | 1.4±0.2 | <0.001 |

Statistically significant difference was observed in total cholesterol, LDL cholesterol, TC/HDL ratio and LDL/HDL ratio between clinically obese and non obese subjects among hypertensive patients.

| Lipid profile | Obese (N=50) | Non-obese (N=150) | Significance (P-value) |
|-------------------|--------------|-------------------|------------------------|
| Total Cholesterol | 250.0±41.4 | 187±38.8 | <0.01 |
| Triglycerides | 163.0 ±49.3 | 164.0±64.8 | 0.943 |
| HDL cholesterol | 40.1±7.01 | 39.7±6.23 | 0.788 |
| LDL cholesterol | 141.0±43.0 | 114.0±38.6 | <0.01 |
| VLDL cholesterol | 32.7±9.85 | 32.74±13 | 1.00 |
| TC/HDL ratio | 5.49±1.43 | 4.79±1.23 | <0.01 |
| LDL/HDL ratio | 3.55±1.55 | 2.95±1.11 | <0.01 |

Statistically significant difference was observed in total cholesterol, LDL cholesterol, TC/HDL ratio and LDL/HDL ratio between Subjects with and without CVA among hypertensive patients.

Comparison of lipid levels between CVA and non-CVA patients with hypertension.

| Subjects | CVA (N=30) (Mean±SD) | Non-CVA (N=170) (Mean±SD) | Significance (P-value) |
|----------|----------------------|---------------------------|------------------------|
| TC | 227±25.7 | 188.0±38.9 | <0.01 |
| TGL | 181.0±71.9 | 161.0±58.9 | 0.244 |
| HDL | 38.8±5.13 | 40.0±6.61 | 0.506 |
| LDL | 152.0±28.8 | 115.0±40.7 | <0.01 |
| VLDL | 36.2±14.1 | 32.1±11.8 | 0.231 |
| TC/HDL | 5.91±0.95 | 4.80±1.30 | <0.01 |
| LDL/HDL | 3.93±0.89 | 2.96±1.26 | <0.01 |

Statistically significant difference was observed in total cholesterol, LDL cholesterol, between Subjects with and without IHD among hypertensive patients.

Comparison of lipid levels between IHD and non-IHD patients with hypertension.

| Lipid profile | IHD (n=58) (Mean±SD) | Non-IHD (n=142) (Mean±SD) | Significance (p-value) |
|---------------|----------------------|---------------------------|------------------------|
| TC | 209±36 | 188±39.7 | <0.05 |
| TGL | 161±50.2 | 165±65.3 | 0.768 |
| HDL | 40.8±6.3 | 39.4±6.45 | 0.323 |
| LDL | 146±65.5 | 115±39.6 | <0.01 |
| VLDL | 32.1±10.0 | 33.0±13.1 | 0.74 |
| TC/HDL | 5.22±1.17 | 4.86±1.36 | 0.214 |
| LDL/HDL | 3.32±1.30 | 3.01±1.23 | 0.263 |

Discussion

In this study conducted in Maharajah's Institute of Medical Sciences, Vizainagaram a total of 200 patients were included those who have satisfied the inclusion criteria.

The present cross sectional study mainly from rural patients of Vizianagaram district of Andhra Pradesh among 30-70 years age group. In this study, we have done screening of biochemical parameters mainly lipid profile in both non hypertensive and hypertensive individuals with or without obesity.

There are quite a few patient population based prospective studies (14,18) also conducted to assess the impact of dislipidemia and hypertensive disorders were observed both in Northern and Southern part of India. Borghi, et al.(19,20) suggested in his studies that treating dyslipidemia has beneficial effects on blood pressure.

Conclusion

Biochemically there was significant observed in total cholesterol, LDL Cholesterol, TC / HDL ratio and LDL / HDL ratio between obese and non obese patients. The similar discrepancy was noticed in CVA, IHD patient population. The HDL value was low down in all hypertensive patients compared to control group. Hence there is an urgent need for a clinical trial in large Indian population with regards to treatment of dyslipidemia is warranted.

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