Association of Stress on Physical Activity and Lipid Profile of Postmenopausal Women

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Abstract

Menopause is a term used to describe the permanent cessation of the primary functions of the human ovaries the ripening and release of ova and the release of hormones that cause both the creation of the uterine lining.[1] Menopause typically (but not always) occurs in women in midlife, during their late 40s or early 50s and signals the end of the fertile phase of women's life. The term post menopause is applied to women who have not experienced a menstrual bleed for a minimum of 12 months, assuming that they do still have a uterus, and are not pregnant or lactating.[2] This stage of life becomes very stressful. Stress influence health and disease and is the main reason for early ageing. Now a day's stress has become an integral part of day to day life style. Keeping the importance of post menopause present study was aimed to assess Association of Physical Activity with stress of 200 Post Menopausal Women aged 40-70 years living in Indore district. Result of the study reveals that Probability value of Chi square was 9.43 at 2 df which is a highly significant (P < 0.009, two tailed). As none of the Post menopausal women found heavy worker. Hence, highly significant association was found between physical activity and stress of Post menopausal women. Also, association of Lipid profile with stress in post menopausal women clearly reflects that the probability value of Chi-Square is 13.79 at 4 degrees of freedom which is highly significant (p<0.008, two-tailed). Therefore the obtained result concludes that there is a significant association between Lipid profile and stress in studied subjects.

Keywords: Post menopause; Lipid profile; Stress; Physical activity.

Introduction

Menopause is a natural stage of life, it is not disease or a disorder and therefore it does not automatically require any kind of medical treatment at all. Menopause is all the time in a women's life that takes place after her last period, or more accurately, all of the time that follows the point when her ovaries become inactive. A woman who still has her uterus (and who is neither pregnant nor lactating) can be declared to be in postmenopausal once she gone 12 full months with no flow at all, not even any spotting. It has been observed by many women that during the post menopausal phase of life they become very stressful. Stress influence health and disease and is the main reason for early ageing. So in present study the lipid profile of post menopausal women it's relation to their stress level has been discussed.

Objectives

- To assess the association of Physical activity with stress level of post menopausal women.

- To assess the association of Lipid profile with stress level of post menopausal women.

Hypothesis

- There shall be no significant association of Physical activity with stress level of post menopausal women.

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- There shall be no significant association of Lipid profile with stress level of post menopausal women.

Material and Methods

The present study was carried out on 200 Post menopausal women aged 40-70 years. Samples were selected by purposive sampling method. The study was conducted in different hospitals of Indore city. In this study, a structured questionnaire was used regarding life style pattern (Physical activity and Exercise) was considered. Lipid profile and a combination of Hari's stress inventory (2009) and Sinha's comprehensive anxiety test was used for assessment of stress. An anxiety test was categorized in three levels- low anxiety, normal anxiety and high anxiety. After explaining the purpose of the study consent was taken. A semi structured questionnaire was provided with proper guidance and assistance to samples. They were asked to answer questionnaire to assess the stress level. The descriptive statistics like mean and standard deviation for different study variables were calculated. Significance of difference in frequency distribution of studied sample have been found out using Chi square and difference in mean has been found out using 't' test.

Result and Discussion

The table 1 shows that 59.5% women were found to have normal cholesterol level (mean176.81±17.47 mg/dl). 40% were found in suspected ranges (mean219.66 ± 13.51 mg/dl) and only 0.5% was found in treatment needed category (270 mg/dl).100% post menopausal women were found in the suspected range (35-55mg/dl) of HDL. 45.5% post menopausal women were found to have normal serum triglycerides level (mean127.39±15.89mg/dl). 50.5% were found

