Original Research Article

A study of prevalence of hyperlipidaemia metabolic syndrome and IHD among hypertensive patients at tertiary health care centre

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Abstract

Background: Metabolic syndrome can be described as a clustering of multiple risk factors that include obesity, physical inactivity and genetic factors **Aims and Objectives:** To study of prevalence of hyperlipidaemia metabolic syndrome and IHD among hypertensive patients at tertiary health care centre. **Methodology:** This was a cross-sectional study among the hypertensive patients at tertiary health care centre during the one year period i.e. January 2018 to January 2019. All the patients attending the OPD or admitted IPD of a tertiary health care centre during the one year were screened for hypertension those patients who were known patients of hypertension and taking antihypertensive treatment were enrolled for the study. ATP III 5 criteria for diagnosing metabolic syndrome .The data was entered to excel sheet and analyzed by excel software for windows 10. **Result:** In our study we have seen that The majority of the patients were in the age group of 50-60 were 28.72%, followed by 40-50 were 24.47%, 60-70 were 20.21%, 70-80 were 12.77%, >80 were 8.51%, 30-40 were 5.32%. The majority of the patients were Male i.e. 55.32 % followed by Female 44.68%. As per prevalence of lipid profile deranged Total cholesterol (mg/dl>200) found in 66%, followed by deranged LDL (mg/dl>130) in 54%, deranged Triglyceride (mg/dl >150) in 95%, HDL (mg/dl<40) in 74%, VLDL (mg/dl >30) in 94%. As per the prevalence of Metabolic Syndrome the patients with metabolic syndrome were 39.00%. The prevalence of IHD was 13% among the hypertensive patients. **Conclusion:** It can be concluded from our study that the prevalence of Metabolic Syndrome in our study was 39% and prevalence of IHD was 13% and derangement of Lipid profile was found among the patients.

Key Word: Metabolic Syndrome (Met S), IHD, Lipid profile.

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INTRODUCTION

Metabolic syndrome can be described as a clustering of multiple risk factors that include obesity, physical inactivity and genetic factors[1,2]. The syndrome is nearly associated with a generalized metabolic disorder in which there is a defect in insulin action at the cellular level in the form of impaired responsiveness to endogenous and exogenous insulin (insulin resistance)[3,4]. Other risk factors include hyperinsulinemia, atherogenic dyslipidemia, and high blood pressure. According to the National Cholesterol Education Program of Adult Treatment Panel III (ATP III) guidelines for identifying the syndrome[5], the diagnosis of metabolic syndrome is based upon the demonstration of three or more of the components shown in table 1. In addition to the criteria in table 1, the WHO recommends demonstration of microalbuminuria, hyperuricemia, raised levels of plasminogen activator inhibitor-1, and raised fasting

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insulin level, which is taken as evidence of insulin resistance. Insulin is a major anabolic regulator of carbohydrate, protein and lipid metabolism and hence is a major growth factor. It stimulates the uptake of amino acids by various cells promoting protein synthesis and inhibiting gluconeogenesis. It also stimulates glucose uptake and its conversion to glycogen. Furthermore, it promotes the synthesis of triglycerides (TG) and its storage as neutral fat. In metabolic syndrome, excess insulin promotes fat storage with consequent weight gain, which is characteristically abdominal. The weight gain in turn further increases insulin resistance, leading to the various abnormalities in plasma glucose and lipids[6,7]. The causal relationship of the syndrome to hypertension is not clear, but probably relates to the hemodynamic consequences associated with obesity and hyperinsulinemia. So, we have studied the prevalence of hyperlipidaemia metabolic syndrome and IHD among hypertensive patients at tertiary health care centre.

METHODOLOGY

This was a cross-sectional study among the hypertensive patients at tertiary health care centre during the one year period i.e. January 2018 to January 2019. All the patients attending the OPD or admitted IPD of a tertiary health care centre during the one year were screened for hypertension those patients who were known patients of hypertension and taking antihypertensive treatment were enrolled for the study. So during the one year period there were 94 patients with written and explained consent were enrolled into the study. All the patients undergone all routine testing with lipid profile and prevalence of Metabolic syndrome was identified as Metabolic syndrome is a cluster of conditions increased blood pressure, high blood sugar, excess body fat around the waist, and abnormal cholesterol or triglyceride levels that occur together the criteria here we have used Criteria for diagnosing metabolic syndrome (three or more of the risk factors) according to the National Cholesterol Educational Program's ATP III 5 criteria Risk factor Defining level (1) Abdominal obesity Waist circumference Men >102 cm (40 inches) Women > 88 cm (35 inches) (2) TG ≥ 150 mg/dl (3) HDL-C Men 130/>85 mmHg (5) Fasting glucose ≥110 mg/dl were identified such patients of Metabolic syndrome. For diagnosing the patients of Ischemic heart disease (IHD) ECG, Biochemical investigations or Angiography as per the advice from cardiologist. The data was entered to excel sheet and analyzed by excel software for windows 10

RESULT:

Table 1: Distribution of the patients as per the age

Age	No.	Percentage (%)
30-40	5	5.32
40-50	23	24.47
50-60	27	28.72
60-70	19	20.21
70-80	12	12.77
>80	8	8.51
Total	94	100.00

The majority of the patients were in the age group of 50-60 were 28.72%, followed by 40-50 were 24.47%, 60-70 were 20.21%, 70-80 were 12.77%, >80 were 8.51%, 30-40 were 5.32%.

