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Awareness of the Diabetic Patients with Cardiovascular Diseases on the Recommended Diet, and Effect of One to One Education

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Abstract

Aims: to increase the awareness about cardiovascular diseases risk among diabetic patients in KAMC-Jeddah.

Method: Observational cross-sectional study assessed DM patients for their knowledge on of diet, physical activity complication of DM, whether they received any educational sessions using a questionnaire. This was followed by education.

Result: The study included 132 participants; we found that 41% of the sample was obese and 34% overweight. (15.9%) developed cardiovascular diseases. Less than 5% of DM patients with cardiac disease indicated they had education. In the end, 95.5% of participants reported they had learned from the interview and it was educational for them.

Conclusion: There was a clear lack of information on the disease, complications and method of prevention. In addition, one to one education was informative and helpful to the patient

Keywords: Diabetic; Cardiovascular diseases; Diet, Education

Introduction

In the past years many developing countries faced a rapid economic and urban growth which brought a pronounced lifestyle change in eating habit and physical activity level. Moreover, more than 60% of those population are younger than 21years old [1]. In addition, this rapid socioeconomic growth contributes to the increase of the prevalence of the chronic disease such as diabetes and cardiovascular diseases. Saudi Arabia considered one of the top countries with higher in the prevalence of diabetes which account for 23.9% of the population [2]. Cardiovascular disease prevalence in this area was reported in the range of 5.5%, with more prevalence among male [3]. Several studies show that diabetic patients are at high risk for cardiovascular diseases [4]. According to the American Heath Association "At least 68% of people age 65 or older with diabetes die from some form of heart disease; and 16% die of stroke" [5]. There are many risk factors contribute to increase the risk of developing heart diseases for diabetic patients [6]. The major risk factors for cardiovascular diseases include hypertension, hyperlipidemia, obesity, physical inactivity and smoking [4]. Diabetic patients who have high blood pressure are at double risk for heart diseases. Moreover, diabetic patients with abnormal cholesterol level which include elevated level of triglyceride, high level of LDL, and low level of HDL are also at risk for cardiovascular diseases [5]. High body weight and sedentary lifestyle are considered as a major risk for diabetic patients to get cardiovascular diseases [4]. Finally, management glucose level, body weight and increase the physical activity associated with decreasing the risk of cardiovascular diseases [4,6] It is important to identify such patients early and manage them aggressively to decrease morbidity and mortality. The risk of diet, exercise and smoking and medication compliances are accumulative but modifiable [4]. There is a big gap between knowledge and attitude that is common across the world. In china, Diabetics had positive attitudes, but relatively poor nutrition knowledge and practices. Nutritional and eating education was effective in improving diabetics' nutrition knowledge and practices, and this optimal practice helped them control blood glucose effectively [7]. This study aim to identify these risk and try to break the cycle through one to one teaching.

Materials and Methods

An observational cross-sectional study was conducted among diabetic patients in the Cardiac Center and outpatients' diabetes clinic in King Abdulaziz Medical City. The participant subjects were recruited by convenient sampling technique. The inclusion criteria of study subjects include being a diabetic patient, 18 years old and above from-either gender with type 1 or 2 diabetes. Drug-induced DM was excluded. The study was conducted over a period of three months. After the consents were signed, interview questionnaires were distributed-to the patients and it took approximately 15 minutes from each participant to answer the questions [4,6,8]. The questionnaires consisted of three sections, the first section consisted of pre-evaluation knowledge test with five questions focusing on the patients' knowledge of the possible complications of the disease and the knowledge of a good diet. Second section, focused on sociodemographic characteristics of the participants: such as gender, age, and best way of learning, history of disease, knowledge about the disease, and anthropometric measurements including weight, height, and BMI. The third section focused on the awareness of the recommended diet, awareness of complications, dietary habits, and exercise habit, other medical complications such as hypertension and cholesterol. After the participants had completed the questionnaires the co-investigators-then educated them on the need for healthy dietary habits, complication management strategies, and a post-evaluation test was conducted to assess the effectiveness of the education.

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Statistical Analysis

After collecting all the questionnaires, the data was entered into an EXCEL program to collate the quantitative results, descriptive statistics summarized by using SPSS program. The qualitative data percentages and frequencies were recorded while the quantitative data mean, and standard deviation were recorded if the data-was of normal distribution or median and interquartile range if the data-was skewed.

Results

Our study included 132 participants, 46.2% were males, half the number of both sex were either obese or overweight (Figure1). 15.9% had cardiovascular diseases. Less than 5% of DM patients with cardiac disease indicated they had received education. This would indicate the need for high risk patients to receive more attention (Figure 2). Smoking was a recognized association with 11.4%-smokers and 15.9% ex-smokers. Of the high risk group, 40.9% did not do any physical activity. There was a gap in their knowledge with 23.5% being unaware of diabetic complications, 40.2% were unaware that cardiovascular diseases or retinopathy are a complication of diabetes. 62.1% reported that they needed education about dietary management for diabetes, 68.9% expressed their need or education about preventing complications of diabetes. 52.4% of cardiac patients reported that their physicians did not provide education about diabetes. Metabolic syndrome was noted, with 5% having high cholesterol, 16% having high blood pressure, and another 11.4% reported using blood pressure medication and having

