Original Research Article

An observational study to assess the lipid profile of hypertensive patients in Southern Odisha

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ABSTRACT

Background: Rated among the most common disease worldwide, Hypertension is fast becoming a cause of significant morbidity and mortality. Owing to its widespread it has become one of the most common risk factors of serious disease including cardiovascular diseases (CVD) along with other illness like renal malfunctioning, myocardial infraction and even leads to loss of vision. There are various other biomarkers of the hypertensive patients that help in realizing the real threat of the cardiovascular diseases among those who are suffering from hypertension. The discrepancies in the different lipid profile biomarkers like total cholesterol (TC), low-density lipoproteins (LDL), serum levels of triglycerides (TG) pose a great risk for the development of CVDs.

Aim: To assess the lipid profile of the hypertensive patients in Southern Odisha

Materials and Methods: It was n observational study undertaken at MKCG Medical CollegeBerhampur, Ganjam (Odisha). One hundred fifty patients were included in the study belonging to both the genders. The duration of the study was from June 2019 to November 2019. The patients were divided into two groups, group 1 with 70 patients who were non-hypertensive and 80 patients in group 2 who were hypertensive. CHOD-PAP was the method used to measure the serum total cholesterol. The GPO-Triender method was used to assess the triglycerides.

Results: Sixty per cent of the patients in the non-hypertensive group were males, and 70% of the patients in the hypertensive groups were males. The SBP for the non-hypertensive patients was 120 ± 4.12 while the DBP was 80.1 ± 3.21. On the other hand, the SBP for the hypertensive group was 169 ± 9.10, and the SBP was 96.12 ± 5.06. The mean total cholesterol for the non-hypertensive group was 164.25 ± 3.99, mean Triglycerides was 129.9 ± 8.3, mean HDL was 47.26 ± 5.54, mean LDL was 93.76 ± 12.06, and mean VLDL was 26.98 ± 2.67. On the flip side, the mean total cholesterol for the hypertensive group was 168.9 ± 6.27; mean Triglycerides was 181.57 ± 31.9, mean HDL was 41.96 ± 2.65, mean LDL was 179.6 ± 20.08, and mean VLDL was 37.54 ± 5.60.

Conclusion: In light of the above results, it was identified that dyslipidemia was found to be closely associated with hypertension. It was also concluded that an increase in the blood pressure would result in disturbing the lipoprotein metabolism.

1. Introduction

Rated among the most common disease worldwide, Hypertension is fast becoming a cause of significant morbidity and mortality.[1,2] Owing to its widespread it has become one of the most common risk factors of serious disease including cardiovascular diseases (CVD) along with other illness like renal malfunctioning, myocardial infraction and even leads to loss of vision.[3]

With the changes in the lifestyle, the incidence rate of hypertension is on the rising trend globally, but its significant impact has been administered in developing countries like India.[4] It has been defined by WHO that

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nearly 2 million of the people in India will have their death cause as CVD by 2020, and also it will the most common cause of disability in India.[5]

The primary cause of hypertension is an unhealthy lifestyle, rapid urbanization, and unbalanced diets not only in India but the entire South Asian region.[6] Therefore, the blood pressure is not the only determinant of cardiovascular diseases. There are various other biomarkers of the hypertensive patients that help in realizing the real threat of the cardiovascular diseases among those who are suffering from hypertension.[7] The discrepancies in the different lipid profile biomarkers like total cholesterol (TC), low-density lipoproteins (LDL), serum levels of triglycerides (TG) pose a great risk for the development of CVDs.[8] Furthermore, it has also been found that patients suffering from hypertension have altered levels of total cholesterol and triglycerides. Analyzing these levels could be helpful in predicting the risks of CVD in the near future among the hypertensive patients, and corrective steps could be taken accordingly.[9]

2. Aim

To assess the lipid profile of the hypertensive patients in a tertiary care centre, Ganjam Odisha

3. Materials and Methods

It was n observational study undertaken at MKCG Medical College Berhampur, Ganjam (Odisha). One hundred fifty patients were included in the study belonging to both the genders. The duration of the study was from June 2019 to November 2019. The patients were divided into two groups, group 1 with 70 patients who were non-hypertensive and 80 patients in group 2 who were hypertensive. CHOD-PAP was the method used to measure the serum total cholesterol. The GPO-Triender method was used to assess the triglycerides.

