AWARENESS ABOUT DIETARY FACTORS IN PATIENTS BEFORE EXPOSURE TO DIABETES EDUCATION

Shobhana R., Sheela Paul, Mary Simon, M. Geetha, C. Snehalatha, A. Ramachandran, V. Vijay

ABSTRACT

The objective of the study was to identify the areas where stress has to be given while advising an appropriate diet for diabetes. The study was done in 150, type 2 diabetic subjects, M:F, 85:65, with mean age 47±10 years, at the time of registration. A questionnaire was filled up before their exposure to the education programme and diet counselling. Details regarding the consumption of various foods like sweets, fried snacks, vegetables, fruits, non vegetarian foods and the type and quantity of cooking oil used, were collected. 53% of the subjects felt rice should be avoided completely or partially for management of diabetes and they included wheat/ragi items liberally. Increased consumption of vegetables was observed in 68% after detecting diabetes. After diagnosis of diabetes, 13% had stopped using groundnut or gingelly oil and a large proportion had changed over to sunflower or saffola oil. The average consumption of fat per head, per week, after detecting diabetes was found to be 383±126 gms. At least one vegetable dish was included in the daily menu by 41 %. Sweets were avoided by 65% of the subjects. Green leafy vegetables were consumed regularly by 80%. 65% of the subjects took intermediary foods and they preferred coffee. The total calorie consumption was higher than ideal, in most individuals. The use of oil was found to be generally higher than the recommended amount. Major misconceptions were regarding the major energy dense nutrients, vitamins, carbohydrates and fats. This study helped us to understand the importance of education and diet counselling to diabetics, especially to get rid of some of the myths and taboos that are seen among them.

KEY WORDS : Dietary advice; Type 2 diabetes mellitus; Dietary misconceptions.

INTRODUCTION

Diet has been the mainstay of therapy in diabetes mellitus for centuries. Over the years, the diet for diabetic subjects has undergone fundamental changes. Initially, diabetologists belived that a diabetic should restrict the intake of carbohydrates and hence they followed a restricted carbohydrate, high fat diet (1). Long- term studies have proved that a calorie-restricted, high carbohydrate, high fibre diet was the most suitable diet for diabetics, especially in countries accustomed to a high carbohydrate diet (2). Though this pattern is advised by the dieticians, diabetic patients carry several misconceptions about the diet prescribed. Many believe that rice increases blood glucose, whereas wheat and ragi help to reduce blood glucose. Therefore, rice is partially or completely restricted in day to day dietary planning by many.

It is also belived that the bitter vegetables reduce blood glucose and a few even go to the extent of drinking bitter juices like bittergourd juice, neem juice, fenugreek powder etc, on an empty stomach. These myths make the diet unpleasant and difficult to adhere to, which finally results in poor control of diabetes.

Basic nutrients such as carbohydrates, fats, proteins, vitamins and minerals are required in appropriate proportion, for normal biological functions. In therapeutic nutrition, especially in diabetes, the distribution of all these nutrients must be taken into account, particularly to prevent vascular complications in the future.

The objective of the study was to identify the areas where emphasis should be given, while advising an appropriate diet for diabetes.

MATERIAL AND METHODS

One hundred and fifty, type 2 diabetic subjects, M:F, 57:43, with mean age 47±10 years, reporting at the Diabetes Research Centre and M.V. Hospital for Diabetes, Madras, India, for the first time, were registered for the study. None of them had been exposed to any formal diabetes patient education programme. A questionnaire was used to collect data regarding the general dietary pattern. This was done prior to dietary modifications being introduced. The questionnaire was filled up before their exposure to the education programme and diet counselling. Details regarding the consumption of various foods like sweets, fried snacks, vegetables, fruits, non vegetarian foods and the type and quantity of cooking oil used, were collected. Total grams of fat consumed by the subject per week was calculated.

Data on duration of diabetes, body mass index and other clinical parameters was obtained from the hospital records. Chi square test was done to compare the results, wherever relevant.

RESULTS

Clinical and biochemical details of the study subjects are shown in Table 1 . The subjects selected for this study were in the age range between 18 to 70 years, with duration of diabetes exceeding six months. Body mass index was $>25 kg/m^2$ in 16 (10.7%) cases. Family history of diabetes was positive in 67%. The mean family size of the subjects was 4±2.

Table 1 : Clinical Characteristics of the Study Subjects (Values are Mean ± SD) (n=150)

Age (years)	47.7±10.1
Duration of diabetes (years.)	4.9±5.9
BMI (kg/m2)	26.0±4.6
Fasting plasma glucose (mg/dl)	207±80
Post prandial glucose (mg/dl)	333±94
HbA_{1c}(%)	10.2±2.7 '
Triglycerides (mg/dl)	196±122
Cholesterol (mgldl)	204±44

It was found that 53% of the subjects felt rice should be avoided completely or partially for management of diabetes and in lieu they included wheat / ragi items liberally. Increased consumption of vegetables was observed in 68% after detecting diabetes. No major changes were found in the remaining 32%. Parboiled rice was preferred by 67% and raw rice was preferred by 33%. The method of cooking rice was by boiling and straining in 55%, and pressure-cooking in the rest.

