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Obesity and Food Habits of Women in, East Azarbaijan, Iran

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Abstract: Obesity is a significant health problem. It is associated with a number of metabolic derangements such as hyperlipidmia, diabetes, atherosclerosis, hypertension, …... Overweight is now defined as a BMI greater than 30. Total 282 healthy women aged 18-57 years were randomly selected. Anthropometric measurements were made. Twenty four hours dietary recall, food frequency and socioeconomic questionnaires were completed for each individual. Body Mass Index was calculated (BMI = weight (kg)/height (m^2). The mean±sd for age, BMI, TSF, WHR, was respectively: 30.3±8.6 (year), 28.09±(kg m^{-2}), 29.9 ±7mm, 0.86±0.6. -41% of women had a body mass index of 30-40 (Grade 2 obesity) and 2.6% BMI of >40 (grade 3 obesity). Significant positive correlation was observed between BMI and TSF, age and BMI, BMI and socio-economic variables. Assessment of food habits show that obese women consume less than three meal for a day, intake animal fat and they have not physical activity and also they suffer from conctipation.The results of present study, show that prevalence of obesity (grade 2) is very high, therefore continual control of weight and height, improvement of nutritional status, food habits, increase of nutrition knowledge by the nutritionists of the clinics is necessary.

Key words: Obesity, BMI, WHR, cardiovascular risk factors, dietary habits

INTRODUCTION

Obesity is a significant health problem. That is on the rise among adults, women (Flegal, 2005; Wang and Hoy, 2004) worldwide, including populations living in developing countries. Martines *et al*. (2006) behavior is likely to continue to play a central role in the development of adiposity and obesity (Martines *et al*., 2006; Baranowski *et al*., 2000). Obesity is a well -known risk factor for numerous health conditions. Increase in diabetes some other cardiovascular risk factor in conjunction with the rise in obesity (Flegal, 2005; Wang and Hoy, 2004). Recent prospective studies have provided compelling evidence of clinical coronary events (Auer *et al*., 2005).

Several anthropometric measures have been used to investigate the association between adiposity and cardiovascular disease. Body Mass Index (BMI) is the most commonly used measurements. Waist-to-Hip ratio has been reported as a better predictor of coronary heart disease (Wang and Hoy, 2004; Auer *et al*., 2005). Several studies have shown an association of obesity as defined by Body Mass Index (BMI) with the risk of stroke and cardiovascular disease mortality (Suk *et al*., 2003; Calle *et al*., 1999; NIH, 1998). The Honolulu Heart Program reported that BMI was associated with increased risk of thromboembolic stroke among men in older middle age. The nurses study showed that women with increased BMI had an increased risk of ischemic stroke. Other studies have failed to find an independent relationship between obesity measured by BMI and increased risk of stroke in women (Suk *et al*., 2003). The purpose of this study, was to determine prevalence of obesity and kind of obesity and their some food habits.

MATERIALS AND METHODS

A total 282 healthy women aged 18-57 years were randomly selected. Anthropometric measurements (weight, height, Triceps Skin Fold (TSF)) were made by using the standard anthropometrics procedures. Body Mass Index (BMI) was calculated: (weight (kg)/height (m^2)). Obesity described in Table 1 (NIH, 1998).Waist-to-Hip Ratio (WHR)was calculated (waist circumference at the narrow west part and hip circumference at its widest part). WHR =0/85 known central obesity and high risk women Table 2 (www.health4youonline.com).

Twenty four hour dietary recall, food frequency and socioeconomic questionnaires were completed for each individual. Food frequency questionnaire developed in witch commonly consumed foods were asked for the frequency of the foods consumed. All analysis were performed using SPSS.

