A Comparative Study of Serum Lipid Profile between Pre and Post-Menopausal Women.

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Abstract
Background and Objects: *Menopause leads to changes in lipid profile due to hormonal changes related to menopause and may lead to significant increase in the development of coronary heart disease (CHD).The present study was prospective study aimed to study and compare the levels of lipid profile between pre and post-menopausal women and to correlate the results with that of other studies.*

Methods: *50 pre-menopausal and 50 post-menopausal women were recruited for the study.The subjects having risk factors for hyper-lipidimia were excluded. 5 ml of venous blood was collected after overnight fasting for 12 hours in all the subjects for estimation of serum levels of total cholesterol, HDL, LDL, VLDL and triglycerides by semi-automated analyser using enzymatic method. Every parameter of lipid profile among 4 subgroups of BMI were compared by chi square statistical analysis.*

Results: *There was satisfactory significant difference in serum triglycerides and serum VLDL between pre and postmenopausal women. As compared to premenopausal women, the mean level of serum total cholesterol and serum LDL were not significantly higher in postmenopausal women. Whereas the levels of serum HDL was significantly lower in postmenopausal women with P value 0.05 which is significant.*

Interpretation and conclusion: *In the present study there was no significant difference in cholesterol and LDL but significant difference were observed in triglycerides, HDL and VLDL. The reduced cardio protective HDL is an indication that menopause is an independent risk factor for developing cardiovascular disease. so it is important to educate each and every postmenopausal women to undergo screening for abnormal lipid profile. Specific health education strategies are required to prevent the emerging cardiovascular diseases among postmenopausal women.*

I.   Introduction

Studies shows that, the incidence of cardiovascular disease increases with age in both men and women, but in women the risk increases markedly after menopause and become equivalent to that of men.Menopause is an natural event in the ageing process,means permanent cessation of menstruation due to loss of ovarian follicular activity.The hormonal changes associated with menopause i.e low plasma levels of oestrogen and marked increase in LH and FSH levels exerts a significant effect on plasma lipids and lipo-proteins.Oestrogens have a protective effect against cardiovascular system as oestrogen lowers the LDL-cholesterol by acting on LDL-receptors.Apart from maintaining friendly lipid profile,oestrogens changes the vascular tone by increasing nitrous oxide production.It stabilises the endothelial cells,enhances antioxidant effect and alters fibrinolytic protein.All these are cardio -protective mechanisms,which are lost in menopause due to reduced oestrogen levels.This leads to hyper-cholesterolemia,which is a key factor in the pathophysiology of atherosclerosis.High levels of LDL and low levels of HDL are strongly associated with increased incidence of cardiovascular disease.Hence the present study was undertaken to study the cardiovascular risk factors in Indian postmenopausal women.

Aims of the study:
1.   To study the serum lipid profile in pre and postmenopausal women.
2.   To compare the difference of lipid profile in pre and postmenopausal women.
3.   To correlate results with other studies.

II.   Materials And Methods

1.   Selection of subjects:The present study was conducted in the Andhra
        medical college .Group-1:50 premenopausal women,Group-2: 50 post menopausal women.
a)   Inclusive criteria: Healthy postmenopausal women,whoattained menopause by natural means.
b)   Exclusive criteria:Postmenopausal women who have undergone hysterectomy, women suffering with diabetics,hypertension,women on HRT,lipid lowering drugsand with h/o gynecological and hormonal disorders.

2. Methods of collection of data:The study protocol was explained to the subjects.Informed consent was obtained from each of the participants.A detailed history of subjects was taken and physiological parameters were recorded. Physical parameters,height,weight and body mass index were recorded. For estimation of Lipid profile,5ml venous blood sample was collected after 12hours overnight fasting from each subject and lipid profile was done by semi-automated analyserusing enzymatic method.Lipids analysed were total cholesterol,triglycerides,HDL-cholesterol,LDL-cholesterol,VLDL-cholesterol.Results are tabulated.

