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SOCIODEMOGRAPHIC AND COMPONENT PROFILE OF PATIENTS WITH METABOLIC SYNDROME ATTENDING A TERTIARY CARE HOSPITAL IN SIKKIM: A HOSPITAL BASED CROSS SECTIONAL STUDY.

General Medicine

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ABSTRACT

Background: Metabolic Syndrome (MetS) is a global public health problem. The socio demographic and component profile varies from place to place. **Methodology:** A cross sectional hospital based study was conducted at a tertiary care hospital in Sikkim over a period of 6 months. 70 patients diagnosed with Met S and consenting were enrolled and their sociodemographic and component profile were recorded and expressed as percentage. Results: 68.57% active workers and 72.86 % belonging to upper and upper middle class had Met S. Of the components majority (75.71%) had raised triglyceride level and only 30% had lower HDL. **Discussion:** The hilly terrain, the active lifestyle and the culture of a place reflects on the profile of Met S. **Conclusion:** A holistic and well-designed approach emphasising on life style modifications would help in controlling the disease.

KEYWORDS

Component profile, Sikkim, Sociodemographic profile

INTRODUCTION:

Metabolic Syndrome (MetS) is a global public health problem. The components are diabetes, hypertension, dyslipidemia and obesity and all are closely related with increased risk of cardiovascular diseases. The sociodemographic and component profile of Met S varies according to lifestyle, region, urbanization, cultural factors and socio economic status [1] The prevalence in India ranges from 31.4 % in Eastern India [2]to 29.7% in South India [3].

As per NPCDCS, Sikkim reported highest percentage of Hypertension (18.16%) and Diabetes Mellitus (13.67%) [4]. Prevalence of Mets in an ethic group of Bhutia in Sikkim ranged from 30 to 50% [5] and in another study prevalence in Nepalese population was 19% and in the ethnic group (comprising of Bhutia, Lepcha, Sherpa and Tamang) was 38% [6]This study was conducted to study the sociodemographic and component profile of patients with Metabolic Syndrome attending a tertiary care hospital in Sikkim

Methodology:

After approval from the Institutional Ethics Committee, a hospital based cross sectional study was conducted in Department of Medicine of a tertiary care hospital in Sikkim over a period of 6 months (Nov 2017 to April 2018) with the aim to study the socio demographic and component profile of patients with MetS.70 patients diagnosed with Met S as per IDF criteria and consenting were recruited. A pretested proforma was used to record the sociodemographic profile and the components of MetS. Variables were expressed as frequencies.

Result:

The sociodemographic profile of the participants is shown in Table 1. Within the obese group 2.14% had BMI 30-34.9, 2.85% had BMI 35-39.9 and 0.71% had BMI above 40.One had Non-alcoholic fatty liver disease and three participants had polycystic ovarian disease.

Table 1: Sociodemographic profile of the study participants

Parameters	Number (n) N=70	%
Age distribution of the participants		
<30	08	11.43
31-40	12	17.14
41-50	26	37.14
51-60	22	31.43
>60	02	2.86
Sex distribution of the participants		
Male	41	58.57
Female	29	41.43
Nature of Physical Activity performed by the study participants		
Sedentary	22	31.43
Active	48	68.57
Socio Economic Status of the study participants		
Upper and Upper middle class	51	72.86
Lower middle and lower class	19	27.14
Body mass Index of the study participants		
18.5-24.9 (normal)	06	08.57
>25 (overweight/obese)	64	91.43

All had waist circumference above the cut off value ie > 90cms in males and > 80cms in females. The frequency of other components of MetS is depicted in Table 2.