The type of cooking oil used by the subjects before and after diagnosis of diabetes is give in Table 2. After the diagnosis of diabetes, 20 subjects (13%) had stopped using groundnut or gingelly oil and a large proportion had changed over to sunflower or saffola oil ($\chi2=7.3$, p=0.006 and $\chi2=9.72$, p=0.001 respectively). Other fats like ghee, butter etc were used by 28%. Concern about the health status was the main reason for the change in the cooking oil. 99% knew the harmful effects of using excess fats in daily food preparations. The average consumption of fat per head, per week, after detecting diabetes, was found to be 383±126 gms.

Table 2 : Cooking Oils used Before and After Diagnosis of Diabetes.

Kind of Oil	Before Diagnosis		After Diagnosis	
	n	%	n	%
Gingelly oil / groundnut oil	41	27.3	21	14.0*
Sunflower l saffola oil	62	41 .3	90	60.0*
Coconut oil / palm oil	14	9.3	7	4.7
Mustard oil	3	2.0	2	1.3
Combination of more than one oil	30	20.0	30	20.0

p=<0.05

Fried snacks were a regular item in the diet of 31 % and 45% took them occasionally. Biscuits were regularly taken as a snack by 54%, whenever they felt hungry.

Among the non vegetarians (77% of the total), 30% consumed any one form of non vegetarian food, at least once in a week. Among them, 69% were aware that mutton was a source of cholesterol and avoided it after diagnosis of diabetes. The preference for chicken and fish (32% and 23% respectively) was found to be higher than for red meats.

The frequency of consumption of roots and tubers, greens and pulses is shown in Table 3. At least one vegetable dish was included in the daily menu by 41%.

Table 3 : Frequency of Consumption of Vegetables, Pulses and Non Vegetarian (NV) Foods per Week.

	<2days		2-4days		>4days	
	n	%	n	%	n	%
Potatoes	117	78	31	21	2	2
Roots & Tubers	121	81	23	15	6	4
Greens	29	20	88	59	33	22
Pulses	35	23	82	55	33	22
NV foods	85	57	57	37	10	7

Sweets were avoided by 65% of the subjects, but 27% consumed them occasionally, and it was a regular item among 8% of the subjects.

Green leafy vegetables were consumed regularly by 80%. 65% of the subjects took intermediary foods and the foods preferred were coffee, tea or milk (47%), as they were easily available. The mean consumption of milk, by the study subjects, was found to be 317±15 ml/day.

DISCUSSION

It is now known for more than two decades that a high carbohydrate, low fat diet, with calorie restriction, is the ideal for the treatment of diabetes (2).However, generally the awareness about the appropriate diet, has not been taught to the diabetic patients. They are unaware that there is little difference in the carbohydrate contents of rice, wheat and ragi. More than half the study subjects had reduced the intake of rice, but were consuming wheat or ragi liberally. The total calorie consumption was thus higher than ideal, in most individuals. Consumption of vegetables in general, and green leafy vegetables in particular, had increased after the diagnosis of diabetes.

The major misconception regarding oil consumption was that the use of polyunsaturated oils, like sunflower and safflower oil, was good for health. Unrestricted use of these oils is known to be harmful. Recent studies suggest that groundnut oil and gingelly oil have more of omega -3 fatty acids, compared to sunflower or safflower oils(3). The use of oil was found to be generally higher than the recommended amount. Not more than 0.5kg of fat, per person, per month, is recommended. Combination of cooking oils can be reinforced. The primary purpose of reducing fat intake is to alleviate the risk of atherosclerosis and coronary heart disease, a major silent killer in diabetic patients. Use of unrestricted amount of polyunsaturated fats is not recommended. Recent studies have shown that a combination of oils is better than using only polyunsaturated oils mentioned above, for cooking.

Major misconceptions were thus regarding the major energy dense nutrients, vitamins, carbohydrates and fats.

The general public is aware of certain health care measures, such as avoidance of saturated fats and fatty meat, and inclusion of fresh vegetables in the diet. However, they have to be properly educated regarding the type of cereals and other oils to be used, and also the need to restrict the quantities, based on individual energy needs.

One of the nature's gift to mankind is fruits. They contain substantial quantities of essential nutrients, in a correct proportion. When blood glucose is under control, 100gms of fruit with a low glycemic index (e.g. Papaya, sweet lime, orange, guava etc) is allowed daily. Whole fruits are recommended rather than fruit juices.

Vegetables (except root and tubers) are rich sources of fibre, provide bulk to the diet and help to prevent overeating. Therefore, at least one vegetable dish has to be included in the daily menu. Roots and tubers can be consumed once a week by diabetic patients, but should be included as calorie-suppliers.

Intermediary foods help to keep the blood sugars constant without fluctuations. Therefore, low calorie foods like tea, coffee, skimmed milk (without sugar), buttermilk, salads etc are allowed for diabetic patients. The cream from milk should be removed before consuming.

This study has shown the general dietary habits of the diabetic subjects. This helped us to understand the importance of education and diet counselling to diabetics, especially to get rid of some of the myths and taboos that are seen among them.

REFERENCES

1. Ghafoorunissa: Dietary lipids and heart disease the Indian context . The National Medical Journal of India. 1994;7:6.

2. Viswanathan M, Ramachandran A, Mohan V, Snehalatha, C: High Carbohydrate, high fibre diet in diabetes. Jour. Diab. Asso. Ind. 1981; 21, supplement :90-6.

3. Special report of commitee on food and nutrition: Diabetes 1967: 16:738.