III. Results

(Table-1) Values Of cholesterol In Different Weight Groups

		Cholesterol			% sub-normal	Chi^2	P< Value
		Total	normal	abnormal			
Under weight	Pre MP	6	6	0	0.0%	0.06	NS
	Post MP	5	4	1	20.0%		
Normal weight	Pre MP	20	19	1	5.0%	1.98	NS
	Post MP	28	14	14	50.0%		
Over weight	Pre MP	18	18	0	0.0%	0.45	NS
	Post MP	13	9	4	30.8%		
Obese	Pre MP	6	5	1	16.7%	0.95	NS
	Post MP	4	1	3	75.0%		
Overall	Pre MP	50	48	2	4.0%	3.03	NS
	Post MP	50	28	22	44.0%		

(Table-2) Values Of Triglycerides In Different Weight Groups

		Cholesterol			% sub-normal	Chi^2	P< Value
		Total	normal	abnormal			
Under weight	Pre MP	6	6	0	0.0%	0.06	NS
	Post MP	5	1	4	80.0%		
Normal weight	Pre MP	20	12	8	40.0%	1.98	NS
	Post MP	28	9	19	67.9%		
Over weight	Pre MP	18	8	10	55.6%	0.45	NS
	Post MP	13	3	10	76.9%		
Obese	Pre MP	6	4	2	33.3%	2.24	NS
	Post MP	4	0	4	100.0%		
Overall	Pre MP	50	30	20	40.0%	**4.77**	**0.05**
	Post MP	50	13	37	74.0%		

(Table-3) The Values Of H.D.L In Different Weight Groups

		Cholesterol			% sub-normal	Chi^2	P< Value
		Total	normal	abnormal			
Under weight	Pre MP	6	6	0	0.0%	0.06	NS
	Post MP	5	4	1	20.0%		
Normal weight	Pre MP	20	20	0	0.0%	3.33	NS
	Post MP	28	12	16	57.1%		
Over weight	Pre MP	18	18	0	0.0%	**4.49**	**0.05**
	Post MP	13	3	10	76.9%		
Obese	Pre MP	6	6	0	0.0%	1.31	NS
	Post MP	4	1	3	75.0%		
Overall	Pre MP	50	50	0	0.0%	**7.81**	**0.05**
	Post MP	50	20	30	60.0%		

(Table-4) The Values Of L.D.L In Different Weight Groups

		Cholesterol			% sub-normal	Chi^2	P< Value
		Total	normal	abnormal			
Under weight	Pre MP	6	6	0	0.0%	0.06	NS
	Post MP	5	4	1	20.0%		
Normal weight	Pre MP	20	20	0	0.0%	0.8	NS
	Post MP	28	19	9	32.1%		
Over weight	Pre MP	18	18	0	0.0%	0.1	NS
	Post MP	13	11	2	15.4		
Obese	Pre MP	6	5	1	16.7%	0.24	NS
	Post MP	4	2	2	50.0%		
Overall	Pre MP	50	49	1	2.0%	1.08	NS
	Post MP	50	36	14	28.0%		

Table-5) The Values Of V.L.D.L In Different Weight Groups

		Cholesterol			% sub-normal	Chi²	P< Value
		Total	normal	abnormal			
Under weight	Pre MP	6	6	0	0.0%	1.87	NS
	Post MP	5	1	4	80.0%		
Normal weight	Pre MP	20	13	7	35.0%	1.84	NS
	Post MP	28	9	19	67.9%		
Over weight	Pre MP	18	9	9	50.0%	2.00	NS
	Post MP	13	2	11	84.6%		
Obese	Pre MP	6	4	2	33.3%	2.24	NS
	Post MP	4	0	4	100.0%		
Overall	Pre MP	50	32	18	36.0%	6.44	0.05
	Post MP	50	12	38	76.0%		

IV. Discussion

In our study the age,weight,BMI values were within physiological limits in both groups.Therewas no significant difference in weight and BMI between pre and post- menopausal womenwhich was similar to a study by ZAFAR HUSSAIN,SHAROONA M. MUHAMMAD AKRAM etal (1).

Comparison of total cholesterol, triglycerides,HDL-cholesterol, LDL cholesterol,VLDL-cholesterol levels between pre and postmenopausal women:-

There are variations in lipid profile levels obtained in different individuals based on race,age, Obesity etc,however in our study we have tried to exclude the confounding variables andDivided the study into groups depending on BMI,because lipid profile is more dependenton BMI.The absolute values of cholesterol are not important but the concentrations of various sub classes of cholesterol are more important in determining the risk of cardio-vascular disease.In the present study there was no significant difference in total cholesteroland LDL but there was significant difference in triglycerides,HDL and VLDL-cholesterolWhich is in agreement with previous studies [2,3,4 ,5,6,7,8].

V. Conclusion

In the present study there was no significant difference in cholesterol and LDL but significant difference were observed in triglycerides, HDL and VLDL.The reduced cardio protective HDL is an indication that menopause is an independent risk factor for developing cardiovascular disease.so it is important to educate each and every postmenopausal women to undergo screening for abnormal lipid profile.Specific health education strategies are required to prevent the emerging cardiovascular diseases among postmenopausal women.

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