Original Article

HEALTH BELIEFS AND CARDIOVASCULAR RISK FACTORS IN POSTMENOPAUSAL WOMEN IN IRAN

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ABSTRACT

Objective: To determine beliefs and cardiovascular disease (CVD) risk factors of Iranian postmenopausal women.

Methodology: This was a cross-sectional study based on baseline data of the clinical trial which tried to improve the CVD risk factors among the postmenopausal women. This study started on July 2007 and finished on May 2008. One hundred forty seven postmenopausal women where enrolled in the study, in whom menopause occurred at least one year ago and did not have any medical problem which required medication due to cardiovascular disease. These women came to the Central East clinic of Ahvaz (Iran). Their knowledge and perceptions toward CVD were assessed using 64 questions which were prepared according to the Health Belief Model (HBM). The physical activity of participants was measured using the International Physical Activity Questionnaire (IPAQ). Anthropometric measurements of participants were measured. Biochemical tests were done using a fasting blood sample and in one reference laboratory.

Results: The mean age of menopause was 46.7 years. Most of participants had good knowledge about CVD (87.8%), but their attitude toward CVD risk factors were weak (40.2% of participants had good attitude). The average of energy expenditure per week among participants was 344.8 (SD=318.3) minute per week. Participants were at high risk for CVD because of their abnormal BMI (Mean: 30.4, SD: 5.61), waist circumference (Mean: 89.2, SD: 9.5), Cholesterol (Mean: 217.5, SD: 36.5) and HDL (Mean: 47.1, SD: 14.2). The mean 10 years risk estimation of CVD according to the Framingham risk assessment equation was 1.47.

Conclusion: Iranian post menopausal women need to receive effective educational programs to change their health beliefs toward cardiovascular disease (CVD).

KEY WORDS: Menopausal women, Health Belief, Cardiovascular disease.

Pak J Med Sci April - June 2009 (Part-II) Vol. 25 No. 3 453-457

How to cite this article:

Abedi P, Hosseini M, Shojaeezadeh D. Health Beliefs and Cardiovascular risk factors in postmenopausal women in Iran. Pak J Med Sci 2009;25(3): 453-457.

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* Received for Publication: October 28, 2008

* Accepted: April 15, 2009

INTRODUCTION

Cardiovascular disease (CVD) is one of the main reasons for death in developed as well as developing countries. Coronary heart disease (CHD) and stroke, the principal manifestations of CVD, are the first and second most common causes of death worldwide. The World Health Organization (WHO) predicts that by 2020 coronary heart disease will become the world's most important cause of death, disability and the most important cause of premature death.[1] In 2006, cardiovascular disease

was the most important cause of death in Iran with 167.7 deaths per hundred thousand. The mean age at time of death because of CVD in Iran was 68 years. The most important risk factors for CVD in Iran are sedentary lifestyle (69%), high level of cholesterol (44%) and overweight (28%).[2]

CVD also is the largest single cause of death among women worldwide, accounting for one third of all deaths.[3]

Postmenopausal women because lack of estrogen is at a greater risk for CVD.[4] Hormonal changes seen during menopause include estrogen decline, increased LDL, reduced HDL and antioxidant. This results in a rise in hyperlipidemic diseases in post menopausal women.[5] Recognizing believes and cardiovascular risk factors of people can help the policy makers to identify at-risk individuals.

METHODOLOGY

The present study was a cross-sectional study based on baseline data of clinical trial. Study was done for improving the cardiovascular risk factors among Iranian postmenopausal women. This study started in July 2007 and finished in June 2008.

Sampling: The screening program (self-report) consisted of diabetes, hyperlipidemia, ischemic heart disease, hormone replacement therapy (HRT), and any medication including CVD drugs. Participants consisted of 147 postmenopausal women whose menopause occurred at least one year prior to the study and enrolled between July 2007 and December 2007. These women were admitted to the Central East clinic of Ahvaz (Iran). During this period 441 postmenopausal women attended the clinic, 217 of them were eligible for the study, however 70 of them refused to participate.

Measurement: On arrival at the survey site, information about age, marital status, education, socioeconomic status, menopause age, and menopause complications were recorded by trained interviewer.