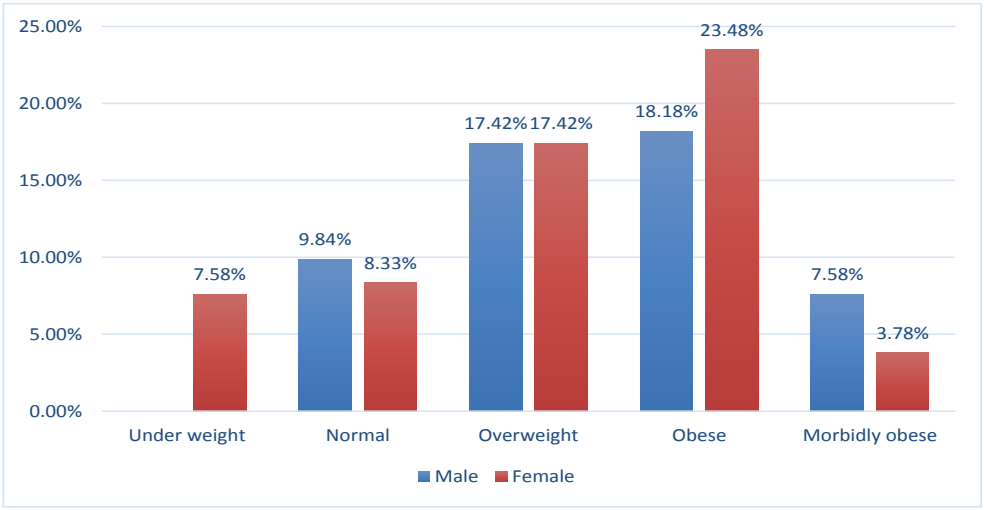

Figure 1: Distribution of the study population by Body Mass Index.

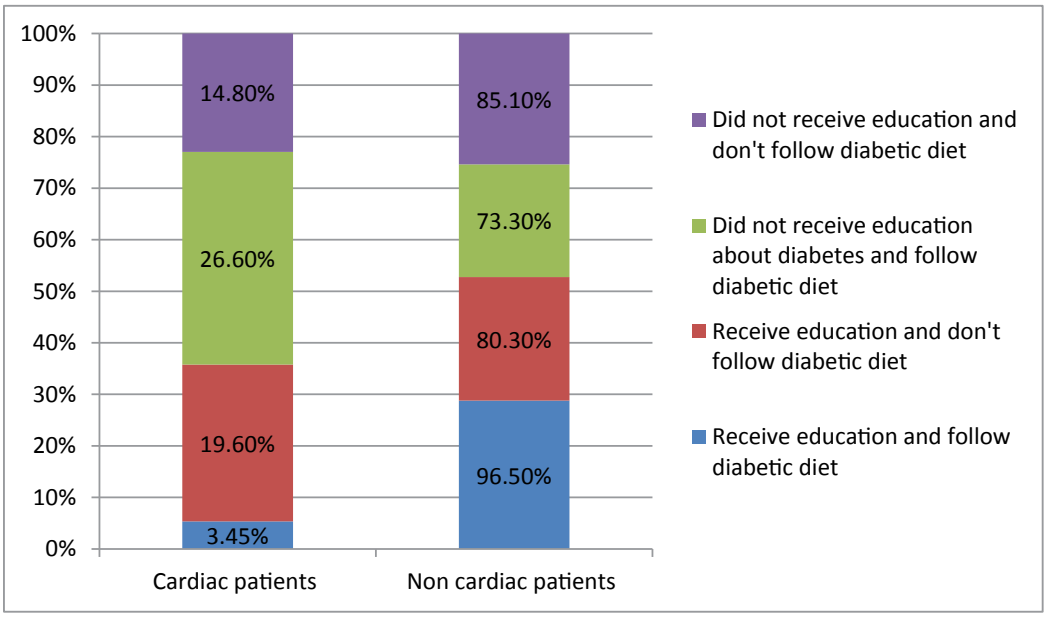

Figure 2: Illustrates percentages of CVD patients who had previous education and follow diabetic diet.

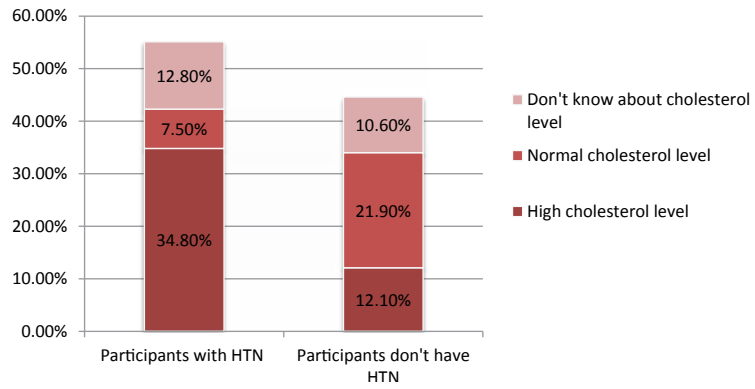

Figure 3: Diabetic patient with HTN and cholesterol level.

a stable blood glucose level (Figure 3). At the end of the interview, 95.5% reported that they had learned from the interview and it was educational to them in terms of diet and expected complications.

