ISSN No:-2456-2165

Epidemiological Predictors of Metabolic Syndrome

Dr. Vani Madhavi Kommula[1]
Sridevi Sreshta Kalidindi[2]
1. Professor & HOD, Department of PSM. KIMS, Amalapuram, Andhra Pradesh.
2. CRI, KIMS, Amalapuram, East Godavari District, Andhra Pradesh.

Abstract:-

- ***Background:***

Metabolic syndrome (MS) is one of the emerging health problem and is rising with the adoption of modern life style. This will affect on morbidity and mortality of the people.

- ***Objectives***

- **To assess the MS prevalence among the rural adult population.**
- **To find out the associated predictors of MS among rural adults.**

- ***Methodology***

This study was carried out among 150 male and 150 female of age 18 – 59 years in our rural catchment area of our college. Data was collected by using the WHO STEP wise approach to chronic disease risk factor surveillance (STEPS) Questionnaire.

- ***Results***

Prevalence of MS was 17%, high among females (18.67%) compared to males (15.33%). 32% were current smokers, 28% were having habit of current drinking. 16% were having blood pressure ≥ 130/85 mmHg. 19% were having diabetes. 17% had fasting blood sugar ≥ 100mg/dl.

- ***Conclusion***

Adhoc programmes for non communicable diseases should be initiated in the rural areas with public private partnership.

Keywords:- *Metabolic Syndrome, Rural Area, WHO-STEPS.*

I. INTRODUCTION

In India metabolic syndrome (MS) is one of the emerging health problem. It is a combination of central obesity, increased blood pressure, impaired glucose tolerance and altered lipid profile which predispose the individual to increased risk for cardiovascular diseases and diabetes mellitus .[1] It has complex pathogenesis with interaction of sedentary lifestyle, obesity, and genetic factors .[2]

Presently the prevalence of chronic non-communicable diseases is increasing rapidly, according to WHO estimates by the year 2020, they will account for three quarters of all deaths.[3]

In many studies they have reported a high prevalence of MS in India as well as other countries and is rising with the adoption of modern life style.[4,5,6] The number of people with the metabolic syndrome also differs by race, sex, and ethnicity.[7] This will affect on morbidity and mortality of the people.[8]

Most of the studies highlighted the risk factors in the urban areas and most of them are hospital based studies.[4,9] There are no similar studies in this area,therefore this study was taken up in our rural catchment area.

II. METHODOLOGY

It is a cross sectional study, done in the catchment area of our rural health training center (RHTC) Muramalla which consists of 42 hamlets and a population of 22,629. By using 30 cluster techniques 30 hamlets were selected and 10 adults of age group 18 to 59 years (5 male and 5 female) from each cluster were included. Sample size was 300. Data was collected by using the World Health Organisation step wise approach to chronic disease risk factor surveillance (STEPS) Questionnaire.[10]

III. RESULTS

Among study participants age wise 29.33% were belongs to 31-40 years and 27% were more than or equal to 51 years. Majority (60.33%) were illiterate people. 79.33% were married. Occupationally among the males 64.67% were non-governmental employees, most of them were agricultural labourer. Among the females 41.34% were homemakers.

Among the total participants 32% were current smokers and 28% were having habit of current drinking. 16.00% were having blood pressure ≥130/85 mmHg among them males were more (17.33%).

Regarding the waist circumference among the males 15.33% had ≥ 90 cms and 18.67% of females had ≥ 80 cms of waist circumference. Among total participants 17.00% had fasting blood sugar ≥ 100 mg/dl.

ISSN No:-2456-2165

In our study 15.67% were having hypercholesterolemia, 14.33% have high LDL, 18.67% were having hypertriglyceridemia. Among the males 18% were having low HDL levels, among the females 20.67% were having low HDL levels.

The prevalence of MS was found to be 17%. Compared to males (15.33%) in females it was higher (18.67%). (Table – 1)

Metabolic syndrome	Male	Female	Total
Present	23 (15.33%)	28 (18.67%)	51 (17.00%)
Absent	127 (84.67%)	122 (81.33%)	249 (83.00%)

Table 1:- Metabolic syndrome among the participants

$\chi^2 = 0.5886$ P = 0.2238

➢ *Various Predictors of Metabolic Syndrome*

Metabolic syndrome prevalence was less among the people of 30 years and below. It is high in females compared to males, high in low socio economic strata and in smokers, it is found to be statistically significant. (Table – 2)

Variable	Unadjusted odds	*P*
Age - 30 years and below	0.07	0.0001
Females	2.73	0.0001
Illiterates	8.96	0.0001
Low socioeconomic status	11.84	0.0001
Sedentary lifestyle	12.89	0.0001
Smokers	17.00	0.0001
Alcoholics	4.86	0.0001

Table 2:- Various predictors of metabolic syndrome among the participants

IV. DISCUSSION

In our study 60.33% of the participants were illiterate. Among the males 52.66% and among females 68% were illiterates, generally in the rural areas educational status is low. 79.33% of the participants were married. It is similar to other studies.[11,12] Among males 62.66% were current smokers, being a rural area consumption of cigar is more common. 28% were having habit of current drinking, Baik I et.al., found that metabolic syndrome was very much associated with heavy alcohol drinking.[13] 16% were having high blood pressure, in contrast to this Ramachandran A et.al., found hypertension in 55.4% of the subjects.[14] This difference is due to variation in the age group of the participants.