The knowledge and perceptions of participants were assessed using a questionnaire which contained 21 questions for their knowledge, eight questions about seriousness of CVD, eight questions about vulnerability, six questions about benefits of lifestyle changes, six questions about cues to action, and 15 questions about barriers toward changing lifestyle. The validity of questionnaire was tested using the content validity. A pilot study was done for testing the reliability of questionnaire on 30 women who fulfilled the inclusion- exclusion criteria of study. The result of Crunbach's test revealed a reasonable reliability (R= 0.08).

Blood pressure was measured in the right arm after a 10-minutes rest in the sitting position, using a standard digital sphygmomanometer (OMRON). Height and weight were measured using a stadiometer and digital scale (SECA). Heavy outer garments and shoes were removed before measuring height and weight. Waist circumference was measured at the midway level between the costal margins and the iliac crests in the narrowest site. Hip circumference was measured at the level of the greater trochanters.

The physical activity of participants was measured using the International Physical Activity Questionnaire (IPAQ), that contain seven questions about physical activity or walking during last seven days. According to IPAQ and energy expenditure, women were classified into four groups; Sedentary women (means no physical activity more than household activity), light physical activity (women who had only walking, energy expenditure less than 600 calories per week), Moderate physical activity (women who have energy expenditure between 600 and 1499 calories per week) and vigorous physical activity (women who spent energy expenditure more than 1500 calories per week).

Biochemical tests have done using a fasting blood sample and in one reference laboratory.

Ethical approval and Statistical analysis: This study was approved by ethical committee of Ahwaz Jondishapour University of Medical Sciences and University of Putra Malaysia. All subjects received an information sheet regard-

ing the purpose and nature of the study and gave a written informed consent before enrollment.

SPSS version 15 was used for processing and analyzing data. A value of $P < 0.05$ was considered as statistically significant.

RESULTS

The mean age of participants was 51.6 years and mean age of menopause 46.7 years. The physical and clinical characteristics of participants are listed in Table-I. Most of the participants had good knowledge about CVD, but their attitude toward CVD risk factors was weak (Table-II).

The mean energy expenditure per week was 344.81 calories (SD=318.33). There was no vigorous physical activity among participants and only 15.6% of participants had moderate physical activity. About 71.4% of participants had light physical activity, mostly walking. (Figure-1)

Cardiovascular risk factors among participants were high (BMI, waist to hip ratio, total cholesterol, LDL, VLDL) (Table-I). The mean 10-years risk estimation for CVD according to Framingham study's equation was 1.46.

Table-I: Physical and clinical characteristics of subjects (n = 147)

Characteristics	*Mean (SD)*
Age (in years)	51.6(4.8)
Age of menopause (in years)	47.7(7.0)
Energy expenditure minutes/ week calories	344.8(318.3)
BMI(Kg/m^2)	30.4(5.6)
Waist circumference(cm)	89.2(9.5)
Waist to Hip Ratio	0.82(0.06)
Systolic blood pressure(mm Hg)	121.6(16.8)
Diastolic blood pressure(mmHg)	78.9(12.5)
Total Cholesterol(mg/dl)	217.5(36.5)
Triglyceride (mg/dl)	147.6(66.5)
LDL(mg/dl)	140.2(33.9)
VLDL(mg/dl)	31.5(14.3)
HDL(mg/dl)	46.6(8.6)
FBS (mg/dl)	99.02(29.2)
C-Reactive Protein (CRP)	
Negative	138
Positive	8
Framingham 10 years risk estimation	1.46(1.07)

DISCUSSION

In the present study finding showed that 87.8% of subjects had good knowledge about CVD risk factors. On the other hand, overall their attitude toward seriousness, vulnerability, benefits, cues to action were not good. It seems that the postmenopausal Iranian women have good knowledge about CVD risk factors and their barriers toward CVD prevention are not much. The knowledge of participants might be increased by external factors e.g. mass-media.