Table 2: Component profile of cases with MetS (n=70)

1.	BP	SBP ≥ 130 mmHg and DBP≥ 85 mmHg	SBP <130 mmHg and DBP < 85 mmHg
		32 (45.71 %)	38 (54.29%)
2.	FBS	≥100 mg / dl	< 100 mg
		48(68.57%)	22 (31.43%)
3.	TG	≥150 mg /dl	<150 mg/ dl
		53 (75.71%)	17 (24.29%)
4.	HDL	<40 mg / dl (M) < 50 mg / dl (F)	>40 mg / dl (M) > 50 mg / dl (F)
		21 (30%)	49 (70%)

DISCUSSION:

Age and Gender distribution:

In our study, maximum participants were in the age group of 41-50 yrs. Increasing rate with growing age was reported by Firmann et al [7] and Bhutia RD et al.[6] Higher prevalence in females is seen in all middle eastern countries as reported by Delavari A et al[8] and Firmann et al.[7] Das M et al [2] , Singh R et al [9] and Bhutia RD et al [6] found no gender difference in the study participants. In our study, the small sample size and as males seek health care more than females, could be the possible reasons for the small difference observed in the gender in favour of males.

Physical activity and socio-economic strata:

Several researchers including Charlotte L. Edwardson et al [10] had observed that people with sedentary lifestyle were at higher risk of development of MetS, however in our study though 68.57 %of cases were active workers, they had MetS which gave a negative relationship

between the two. Sikkim being a hilly terrain most people are involved in active physical activity. However it was hospital based study and so cannot be representative of the community.

72.86 % participants belonged to upper and upper middle class according to modified Kuppuswamy scale. MetS is no longer a disease of affluence. All its components are prevalent in various socioeconomic strata.[11] Bangladesh though low in the socio economic status had highest percentage change in BMI related death and DALY .Ours being a tertiary care paid hospital most of the patient belong to upper middle and upper class. This fact might have influenced the findings to some extent.

BMI :

91.43 % individuals were in the overweight/obese category. Increasing prevalence of obesity in all age groups and all socio economic strata has been evidenced in various studies [11] and its association with components of MetS is well proved. In South Asian individuals BMI correlates better with WC compared to WHR. Thus being better markers for abdominal obesity [12,13]

Hypertension:

HTN is a component criteria of MetS in all the proposed definitions, though there is variation in the cut offs taken. With the IDF criteria of systolic blood pressure (SBP) ≥ 130 mmHg and diastolic blood pressure (DBP) ≥ 85 mmHg or previously diagnosed patients on treatment, 21 (65.6%) males and 11(34.4%) females fulfilled it. In a study by Yalla et al [14] , 48% were hypertensive Prevalence of HTN in community of Sikkim is 18.16% 4 and in Asian Indians is 55.4%.[15] Meta-analysis taking various definition criteria observed weighted mean prevalence of HTN to be 42.3% in males and 38.1% in females.[16]

Pre diabetes/Diabetes mellitus (DM):

Prediabetes and DM are important components of MetS and Sikkim reported highest prevalence of DM in NPCDCS. In our study 23 (32.86%) patients had raised blood sugar i.e. above 126 mg/dL, 25(35.71%) were in pre diabetes range i.e. between 100-126 mg/dL.Chillaron JJ et al [17] reported 31.9% of patients with Type I DM of having MetS. Survey from South India observed raised blood sugar in 26.7%. The weighted mean prevalence of hyperglycemia in MetS in the south Asian meta analysis was found to be 27.9% and 27.6% in males and females respectively.[16]

Dyslipidemia:

Dyslipidemia in the form of increased triglyceride (TG) levels and/or reduced high density lipoprotein- cholesterol (HDL-C) levels are important risk factors for CVD and criteria component in all the MetS definitions. 45.6% hypertriglyceridemia and 65.5% low HDL was reported by Vikram NK et al. [15] In our study 53 (75.71%) participants had hypertriglyceridemia out of which 31(58.5%) were males. In this study, 16 (22.86%) male participants and 5(7.14) female participants had HDL lower than the cut off. The hilly terrain and physically active life style of the participants contributed to the high HDL levels.

CONCLUSION:

South Asians are going through a demographic, nutritional, and economic shift. Increased life expectance, faulty food habits and sedentary life style in the urban area as well as in those shifted from rural to urban has led to an increase in the cardiovascular risk factors and MetS. Knowledge of the occurrence of components of MetS and targeted therapy towards it will lead to better management of this growing menace. The geographical terrain, socioeconomic standards and culture leads to variation in the profile of the patients and this needs to be addressed accordingly.

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