Research Article

LIFE STYLE MODIFICATION OF TYPE2 DIABETIC PATIENTS IN GAZA-PALESTINE

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ABSTRACT

Lifestyle related risk factors play a key role in the development of type II diabetes mellitus. This is evident from increasing incidence of various complications in diabetics. Some of these risk factors like dietary choices, overweight and sedentary lifestyle are modifiable. Studies have shown that these factors, if effectively controlled, can lead to reduction in the risk of developing further complications and reduce the drug demand. Thus the present study was undertaken to assess the effectiveness of lifestyle modification based nutrition and education program on the glycatedHemoglobin .(HbA1c).A total of 30 diabetic women aged from 40-70 years were enrolled for the studyand givennutrition health awareness program, home visits that imply practical applying to change dietary, lifestyle, and distributed Brochures about the healthy diet of diabetic patients. Before the intervention we performed HbA1C test for each women and repeated it after three months from the intervention program. Results of the study showed a significant reduction in HbA1C after the intervention. Also participants who included some kind of exercise in their daily routine, showed a decrease in their weight.Thus community based health education program, if effectively conducted, will result in the better control of diabetes, and thereby help in arresting or delaying the secondary complications of diabetes and contribute in decreasing drug demand.

Keywords: Life style , Type II diabetes, Glycated hemoglobin, secondary complications.

INTRODUCTION

Type II diabetes is one of the most serious healthcare problems worldwidewherein epidemiological evidence suggests that it will likely be continuing to rise globally[6]. Diabetes is now epidemic, and it is becoming a growing threat to global health security and a major cause of death, in many low- and high-income countries[6,10]. According to World Health Organization (WHO), the number of people with diabetes would globally increase from 171 million to 366 million between 2000 and 2030[7]. In Palestine, it was estimated that the prevalence of DM is 9.6%[1]. According to recent reports, the total number of new diabetic cases was 3,485 (1,793 in MOH and

1,692 in UNRWA) with incidence rate 24.2/10,000 population.

The growing burden of diabetes along with rapid cultural changes, aging population, increasing urbanization, changes in nutritional habits, reduced physical activity, and improper lifestyle and behavior patterns would inexorably increase the cost of their health care, the demands, as well. Several models of education have been proposed to reduce the complications of chronic diseases including diabetes. However, it is widely known and acknowledged that adopting self-care and self-management behaviors play a key role in diabetes control and treatment.

Unfortunately, it is to be anticipated that adequate standards of health care for people with diabetes and other chronic medical conditions are not met in war zones like the Palestinian Territories. People with diabetes in Gaza do not receive the support of dieticians, food specialists, psychologists or diabetes educators. In the standard visit, people with diabetes commonly have the opportunity to monitor their body weight and blood pressure level, and undergo fasting or random blood glucose testing using a test strip.

The beneficial effect of the dietary pattern on diabetes mellitus and glucose metabolism in general and traditional food pattern were associated with a significant reduction in the risk of developing type-2 diabetes. The dietary pattern emphasizes the consumption of high unsaturated fatty acids, and encourages daily consumption of fruits, vegetables, low fat dairy products and whole grains, low consumption of fish, poultry, tree nuts, very less consumption of red meat[2]. The diets are characterized by a low degree of energy density overall; such diet prevents weight gain and exert a protective effect on the development of type II diabetes, a condition that is partially mediated through weight maintenance. Greater adherence to the diet in combination with light physical activity was associated with lower odds of having diabetes after the adjustments of various factors On the other hand, a paleolithic diet (i.e., a diet consisting of lean meat, fish, shellfish, fruits and vegetables, roots, eggs and nuts, but not grains, dairy products, salt or refined fats, and sugar) were associated with a marked improvement of glucose tolerance while control subjects who were advised to follow a diet did not significantly improve their glucose tolerance despite decreases in weight and waist circumference[5].

Therefore, diabetes experts have taken care to limit fats- especially saturated fats that can raise cholesterol levels, and to limit protein for people with impaired kidney function. The new approach focuses more attention on fat. Fat is a problem for people with diabetes. The more fat there is in the diet, the harder time insulin has in getting glucose into the cells.

Physical activity is an important component of any weight management program. Although energy restriction by dieting is largely responsible for initial weight loss[9], regular physical activity helps to maintain weight loss and prevent weight regain[9]. Regular exercise and fitness also improve insulin sensitivity and glycemic control may decrease the risk of developing diabetes[4], and may reduce overall mortality in patients who have type II diabetes[3].

The potential to prevent type II diabetes in high-risk individuals by lifestyle intervention was established in several clinical trials. This study focused on increased physical activity and dietary modification as well as weight reduction among participants. The key issue seems to be a comprehensive approach to correct several risk factors simultaneously.