Discussion

Majority of the participants were obese or overweight. High percentage of diabetic patient were unaware of cardiovascular complications and did not receive any previous education about diabetes mellitus and its complications. The results showed that diabetic patients with cardiovascular complications do not follow a specific diet or practice regular exercise to prevent further complications. In addition, uncomplicated diabetic patients are not practicing good DM control. High percentage of participants were high risk group being hypertensive and hypercholesterolemia, and some of them were unaware of their cholesterol levels. The needs and demands for education was high. Simple and clear education was well received and increased the knowledge gap. Diabetes and its complications can be reduced by proper education and awareness among diabetic population. The problem is across the cost, a study conducted in eastern of Saudi Arabia showed that among those who knew that they had CVD, (48.6%) were diabetic; (2.8%) were pre-diabetic; (58.2%) were hypertensive; (2.4%) were pre-hypertensive; (45%) were dyslipidemic; (32.4%) were overweight, and (51.6%) were obese (9). Another study concluded that there was poor level of knowledge about diabetes mellitus concerning cause of disease, ideal measurement, disease complications, lifestyle modifications, drug treatment and herbal medications [9]. "Comprehensive assessment of level of knowledge on the complications showed that majority (60.0 %) of T2D patients did not have knowledge on diabetes complications, 26.9 % had inadequate knowledge on diabetics complication while only 13.1 % had adequate knowledge" [10]. Another study conducted to assess the level of risk for cardiovascular diseases among young women in the central zone of Arabia concluded that the prevalence of hypertension was 11.8%, hyperlipidemia 2.8% and type 2 diabetes 2.9%. Participants were either overweight (25%) or obese (29%) [10].

A study in north region, Saudi Arabia showed that cardiovascular diseases risk factors were 21% males and 16.7% females with diabetes mellitus (DM), 20% males and 15.5% females with hypertension (HTN) and 8.3% males and 2.4% females for diabetic/hypertensive. In addition, the results showed that there is a significant increase in CVD risk in overweight (4.7%) or obese (7%) males [11]. Cross sectional study was conducted in west of Saudi arabia to find the prevalence of peripheral artery diseases in diabetic patients. The results revealed that the prevalence of PAD in the study population was 23%. In addition, longer diabetes duration was observed to be associated with PAD [12]. A study at the west of Saudi Arabia about the incidence of type 2 diabetes complications among Saudi adult patients showed 40% incidence of obesity among females, and that was related to sedentary lifestyle. Their partner male had an incidence of 36%. lack of performing physical activities and sedentary lifestyle was 54%, and only 19.5% were performing 1 hour of exercise each week [13]. The metabolic profile of Saudi female had reported 21.8% HTN, while diabetes ranged between 9.6% to 27.6%, overweight was 27% and obesity was 40.23% [14]. Since diabetes and CVD are highly related another study in Jeddah-Saudi Arabia about Cardiovascular Disease Risk Assessment among Saudi Type 2 Diabetic Patients indicated that 17.1% of the participants found to be at high risk of cardiovascular events. About one third of the participants were overweight (33.6%) and more than half were obese (53.8%). Participants with low educational levels were at higher risk for CVD according to WHO/ISH risk prediction chart [15]. The problem is global, in Ghana high percentage of T2DM patients had low awareness of DM and its complications [16]. In Thailand diabetes registry, the overall mortality rate among those in the higher education group was lower than those in the lower education group (8.9 vs 20.5 per 1,000 patient-years, respectively) with a hazard ratio (HR) of 0.43 (0.31-0.61). The higher educationgroup also had lower mortality rates due cardiovascular disease [HR 0.42 (0.22-0.80)] [17]. In another study in Diabetic foot, A multivariate analysis showed that absence of diabetic foot education (odds ratio 2.70, 95% CI 1.03-7.06, P = 0.043) and lack of knowledge of foot lesion warning signals (odds ratio 2.14, 95% CI 1.16-3.94, P = 0.015) were independent predictors of long patient delay. Long delay increased the risk of amputation (odds ratio 2.22, 95% CI 1.36-3.64, P = 0.002) and mortality (odds ratio 2.69, 95% CI 1.35-5.33, P = 0.005) [18]. The study limitation include that the study conduct among sample size and on one site. In addition, some of the factors may be affected due to over or under reporting. The strength of this study is that it highlights the level of awareness about cardiovascular risk among the community in addition to opens the horizons for educational programs and promote it to increase the awareness.

Conclusion

High risk cardiovascular profile is common among diabetic patients. Obesity and physical inactivity were noticeably high among diabetic patient. There was clear lack of information on the disease, complications and method of prevention among diabetic patient. Such

lack of needs education program that help diabetic patient to change their lifestyle and decrease the risk of diabetic complication. One to one education was informative and helpful to the patient. Additional studies will be needed to study the effectiveness of the education in long term and to know who are the most likely to benefit from the education.

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