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PREVALENCE OF METABOLIC SYNDROME IN NEWLY DIAGNOSED HYPERTENSIVE PATIENTS IN A TERTIARY CARE CENTRE

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ABSTRACT

BACKGROUND: Metabolic syndrome (MetS) is one of the emerging threat and interest of public health because the factors defining syndrome are associated with increased risk of mortality and morbidity. Hypertension further adds to risk factor leading to target organ damage. Recognizing the MetS in patients with hypertension provides a great opportunity for more aggressive treatment.

OBJECTIVE: The objective of the study is to estimate the prevalence of metabolic syndrome in newly diagnosed adult hypertensive patients.

METHODOLOGY: This is an hospital-based cross-sectional study. A total of 50 participants with newly detected essential hypertension were included in the study after detailed medical and laboratory investigations done to exclude the secondary hypertension.

RESULTS: The prevalence of MetS according to the International Diabetes Federation criteria in the new hypertensive study participants was 50.5% more common in females. One-fourth of young hypertensives was having MetS. Hypertensive patients with MetS show risk factors at significantly higher range than their counterparts.

CONCLUSION: Half of the new hypertensive patients had MetS and thus it becomes very important to screen all the hypertensives at the onset for MetS and treat them aggressively to decrease the cardiovascular events.

KEYWORDS :

INTRODUCTION-

Metabolic syndrome (MetS) is characterized by an array of cardiovascular risk factors such as diabetes and raised fasting plasma glucose, abdominal obesity, high cholesterol, and high blood pressure (BP). Although detected very early in the year 1923, five decades later, i.e., 1980s Reaven coined the term "syndrome X" for this conglomeration of various metabolic abnormalities with insulin resistance being the basic underlying pathophysiologic problem.[1] Since then, the definition and terminology of MetS are continuously evolving. The WHO (1999) given a first working definition of MetS with the presence of diabetes, impaired glucose tolerance, or insulin resistance as mandatory criteria.[2]

MATERIALS AND METHODS-

This is a hospital based cross sectional study with 50 patients who were diagnosed with hypertension in our hospital.

Inclusion criteria

Age >18 years newly detected hypertensive patients (BP >140/90) were included in the study.

Exclusion criteria

Patients who have secondary hypertension, endocrinopathies, long-term medications causing dyslipidemia such as beta-blockers, and steroid use were excluded from the study.

Informed consent was obtained from each patient as per the approved format by the IEC. After obtaining demographic (age, sex, ethnicity, and residential address) medical history was recorded, height, weight, and WC were measured. Standing height was measured nearest to 0.1 cm and weight nearest to 0.1 kg using a calibrated digital weighing machine. The WC measured at the level between the iliac crest and the lower margin of the ribs at the end of expiration. Body mass index (BMI) was calculated and categorized as per the WHO.[3]

Seated BP was measured after at least 10 min of rest, two BP recordings were obtained with the help of aneroid sphygmomanometer after a gap of at least 10 min interval. Physical activity was assessed as per the questionnaire blood sample was obtained for the estimation of fasting blood sugar (FBS) and serum for the estimation of HDL and triglycerides (TGs) . All analyses were done in biochemistry laboratory by the automated analyzer in a biochemistry laboratory, with commercially available kits. The International Diabetes Federation (IDF) criteria were used for the diagnosis of MetS as given below in Table 1.[4]

Index of central obesity (ICO)[5] was calculated as ratio WC to height.

Table 1: International Diabetes Federation criteria for the diagnosis of metabolic syndrome

Criteria for diagnosis of MetS	Cut off values
Central obesity (defined as waist circumference	Male >90 cm
× with ethnicity-specific values) for Asian	Female >80 cm
Plus any two of the following four factors	
Raised triglycerides	≥150 mg/dL (1.7 mmol/L) or specific treatment for this lipid abnormality
Reduced HDL cholesterol	<40 mg/dL (1.03 mmol/L) in males <50 mg/dL (1.29 mmol/L) in females
	or specific treatment for this lipid abnormality
Raised blood pressure	Systolic BP ≥130 or diastolic BP ≥85 mm Hg or treatment of previously
	diagnosed hypertension
Raised fasting plasma glucose	FPG ≥100 mg/dL (5.6 mmol/L), or previously diagnosed type 2 diabetes

HDL: High-density lipoprotein; BP: Blood pressure; FPG: Fasting plasma glucose

OBSERVATION-

Table 2: Characteristic of patient with newly detected hypertension by metabolic syndrome

Variables	New hypertensive with MetS (n=27)	New hypertensive without MetS (n=23)	P Value
Age	53±12	57±12	<0.0001
Waist circumference	36.57±3.78	31.89±2.73	<0.0001
Systolic BP	159±18	160±25	NS
Diastolic BP	92±11	93±11	NS
FBS	110±30	107±47	NS
HDL	40±7	43±14	0.0001
Triglyceride	182±89	148±88	<0.0001
BMI	28.74±4.39	23.22±4.08	<0.0001

ICO: Index of central obesity; HDL: High-density lipoprotein; BP: Blood pressure; FPS: Fasting blood sugar; BMI: Body mass index; MetS: Metabolic syndrome; NS: Not significant

In our study we found that Waist circumference, HDL , Triglycerides and BMI were statistically significant in the two groups with Non Significant FBS, Systolic and Diastolic BP. Mean age was 53±12 years in Patients in metabolic syndrome and 57±12 in patients without metabolic syndrome.

Table 3: Prevalence of newly detected hypertension by metabolic syndrome

Age	Metabolic syndrome, n (%)
Young adult (25-39 years) (n=26)	11
Middle aged (40-59 years) (n=14)	10
Old aged (60 years and above) (n=10)	06
Sex	
Male (27)	16
Female (23)	11
Total (50)	27 (54%)

In our study, we found that 54% patients were having metabolic syndrome at the time of diagnosis with majority of young adults.

DISCUSSION-

In our study it has been found that 4% patients had metabolic syndrome at the time of diagnosis. It has been demonstrated by Barrios *et al.*[6] that general practitioners failed to diagnose 43.7% of MetS cases in hypertensive. This will further aggravate the cardiovascular risk if MetS is not aggressively treated timely. We need to choose the best feasible criteria for screening MetS. Among the other three criteria, best (moderate) agreement was found between IDF and joint interim (three or more risk factor).

However, for screening, it is better to the use ICO over WC as WC cutoff given for Asians is still under consideration and it is easiest to calculate and interpret. Moderate agreement was found with IDF and yield a maximum number of cases. If the ratio of WC and height (ICO) is more than half then it is recommended to screen further for MetS.

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