

Metabolic syndrome among the post-menopausal women of urban area of Allahabad district

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Quantum leap of non-communicable diseases becoming a challenging dilemma among the post -menopausal women especially in developing countries like India where most of the women are suffering from metabolic syndrome, which is a crew of risk factors that upsurge the risk of developing diabetes and cardio-vascular diseases. Therefore, the main aim of the study was to find out the prevalence of metabolic syndrome and associated risk factors among the post-menopausal women of North India for an early screening. It was a cross sectional study of urban women, a total of 382 subjects aged above 45 years was selected using stratified random sampling. The study avails a standardized questionnaire which elicits the data regarding the demographic profile and biochemical parameter. The result shows that the prevalence of metabolic syndrome among the post-menopausal was 41.5 per cent. Most of respondent were adopting three meal dietary pattern followed by four, six, two, respectively. Dietary habits and physical inactivity resulting from agile improvements in living condition may be the causes for the hike. Thus, it can be concluded that metabolic syndrome is an emerging problem among post-menopausal women.

Key Words : Non-communicable diseases, Post -menopausal women, Metabolic syndrome, Cardio-vascular diseases, Dietary habits

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INTRODUCTION

Dynamic diseases pattern has been found, where the chronic diseases are increasingly dominating the traditional disease pattern (Borch-Johnsen, 2006). Metabolic syndrome is a condition that refers to the array of associated risk factors of cardio-vascular diseases. It is also known as syndrome 'X' or insulin resistance syndrome (Reaven, 1993 and Thiruvagounder *et al.*,

2010). Prevalence of metabolic syndrome is increasing rapidly in developing countries like India than any other South Asian countries and further leads to the increased rate of mortality and morbidity (Mohan and Rao, 2007 and Prasad *et al.*, 2011). According Mishra and Khurana (2009) approximately about one third of urban South Asians were having metabolic syndrome. It is estimated that by 2020, CVD will be the largest cause of disability and death in India, with 2.6 million Indians predicted to die due to CVD (Goenka *et al.*, 2009 and Reddy *et al.*, 2006).

The studies shown that women aged more than 55 have a higher incidence of cardio-vascular disease than younger women (Lerner and Kannel, 1986; Ford *et al.*, 2002 and Rosamond *et al.*, 2007). Other studies showed that there is a high prevalence of metabolic syndrome among postmenopausal women, which varies from 32.6

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per cent to 41.5 per cent (Chedraui *et al.*, 2007; Ding *et al.*, 2007; Ponholzer *et al.*, 2008 and Thiruvagounder *et al.*, 2010).

Changing hormonal milieu with declining estrogen and alteration of its ratio with testosterone has been implicated as a causal factor for the emergence of MS at menopausal transition (Mesch *et al.*, 2008 and Janssen *et al.*, 2008). Besides menopausal hormonal changes, ageing also contributes to clustering of cardio-metabolic risk factors at this time (Casiglia *et al.*, 1996). Postmenopausal women have been shown to have high risk of getting metabolic syndrome, however there are limited studies done to identify the risk factors for metabolic syndrome in this group of subjects (Yajnik, 2002). Thus, the purpose of the study was to identify postmenopausal women with metabolic syndrome that is more likely to develop CVD and assess the association of risk factors and prevalence of metabolic syndrome among the post-menopausal women.

METHODOLOGY

It was a cross-sectional and descriptive study. The research work was carried out in urban area of Allahabad district. The post-menopausal women having natural menopause, duration of menopause not less than one year, not consuming long-term steroids were Included for the study. Those respondents consuming long-term steroids and were taking hormonal therapy were excluded from the study. A total 382 post-menopausal women were taken for the study. Purposive random sampling was adopted for the selection of the respondent. A standardized questionnaire was used to record the information from the target population. It elicits the data regarding anthropometric measurements, biochemical parameter and clinical symptoms of post-menopausal women. The data obtained were statistically analyzed by using the t test and chi square (Gupta *et al.*, 2002).

Approval by ethical committee:

Institutional ethical committee for biomedical research on human participants, SHIATS had approved the protocols to conduct the study (Reg No. IEC/SHIATS/2014/A/33).