In our study 15.33% of males and 18.67% of females were having more waist circumference than prescribed. 17% were having fasting blood sugar $\geq$ 100mg/dl, where as Ramachandran A et.al., found raised fasting plasma glucose in 26.7% of the subjects.[14] In our study 17% were having metabolic syndrome. In females it was high (18.67%) compared to males (15.33%). These findings are similar to other studies.[15,16]

Female gender, illiteracy, low socio economic status, sedentary lifestyle and smoking were predictors for metabolic syndrome. This may be due to low knowledge and less accessibility for health services.

V. CONCLUSION

Metabolic syndrome prevalence was 17%. Female gender, illiteracy, low socio economic status, sedentary lifestyle and smoking were predictors for metabolic syndrome. Adhoc programmes for non communicable diseases should be initiated in the rural areas with public private partnership.

REFERENCES

[1]. Misra A, Vikram NK. Factors, definitions, predictive value and Asian Indian ethnicity: Complexities of the metabolic syndrome. Indian J Med Res 2008;127:293-296.
[2]. Sudha V, Radhika G, Mohan V. Current dietary trends in the management of diabetes. Indian J Med Res 2004; 120:4-8.
[3]. World Health Organization. Global strategy for non-communicable disease prevention and control (draft). Geneva, Switzerland: World Health Organization; 1997. (Publication no. WHO/NCD/GS/97.1).
[4]. Sasthi Narayan Chakraborty, Sunetra Kaviraj Roy, Md Abdur Rahaman. Epidemiological predictors of metabolic syndrome in urban West Bengal, India. Journal of Family Medicine and Primary Care 2015;4:4:535-538.
[5]. Xu H, Song Y, You NC, Zhang ZF, Greenland S, Ford ES, et. al., Prevalence and clustering of metabolic risk factors for type 2 diabetes among Chinese adults in Shanghai, China. BMC Public Health 2010; 10:683.
[6]. Ford ES, Li C, Zhao G. Prevalence and correlates of metabolic syndrome based on a harmonious definition among adults in the US. J Diabetes 2010; 2:180-93.
[7]. Ford ES, Giles WH, Dietz WH. Prevalence of the metabolic syndrome among US adults: Findings from the third National Health and Nutrition Examination Survey. JAMA 2002; 287:356-359.
[8]. Naji J. Aljohani. Metabolic syndrome: Risk factors among adults in Kingdom of Saudi Arabia. Journal of Family and Community Medicine 2014; 21:3:170-175.
[9]. Narinder Singh, Ravi Kumar Parihar, Ghanshyam Saini, et. al., Prevalence of metabolic syndrome in adolescents aged 10-18 years in Jammu, J and K. Indian Journal of Endocrinology and Metabolism 2013; 17:1:133-137.

[10]. Bonita R, de Courten M, Dwyer T. Surveillance of Risk Factors for Non Communicable Diseases. The WHO Stepwise Approach, Summary. World Health Organization; 2001.
[11]. Ozsahin AK, Gokcel A, Sezgin N, et.al., Prevalence of the metabolic syndrome in a Turkish adult population. Diabetes Nutr Metab 2004;17:230-4.
[12]. Subash V. Kumar, A. Nagesh, M. Leena, et.al., Incidence of metabolic syndrome and its characteristics of patients attending a diabetic outpatient clinic in a tertiary care hospital. Journal of Natural Science, Biology and Medicine 2013;4:1:57-62.
[13]. Baik I, Shin C. Prospective study of alcohol consumption and metabolic syndrome. Am J Clin Nutr 2008;87:5:1455-63.
[14]. Ramachandran A, Snehalatha C, Satyavani K, et.al., Metabolic syndrome in urban Asian Indian adults populations study using modified ATP III criteria. Diabetes Res Clin Pract 2003;60:199-204.
[15]. I. Selvaraj, S. Gopalakrishnan, M. Logaraj. Prevalence of metabolic syndrome among rural women in a primary health centre area in Tamil Nadu. Indian Journal of Public Health 2012;56:4:314-317.
[16]. Fakhrzadeh H, Ebrahimpour P, Pourebrahim R, et.al., Metabolic syndrome and its associated risk factors in healthy adults. A population-based study in Iran. Metab Syndr Relat Disord 2006;4:28-34.