4. Results

Table 1: Age Group

Age group	Group 1	Group 2
30-40	10	8
41-50	13	15
51-60	14	27
61-70	15	18
71-80	18	12
Total	70	80

According to the above table, it was evident that 25% of the non-hypertensive patients belonged to 71-80 years of age. On the other hand, 33.7% of the patients in the hypertensive group belonged to 51-60 years of age group.

The above table depicts that 60% of the patients in the non-hypertensive group were males and 70% of the patients

Table 2: Gender Distribution

Gender	Group 1	Group 2
Male	42	56
Female	28	24

in the hypertensive groups were males.

Table 3: Comparison of systolic and diastolic blood pressure between normotensive and hypertensive cases

Blood pressure	Group 1	Group 2	p-value
SBP	120±4.12	169±9.10	<0.05
DBP	80.1±3.21	96.12±5.06	

From the above table, it was evident that the SBP for the non-hypertensive patients was 120±4.12 while the DBP was 80.1±3.21. On the other hand, the SBP for the hypertensive group was 169±9.10, and the SBP was 96.12±5.06. There was a statistically significant difference between the two groups with respect to blood pressure.

Table 4: Comparative study of lipid profile between controls and cases

Lipid Profile	Group 1	Group 2	p-value
Total Cholesterol	164.25±3.99	168.9 ± 6.27	<0.05
Triglycerides	129.9 ± 8.3	181.57 ± 31.9	<0.05
HDL	47.26 ± 5.54	41.96 ± 2.65	<0.05
LDL	93.76 ± 12.06	179.6 ± 20.08	<0.05
VLDL	26.98 ± 2.67	37.54 ± 5.60	<0.05

The mean total cholesterol for the non-hypertensive group was 164.25±3.99, mean Triglycerides was 129.9 ± 8.3, mean HDL was 47.26 ± 5.54, mean LDL was 93.76 ± 12.06, and mean VLDL was 26.98 ± 2.67. On the flip side, the mean total cholesterol for the hypertensive group was 168.9 ± 6.27; mean Triglycerides was 181.57 ± 31.9, mean HDL was 41.96 ± 2.65, mean LDL was 179.6 ± 20.08, and mean VLDL was 37.54 ± 5.60. There was a statistically significant difference between the two groups with respect to the lipid profile.

5. Discussion

In the present study, the non-hypertensive group had more patient aged between 71-80 years age group, whereas, in the hypertension group, more number of patients were aged between 51-60 years age group. Similar results were found in the study of Pyadala et al. (2016).[10] Also, the study by Vata et al., (2012)[11] found that in the hypertensive group, more number of patients was aged between 50-60 years. The results of the current study were on par with this study.

Similarly, in the current study, it was found that the systolic and diastolic blood pressure was significantly differentiated among the hypertensive and non-hypertensive group. Therefore, it was revealed that hypertension was a significant bio-marker of the upcoming health hazard, along with being associated with dyslipidemia. Similar results were obtained in the study of Shahadat et al., (1999)[12] and Saha et al., (2006).[13]

Furthermore, as per the present study, it was clear that there was a significant difference among the various lipid profile factors among the non-hypertensive and hypertensive group. This was an important indicator of the progression towards other severe complications. The current study was at par with the study of Bhavani et al., (2003).[14]

6. Conclusion

In light of the above results, it was identified that dyslipidemia was found to be closely associated with hypertension. It was also concluded that an increase in the blood pressure would result in disturbing the lipoprotein metabolism. The remedy for this would be moving on to a healthier lifestyle and changing the eating habits. In order to be aware of the progressing danger, it would be required that the patients have a regular lipid profile check-up and monitor the values to keep them under check.

7. Source of Funding

8. Conflict of Interest

The authors declare they have no conflict of interest.

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