

Lipid profile in prehypertensive obese women

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Abstract

Lipid profile constitute measurement of lipoprotein concentration in blood that are marker of lipid level. It points out the condition of cardiovascular risk. Hypertension is a common health problem in developed countries. Individuals with systolic blood pressure that ranges 120 to 139 mmHg or diastolic blood pressure between 80 to 89 mmHg categorized as pre-hypertensive. It is attributed that this group is at high risk for developing essential hypertension and cardiovascular diseases.

Objectives: To compare lipid profile of Pre-hypertensive with healthy women.

Methods: Thirty pre-hypertensive obese women of the age of 25-50 years having BMI 30 - 40 kg/m². And thirty non-obese normotensive women as controls were taken in the study. Lipid profile parameters such as Total Cholesterol, Triglycerides, High density lipoprotein, Low density lipoprotein and very low density lipoprotein were estimated by standard methods.

Results: All the parameters of the lipid profile were high except High density lipoprotein was found to be found in Pre-hypertensive obese women.

Conclusion: This study demonstrated high lipid profile in Pre-hypertensive obese women.

Keywords: Pre-hypertension; Lipid profile; Women

1 Introduction

Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High BP defined that systolic BP (SBP) 130–139 mmHg or diastolic BP (DBP) 80–89 mmHg fall into the category of pre-hypertensive based on the evidence of a modest increase in cardiovascular risk among individuals with such level. [1] Prevalence of heart diseases is rapidly increasing in developing countries. [2] Hypertension increases the risk of developing atherosclerosis. Increase in the total cholesterol, triglycerides, VLDL and LDL and decreased HDL levels were reported in both pre-hypertensive women and hypertensive women [3].

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2 Material and methods

The present study was conducted at Community Hospital of Chitwan, Nepal. Thirty cases of pre-hypertensive women between the age of 25-50 years and thirty age matched non pre-hypertensive were included in the study after obtaining written informed consent. The following criteria was followed while selecting the cases.

2.1 Inclusion criteria

Individuals with a systolic BP of 120 to 139 mm Hg or a diastolic BP of 80 to 89 mm Hg, not suffering from any other disease, under no medication.

2.2 Exclusion criteria

Pregnancy or postpartum <3 months and Body mass index (BMI) >40 kg/m² or Less than 30Kg/m² were excluded from the study. All the participants were advised to continue their routine habits and diet throughout the study. The effective variable on BP was controlled as much as possible however, individual differences, incidents and daily stress, also the way individuals adapted themselves with life affairs were uncontrollable variables of the study.

2.3 Data analysis

Data was analyzed using SPSS 16.0 version. Student's t test was used to observe the significance of difference between the control and pre hypertensive groups. P value less than 0.05 was considered as significant.

3 Results

The lipid profile variable found as under values in obese pre-hypertensive women were compared with control group. The values shows pre-hypertensive obese women have all the parameters of lipid profile significantly except HDL. The HDL values was significantly low.

Table 1 Lipid profile in prehypertensive and control groups

Variables	Normal (C)	Prehyper. (E)	P value
HDL	48.83±4.24	42.66±7.59	0.0003
LDL	97.20±15.03	134.40±15.94	0.0001
VLDL	21.57±7.88	29.10±5.05	0.0001
TG	91.10±20.28	137.23±32.40	0.0001
Total Cholesterol	166.10±19.08	190.20±15.24	0.0001

4 Discussion

In the present study we compared the lipid profile between pre-hypertensive and normal healthy women, to see the values of its parameters on pre-hypertensive women. This study demonstrated that there is significant positive association between the higher levels of cholesterol, triacylglycerol, VLDL and LDL with prehypertensive however with HDL it has negative, means concentration decreases Prehypertensive the result noted provide a clear explanation that prehypertension is prone to cardiovascular disorders as it is associated with the risk factors. The normal subjects showed no significant correlation with those parameters. From the above mentioned data it is learned that there are several stimulating factors leading to hypertension some of them are, obesity and abnormal lipid profile. The studies conducted in America listed the risk factors like diabetes mellitus, obesity and hypercholesterolemia associated with prehypertension. The study suggests pre-hypertensive subjects to be screened for the cardiovascular risk factors [5]. Regular physical activity, controlled diet, reduced stress would further reduce the incidents and prevalence of pre-hypertension in the individuals.

Limitations

Limitations of the present includes the subjects represented by this study were women.

5 Conclusion

The finding of this study concluded that prehypertensive obese women are prone to develop atherosclerotic or other hyperlipidemic vascular risk status that could cause cardiovascular risk hence lifestyle modification in relation to lipid profile amendment is suggestive for prehypertensive obese woemn.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest.

References

- [1] Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL, et al. Seventh report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure. *Hypertension*. 2003; 42(6): 1206-52.
- [2] Gaffar A, Reddy KS, Singhi M. Burden of non-communicable diseases in south asia. *BJM*. 2004; 328: 807-10.
- [3] S Saha, N K Sana and Ranajit Kumar Shaha J. Serum lipid profile of hypertensive pateints in the northern region of Bangladesh. *Bio-sci*. 2006; 14: 93-98.
- [4] Ikuo saito, Kunihiko Ito, and Takao Saruta. Hypothyroidism as a Cause of Hypertension. 1983; 5(1): 112-115.
- [5] Choi KM, Park HS, Han JH, Lee JS, Lee J, Ryu OH, Lee KW, Cho KH, Yoo D, Baisk SH, Choi DS, Kim SM: Prevalence of prehypertension and hypertension in a Korean population; Korean national health and nutrition survey 2001. *J hypertens*. 2006; 24: 1515-1521.