METHODOLOGY
Study setting
Palestinian medical relief society at chronic disease center

Plan and intervention
After the coordination with PMRS, we organized health education program for the diabetic patients type II (women aged from 40-70 years)that frequently visit the clinic. This includes lectures about diabetes type II (signs, symptoms, complication and severity of disease), home visits that imply practical applying to change dietary, lifestyle, and distributed Brochures about the healthy diet of diabetic patients. Before we began with intervention we performed glycated hemoglobin A1C test for each women and repeated it after three months from the intervention program.

In our intervention plan we recommended specific amount of macronutrients in their dietary which included: protein 10-20% of total energy, total fat less than 30% of total energy, saturated fat less than 10% of total energy, polyunsaturated fatty acids less than 10% of total energy, and carbohydrate 45-60% of total energy. The target for dietary fiber intake was 40 g/day about half of which was intended to be soluble fiber. For participants who were overweight or obese, the recommendation was to achieve modest (at least 5%) weight loss. We translated the recommended total energy intake and nutrient distribution for each participant into foods, and meals on the basis of the personal preference, and sociocultural factors. The emphasis was on appropriate

food quantities, vegetables, fruit, wholegrain cereals, fish (preferably oily), low fat dairy products, and appropriate fats,oils and meat.

RESULT AND DISCUSSION

30 women participate in this intervention program, HbA1c was measured before starting the program and three month latter after the intervention (Table 1). HbA1c mean before intervention is 9.160 and 8.033 after intervention (Table2), 7 Participants have HbA1c higher than before the Life style modification while 22 Participants have HbA1c lower than before the Life style modification (Table 3).

These results indicated that modification of lifestyle especially diet can significantly decrease HbA1c based on Wilcoxon signed-rank test (P values =0.000)(Table 4).

Table 1: The measurements of HbA1c for women before and after intervention

NO	Age	HbA1c before intervention	HbA1c after intervention
1	60	9.5	8.6
2	68	11.2	7.3
3	56	8.5	8.4
4	56	9	7.2
5	62	8	8
6	67	8.5	7
7	69	8.3	6.5
8	40	10.5	10.7
9	55	12.5	8
10	45	7.2	7.4
11	52	9.3	7.6
12	52	8.4	8.8
13	61	9	9.4
14	60	8.7	7.6
15	41	8.4	8.1
16	53	9.5	7.5
17	65	9.3	9.8
18	60	8.6	8.5
19	42	11.2	10.3
20	61	9.5	7.3
21	59	7.5	6.2
22	64	9.6	8.3
23	50	8.1	5.4
24	54	7.5	7.2
25	67	9.6	7.1
26	58	8.9	9.2
27	60	9.6	9.9
28	63	9.9	8.5
29	59	9	7
30	46	10	8.2

Table 2: Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
HbA1c before intervention	30	9.160	1.1560	7.2	12.5	8.400	9.000	9.600
HbA1c after three months intervention	30	8.033	1.2155	5.4	10.7	7.200	8.000	8.650

Table 3: Ranks Table

The Ranks table provides some interesting data on the comparison of participants' Before (Pre) and After (Post) intervention.

Ranks		N	Mean Rank	Sum of Ranks
HbA1C after three months intervention – HbA1c before intervention	Negative Ranks	22[a]	17.50	385.00
	Positive Ranks	7[b]	7.14	50.00
	Ties	1[c]		
	Total	30		
a. HbA1c after three months intervention < HbA1c before intervention				
b. HbA1cafter three months intervention >HbA1cbefore intervention				
c. HbA1cafter three months intervention = HbA1cbefore intervention				

Table 4: Test Statistics

Test Statistics[a]	
	HbA1cafter three months intervention - HbA1cbefore intervention
Z	-3.624-[b]
Asymp. Sig. (2-tailed)	.000
a. Wilcoxon Signed Ranks Test	
b. Based on positive ranks.	

CONCLUSION

According to analysis glycated hemoglobin (HbA1c) decreased by73.3%, this indicated that modification of lifestyle especially diet can largely decrease HbA1c instead of treatment with drugs directly.

As a result researchers did individual meeting with patients who have negative response for the interventions, interview results showed that, the patients justified the increased of HbA1c as they didn't able to commit in the instructions in this short period , such the three months aren't sufficient to change their life style.

In addition, the researchers noted that most patients who have negative response for the interventions were didn't completely commit in researcher's instruction especially in diet related interventions, since the researchers noted that, some of them put a lot of salt on food when they monitored patients practices through implementing the intervention.

Compliance with Ethical Standards

All authors declares that they have no conflict of interest.

This study was approved by Al-Azharuniversity, Medical Laboratory ethical comity and approved by Palestinian Medical Relief Society organization Gaza-Palestine.

Informed consent was obtained from all individual participants included in the study.

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