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Table 1: Classification of obesity based on BMI and BMI-Associated disease risk

Classification		BMI (kg m^{-2})	Risk
Underweight	-	< 18.5	Increased
Normal	-	18.5-24.9	Normal
Overweight	-	25-29.9	Increased
Obese	1	30-34.9	High
	2	35-39.9	Very high
	3	= 40	Extremely high

Table 2: Waist to hip ratio chart

Male	Female	Health risk based solely on WHR
0.95 or less	0.80 or less	Low risk
0.96-1	0.81-0.85	Moderate risk
1-0r higher	0.85 0r higher	High risk

Table 3: Mean±SD anthropometric measurements in women

Anthropometric measurements	Mean±SD
Age (yr)	30.3±8.6
BMI (kg m^{-2})	28.09±6
TSF (mm)	29/0±7
WHR	0/86±0.6

Table 4: Percent of obese women based of BMI

BMI (kg m^{-2})	Percent of obese women(%)
30-34.9	7
35-39.9	35
= 40	2.6

RESULTS

The mean ±SD of age, BMI, TSF, WHR are presented in Table 3. Prevalence of obesity based on BMI presented in Table 4. Significant positive correlation was observed between BMI and TSF ($p<0.01$), age and BMI ($p<0.01$), BMI and socioeconomic variables. Ten percent of women had WHR>0.85.

Assessment of food habits show that obese women consume less than three male for a day. They intake animal fat and they have not physical activity and also they suffer from constipation.

DISCUSSION

Obesity is a significant health problem and is recognized as a major independent risk factor for heart disease and mortality (Calle *et al*., 1999; Lee *et al*., 2004). That is defined as a BMI greater than 30. BMI is useful predictors of cardiovascular risk. That is generally as a useful index of the health and a clinically beneficial tool in nutritional assessment. (obesity, malnutrition). Obesity is associated with a number of metabolic derangements such as hypertension, dyslipidemia, diabetes mellitus, atherosclerosis, hyperlipidemia, gallbladder disease, respiratory disease, sleep apnea and cancer (Suk *et al*., 2003).

Nutritional status of the women of present study assessed by anthropometric measurements and food frequency questionnaire showed that prevalence of obesity and central obesity is high. (>40%, 10%, respectively). Research shows that people with apple shaped bodies (with more weight around waist) face more health risk than those with pear shaped bodies (more weight around hips). It is better marker of cardiovascular and accurate indicator (www.health4youonline.com; Feitosa *et al*., 2000; Azizi *et al*., 2005). Body mass index is a methods used to measure a person's percentage of body fat. Our body is made up of water, fat, protein, carbohydrate and various vitamins and minerals. If we have too much fat especially if a lot of the fat is located in our waist area, we are at high risk for health problems including high blood pressure, high blood cholesterol, diabetese, heart disease and stroke (Lin *et al*., 2006; Kaufe *et al*., 2005; Onat *et al*, . 1999; Landen *et al*., 2004). Our finding that 10% of women had WHR > 0/85 and central obesity. The Waist-to-Hip Ratio (WHR) is a method used to measure the distribution of person's body fat. Research shows that BMI, WHR are associated with cardiovascular outcome. However WC waist circumference appears to be a better predictor for cardiovascular risk than other parameters (Wang and Hoy, 2004).

Significant positive correlation was observed between BMI and TSF ($p<0.01$) age and BMI ($p< 0.01$) in our study (as result of other study (Gallagher *et al*., 1966; Guadalupux *et al*., 2004)). Assessment of food habits show that obese women consume less three meal. Obese individual are often found to have poor diets, frequently skipping breakfast (in present study dinner or breakfast) and consuming many foods low in minerals and vitamins. The eating habits established during weight loss and maintenance efforts should change the quality of the diet in a positive way. Behavior modification in conjunction with a balanced reduction diet, help promote lasting weight.

Physical activity the most variable component of energy expenditures accounts for a bout 20-30% of the daily energy expenditure for most individual. The obese tend to be more sedentary than normal weight people, but this is balanced by the fact that the obese require more energy to perform the same tasks as normal-weight individuals. Activities involving gross movements of muscles promote fat loss while conserving LBM. Aerobic exercise is especially effective in reducing visceral fat. An increase in physical activity can prevent weight plateaus after an initial period of weight loss. Increasing physical activity stimulates gastrointestinal motility (control of constipation) (Mary, 2001).

Because of high prevalence of obesity and relationship of obesity with a number of disease for example diabetes, hypertension, atherosclerosis, stroke, hyperlipidmia, ……. (Colditz *et al*., 1995; Feitosa *et al*., 2000; Lin *et al*., 2006; Horwitz *et al*., 2005; Omat *et al*., 1999; Landen *et al*., 2004) control of anthropometric

measurements (weight, height, waist C., hip c.), improvement of food habits, increase of physical activity, increase of nutritional knowledge by the nutritionist in the clinics is necessary.

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