OBSERVATIONS AND ASSESSMENT

Distribution of respondent on the basis of demographic profile was shown in Table 1. The pooled

data showed that the majority of respondents having metabolic syndrome 50 per cent were 50-59 years old. Only 17.72 per cent respondents were above 70 years. Most of the respondent without metabolic syndrome was 50-59 years old. The maximum respondents (with and without metabolic syndrome) (69.07 % and 85.10%) belonged to joint family and only 30.92 per cent and 14.89 per cent respondents belonged to nuclear family/out of the total sample 40.9 per cent were high school, 27.27 per cent were graduate, 23.63 per cent were intermediate, 4.54 per cent respondents were illiterate and 3.63 per cent respondents were having primary education only. The study showed that most of the respondents having metabolic syndrome were unemployed (84.54%) and about 6.36 per cent were skilled worker and 9.09 per cent were shop owner. Most of the respondents without metabolic syndrome were also unemployed (71.58 %)

Table 1 : Distribution of respondent on the basis of demographic profile

Factors	No. of respondent		Total
	Respondent with metabolic syndrome	Respondent with non-metabolic syndrome	
Age			
50-59	79	99	178
60-69	51	74	125
70 and above	28	51	79
Education			
Professional	-	-	-
Graduate	27	52	79
Intermediate	32	93	125
High School	79	61	140
Primary	7	3	10
Illiterate	20	8	28
Family type			
Nuclear	60	28	88
Joint	134	160	294
Occupation			
Professional	-	-	-
Semi-professional	-	-	-
Clerk / shop owner	14	10	24
Skilled worker	26	1	27
Un skilled worker	2	5	7
Unemployed	141	183	324
Parity			
0-3	133	152	285
4-6	32	62	94
Above 6	1	2	3

Table 2 : Prevalence of metabolic syndrome in post menopausal women

Components of MS	Frequency	Percentage %	Cut off value
BMI (Obesity)	159	41.5	≥30 kg/m ²
HPL or high TG*	132	34.55	≥150mg/dl
DM or high FBS**	202	53	≥6.1 mmol/l
HPT or high BP***	301	78.8	≥130/85mm of Hg
HPL or low HDL****	258	58.5	<40 mg/dl

*Triglycerides, **Fasting blood sugar, ***Blood pressure and ****High density lipoprotein

Table 3 : Associated factors of metabolic syndrome among the post-menopause respondent

Sr. No.	Risk factors	Respondent with MetS	Respondent without MetS	Total	
1.	Dietary pattern				
	A	17	10	27	$\chi(\text{cal})=8.495$
	B	7	8	15	$\chi(\text{tab})=7.815$
	C	142	156	298	d.f = 3
	D	12	30	42	
2.	Food habit				
	Vegetarian	37	112	149	$\chi(\text{cal})=62.63$
	Non-vegetarian	59	38	97	$\chi(\text{tab})=5.14$
	Eggitarian	94	42	136	d.f = 2
3.	Physical activity				
	Walking	25	57	82	$\chi(\text{cal})=181.82$
	Yoga	7	71	78	$\chi(\text{tab})=7.815$
	Meditation	15	69	84	d.f = 3
	None	123	15	138	
4.	Duration				
	15 min	27	57	84	$\chi(\text{cal})= 15.08$
	Half an hour	11	99	110	$\chi(\text{tab})=7.815$
	One hour	9	41	50	d.f = 3
5.	Tea / coffee consumption				
	1 cup	89	84	173	$\chi(\text{cal})=31.60$
	2 cup	54	19	73	$\chi(\text{tab})=7.815$
	More than 2 cup	78	21	99	d.f = 3
	Never	15	22	37	

and about 20.14 per cent were shop owner and 10.43 per cent were skilled worker. These findings further indicate that multiple metabolic disorders can often cluster within the same individual (Hussain *et al.*, 2012).

The prevalence of metabolic syndrome was 41.5 per cent was found in post-menopausal women shown in Table 2. Most of the respondents were having the problem of hypertension (78.8%) followed by low HDL (58.5 %), high blood sugar (53 %) and high triglycerides (34.55 %). The factors affecting metabolic syndrome in post-menopausal women were analyzed by the chi-square test and presented in Table 3. The pooled data showed that the dietary pattern, food habit, type and

duration of physical activity and tea / coffee consumption have significant association with prevalence of metabolic syndrome. Agile improvements in living condition leads to the faulty dietary habits and low physical activity are the main cause of hike in metabolic syndrome among the post-menopausal women. The study provides an early screening among this high risk group so that treatment can therefore be initiated early to reduce morbidity and mortality among them. Thus, it can be concluded that metabolic syndrome is an emerging problem among post-menopausal women. Appropriate policy and nutrition education should be imparted to them as a preventive measure.

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