Table 2: Distribution of the patients as per the sex

Sex	No.	Percentage (%)
Male	52	55.32
Female	42	44.68
Total	94	100.00

The majority of the patients were Male i.e. 55.32 % followed by Female 44.68%.

Table 3: Distribution of the patients as per the lipid profile

Parameter	No.	Percentage (%)
Total cholesterol mg/dl		
<200	32	35
>200	61	66
LDL mg/dl		
<130	43	46
>130	50	54
Triglyceride mg/dl		
<150	5	6
>150	88	95
HDL mg/dl		
<40	69	74
>40	24	26
VLDL mg/dl		
<30	6	7
>30	87	94

As per prevalence of lipid profile deranged Total cholesterol (mg/dl>200) found in 66%, followed by deranged LDL (mg/dl>130) in 54%, deranged Triglyceride (mg/dl >150) in 95%, HDL (mg/dl<40) in 74%, VLDL (mg/dl >30) in 94%.

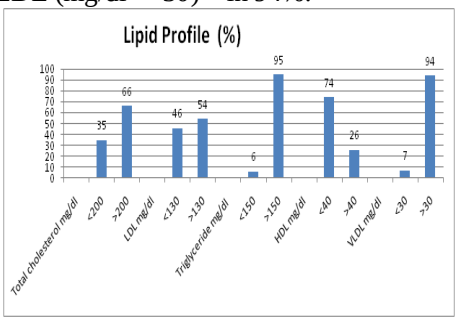

Figure 1: Distribution of the patients as per the Lipid profile

Table 4: Distribution of the patients as per the metabolic syndrome

Metabolic syndrome	No.	Percentage (%)
Present	42	39.00
Absent	52	61.00
Total	94	100.00

As per the prevalence of Metabolic Syndrome the patients with metabolic syndrome were 39.00%

Table 5: Distribution of the patients as per the metabolic syndrome

IHD	No.	Percentage (%)
Present	12	13
Absent	82	87
Total	94	100.00

The prevalence of IHD was 13% among the hypertensive patients.

DISCUSSION

Although clustering of some metabolic abnormalities was recognized as early as 1923 ([8]), the coining of the term "syndrome X" in 1988 by Reaven ([9]) renewed the impetus to conduct research concerning this syndrome. In his description of syndrome X, Reaven considered the following abnormalities: resistance to insulin-stimulated glucose uptake, glucose intolerance, hyperinsulinemia, increased VLDL triglycerides, decreased HDL cholesterol, and hypertension. Other metabolic abnormalities that have been considered as part of the syndrome include abnormal weight or weight distribution, inflammation, microalbuminuria, hyperuricemia, and abnormalities of fibrinolysis and of coagulatio[10]. People with the metabolic syndrome are at increased risk for cardiovascular disease[11] and for increased mortality from both cardiovascular disease and all causes[12]. Other studies also have found that clustering of risk factors proposed to be part of the metabolic syndrome may increase the risk for coronary heart disease[13]. In addition, components of the metabolic syndrome are risk factors for diabetes[14]. Because of the increased risk for morbidity and mortality associated with the metabolic syndrome, an understanding of the dimensions of this syndrome is critical both for allocating health care and research resources and for other purposes. In our study we have seen that The majority of the patients were in the age group of 50-60 were 28.72%, followed by 40-50 were 24.47%, 60-70 were 20.21%, 70-80 were 12.77%, >80 were 8.51%, 30-40 were 5.32%. The majority of the patients were Male i.e. 55.32 % followed by Female 44.68%. As per prevalence of lipid profile deranged Total cholesterol (mg/dl>200) found in 66%, followed by deranged LDL (mg/dl>130) in 54%, deranged Triglyceride (mg/dl >150) in 95%, HDL (mg/dl<40) in 74%, VLDL (mg/dl >30) in 94%. As per the prevalence of Metabolic Syndrome the patients with metabolic syndrome were 39.00%. The prevalence of IHD was 13% among the hypertensive patients. Surender Thakur [15] et al found the prevalence was the prevalence of MS in hypertensive patients was 68.6% (modified NCEP-ATP III) and 63.6% (IDF criteria). The difference may be due to different criteria was used. S. Harikrishnan et al [16] found After standardization for age and adjustment for sex and urban-rural distribution, the prevalence of metabolic syndrome in Kerala was 24%, 29% and 33% for the NCEP ATP III, IDF and AHA/NHLBI Harmonization definitions, respectively.

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