Table 1: Status of Lipid Profile of Post Menopausal Women

Variable	Frequency (N)	Frequency Percentage %	Ranges	Mean ± S. D.
Level of Cholesterol (in mg/dl)				
<200mg/dl (standard risk)	119	59.5	133-198 mg/dl	176.81 ± 17.47
200-250mg/dl (suspected range)	80	40.0	200-248 mg/dl	219.66 ± 13.51
> 250 mg/dl (Treatment needed)	1	0.5	270 -270 mg/dl	270.00 ± 0.0
TOTAL		200 100.0		
Serum HDL Level (in mg/dl)				
35-55mg/dl (standard risk)	200	100.0	38-55 mg/dl	44.54 ± 2.59
TOTAL		200 100.0		
Triglycerides Level (in mg/dl)				
<150mg/dl (standard risk)	91	45.5	85-149 mg/dl	127.39 ± 15.89
150-200mg/dl (suspected range)	101	50.5	150-200 mg/dl	173.12 ± 13.56
> 200mg/dl (treatment needed)	8	4.0	198-210 mg/dl	203.00 ± 3.63
TOTAL		200 100.0		
Serum LDL Level (in mg/dl)				
<150mg/dl(standard risk)	151	75.5	62.40-146.60 mg/dl	109.42 ± 18.25
150-180mg/dl (suspected range)	46	23.0	150.00-180.00 mg/dl	157.04 ± 7.22
> 200mg/dl (treatment needed)	3	1.5	181.00-188.40 mg/dl	184.13 ± 3.83
TOTAL		200 100.0		
Serum VLDL Level (in mg/dl)				
<40mg/dl (standard risk)	191	95.5	17.00-39.60 mg/dl	30.26 ± 5.39
>40mg/dl	9	4.5	40.00-43.60 mg/dl	41.31 ± 1.17
TOTAL		200 100.0		

Table 2: Association of Lipid Profile with Stress of Post Menopausal Women

Variable	Population Particulars	Status of stress level			Chi value	df	P-value
		High Anxiety	Normal Anxiety	Low Anxiety			
Cholesterol	<200mg/dl (standard risk)	85(42.5%)	26(13%)	8(4%)	13.79	4	0.008
	200-250mg/dl (suspected range)	56(28%)	11(5.5%)	13(6.5%)			
	> 250 mg/dl (Treatment needed)	0(0%)	0(0%)	1(0.5%)			
	Total	200	(100.0%)				
HDL	>55 mg/dl (standard risk)	0(0%)	0(0%)	0(0%)			
	35-55mg/dl (suspected range)	141(70.5%)	37(18.5%)	22(11%)			
	<35 mg/dl (Treatment needed)	0(0%)	0(0%)	0(0%)			
	TOTAL	200	(100.0%)				
LDL	< 150 mg/dl (standard risk)	101(55.5%)	35(17.5%)	15(7.5%)	10.26	4	0.05
	150-180mg/dl (standard risk)	38(19%)	2(1%)	6(3%)			
	> 180mg/dl (Treatment needed)	2(1%)	0(0%)	1(0.5%)			
	Total	200	(100.0%)				
VLDL	<40mg/dl (standard risk)	135(67.5%)	36(18%)	20(10%)	1.38	4	0.05
	>40mg/dl	6(3%)	1(0.5%)	2(1%)			
	Total	200	(100.0%)				
Triglycerides	< 150 mg/dl (standard risk)	71(35.5%)	14(7%)	6(3%)	16.18	4	0.03
	150-200mg/dl (standard risk)	67(33.5%)	22(11%)	12(6%)			
	>200-180mg/dl (standard risk)	3(1.5%)	1(0.5%)	4(2%)			
	Total	200	(100.0%)				

Table 3: Physical Activity of Post-Menopausal Women

Variable	Population Particulars	Frequency (N=200)	Frequency Percentage %
Types of Physical work	Heavy	0	0.0
	Moderate	94	47.0
	Sedentary	106	53.0
	TOTAL	200	100.0
Daily Exercise	Yes	76	38.0
	No	124	62.0
	TOTAL	200	100.0
Duration of Exercise	15 Minute	0	0.0
	30 Minute	14	18.4
	More than 30 Minute	62	81.6
	TOTAL	76	100.0
Walking	Daily	148	74.0
	Weekly	15	7.5
	Occasionally	37	18.5
	TOTAL	200	100.0