Table-II: Beliefs of Participants towards CVD (n = 147)

	Poor		*Moderate*		*Good*		*Total*	
	No	%	No	%	No	%	No	%
Knowledge	1	0.7	17	11.6	129	87.8	147	100
Seriousness	44	29.9	102	69.4	1	0.7	147	100
Vulnerability	135	91.8	12	8.2	0	0	147	100
Benefits	28	19	119	81	0	0	147	100
Cues of Action	134	91.2	13	8.8	0	0	147	100
Barriers	9	6.1	80	54.4	58	39.5	147	100

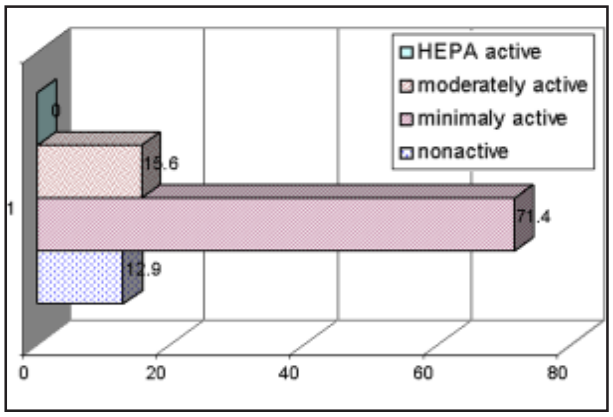

Fig-1: Distribution of participants according to categories of physical activity.

In this study, 71.4% of participants were minimally active, but they could not catch up the minimum physical activity which is recommended for prevention of CVD. The mean energy expenditure of participants per week was 344.81 calories. According to the American Heart Association (AHA), the minimum physical activity to protect women older than 20 years from heart disease is; at least 30 minutes duration most days of the week or energy expenditure equal of 500 calories per week.

Thirty eight percent of participants were overweight (25<BMI<29.9) and 49.7% were obese (BMI > 30). According to the national surveys in Iran, the prevalence of BMI more than 30 among women aged 45-54 is 34.8%.[6] The national survey comprised peri and post menopausal women, however in the present study we only focused on postmenopausal women.

In the current study, 66% of participants had total cholesterol more than 200mg/dl. In other studies, a strong positive and graded relation with CHD death occurs for total cholesterol (TC) concentrations above 180mg/dl.[7]

There is a powerful protective inverse relation between increasing HDL and incidence of CHD. Individual with low HDL concentrations less than 40 mg/dl has a greater risk for CHD.[8] In the present study, 22.4% of participants had HDL less than 40.

Results of this study show that 77.6% of participants had LDL-C more than 115mg/dl. Current UK and European recommendations suggest a target LDL-C concentration of < 115mg/dl.[1] The heart protection study (HPS) has confirmed early data from carotid atherosclerosis regression and lipid trials that high LDL-C is also a modifiable risk factor for cerebrovascular atherosclerosis and stroke.[9]

Eighty one percent of participants had waist circumference more than 80 CMs. With increasing waist circumference people are at more risk for certain disease and cancers as well as CVD. Excess body fat, particularly when distributed intra-abdominally, is thought to be an important indicator of CVD risk. Studies link such obesity to disturbances in blood lipids, glucose intolerance, and insulin sensitivity-variables that are commonly thought to be involved in CVD manifestation.[1,2] Excess of body fat (android obesity) in the abdomen is more indicative of the CVD and diabetes than BMI.[11,12]

The Framingham mean risk estimation of participants was 1.46. Framingham Study risk equations for coronary heart disease (CHD) and CVD, based on age, sex, blood pressure, cholesterol (total and HDL), and smoking, with diabetes status as a categorical variable, have been validated prospectively in general populations.[13] Epidemiologic studies show that the risk of cardiovascular complications such as stroke or myocardial infarction is not determined by blood pressure alone, but is strongly influenced by other major risk factors such as age, sex, smoking habits, lipid concentration and diabetes.[14] It is not surprising that in the current study the estimated risk for CVD was low. This is because the mean age of participants was not high, none of them were smoker and only few cases of diabetes were seen.

CONCLUSION

In conclusion although the knowledge of postmenopausal women about CVD was acceptable, however their attitude toward CVD was weak. Furthermore since they have almost all of risk factors for CVD, they are at a greater risk for morbidity and mortality. Therefore there is a special need to change their beliefs and behaviors toward CVD.

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