Table 4: Association of Physical Activity with Stress of Post Menopausal Women

Variable	Population Particulars	Status of stress level			Chi value	df	P-value
		High Anxiety	Normal Anxiety	Low Anxiety			
Physical Activity	Moderate	73 (36.5)	9 (4.5)	12 (6)	9.43	2	0.009
	Sedentary	68 (34)	28 (14)	10 (5)			
	Total	200		(100.0%)			

Table 5: Association of Exercise with Stress of Post Menopausal Women

Variable	Population Particulars	Status of stress level			Chi value	df	P-value
		High Anxiety	Normal Anxiety	Low Anxiety			
Exercise	Yes	54 (27)	14 (7)	8 (7)	2.033	2	0.05
	No	87 (43.5)	23 (11.5)	14 (7)			
	Total	200		(100.0%)			

in suspected range (mean173.12±13.56mg/dl) and only 4% were found to have in treatment needed category (mean 203.00±3.63mg/dl). 75.5% women were found to have normal serum LDL level (mean109.42±18.25mg/dl). 23.0% were found in suspected range (mean 157.04±7.22 mg/dl) and only 1.5% were found in treatment needed category (mean 184.13±3.83 mg/dl). Most of the postmenopausal women (95.5%) were found in suspected range (mean30.26±5.39mg/dl) and only 4.5% were found in treatment needed category (mean 41.31±1.17mg/dl).

Association of Lipid profile with stress in post menopausal women is shown in table 2 The table clearly reflects that the probability value of Chi-Square is 13.79 at 4 degrees of freedom which is highly significant (p<0.008, two-tailed).It is evident that there is a significant association between Cholesterol and stress in post menopausal women. Further it was observed that for LDL Status, the probability value of Chi-Square is 10.26 at 4 df which is significant (p<0.05, two-tailed). Hence there is significant association observed between LDL and stress.Triglycerides level in post menopausal women was assessed which reflects a highly significant association between Triglycerides and stress with the probability value of Chi-Square i.e. 16.18 at 4 degree df which is significant (p<0.003, two-tailed).

It is obtained from table 3 that almost more than half of post-menopausal women 106 (53.0%) were engaged in Sedentary type of work while 94 (47.0%) were engaged in Moderate type of work. None post-

menopausal women was found doing Heavy type of work. Further the table shows that 38% post menopausal women were found doing exercise daily. Remaining 62% were not doing exercise daily.

The physical activity of post menopausal women is shown in table 4 that probability value of Chi-Square is 9.43 at 2 degrees of freedom which is highly significant (p<0.009, two-tailed) as none of the subject was found Heavy worker. There is no doubt in confirmation that there is a highly significant association between Physical Activity and Stress in women. Hence it is clear that there is a significant association in physical activity of post menopausal women in relation to their stress level.

The table 5 reveals that number of post menopausal women who were doing exercise daily were less in high anxiety category (54) as compared to their non exercising counter parts (87). The probability value of chi square is 2.033 at 2 d.f. which shows a non significant value (p value<0.05, two tailed).The statistical analysis shows a non significant association between exercise and stress level.

Conclusion

The obtained result shows that there is a significant association between Lipid profile and stress in post menopausal women. Whereas Braz J Med Biol (2011); conducted study on young, middle-aged, and postpartum

women. Result revealed that anxiety disorders and depressive disorders had significant differences in lipid concentrations of TG, TC, HDL, VLDL, LDL, TC/HDL, or LDL/HDL among the 3 groups.[3] These results suggest that serum lipid profiles can be used as biological markers to distinguish depressive or anxiety disorders in menopausal women, larger samples are required to prove such results in the future. Nelson D.B. et al., (2008) concluded that high levels of physical activity were related to lower levels of stress. Also, post menopausal women who were doing exercise daily had less anxiety when compared to their non exercising counter parts. The statistical analysis shows a non significant association between exercise and stress level.[4] Whereas Camphell T.P. et al., (2010) studied on 173 overweight or obese post menopausal women. These findings suggest that aerobic exercise, accompanied by relatively marked gains in aerobic fitness, decrease oxidative stress among sedentary elder women.[5]

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