

Original Article

KNOWLEDGE OF DISEASE CAUSATION AND NUTRITIONAL ISSUES AMONG PATIENTS WITH DIABETES MELLITUS

JULIE U. OBIDIOZOR AND SEBASTIAN N. N. NWOSU

Diabetic Eye Clinic, Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, Nigeria

ABSTRACT

This is a prospective study to assess the awareness of insulin aetiology of diabetes mellitus among diabetics and also their knowledge of the role of various local food items in its management. Consecutive diabetes mellitus patients seen at the Guinness Eye Centre, Onitsha over a - 2 month period were interviewed with an interviewer-administered structured questionnaire on the cause of diabetes mellitus and food items that worsen or ameliorate the disease.

Of the 46 adults diabetics (M:F=1:1) interviewed only 2 patients (4.3%) knew that diabetes was due to insulin deficiency; 35 patients (76.1%) thought that diabetes was due to consuming starchy food. Forty-three patients (93.5%) believed that diabetes could be improved by eating beans or cocoyam or breadfruit; 29 (63.6%) felt that high fat diet was good for diabetes, while 40 (87%) were not sure of the role of leafy vegetable diet in the management of diabetes. It is concluded that both the awareness of disease aetiology and nutritional knowledge of diabetics among this cohort are poor. Health education of diabetics is necessary to improve patients' understanding of the causes of disease and its dietary management.

Key Words: *Diabetes Mellitus; Etiologic Knowledge; Nutritional Care.*

INTRODUCTION

Diabetes Mellitus is a metabolic disease caused by a relative or absolute lack of insulin. It is associated with hyperglycemia and disturbance of lipid metabolism. A multi-system disorder, it affects the eyes, central nervous system, autonomic nervous system, musculoskeletal system and renal system¹.

Diabetes occurs throughout the world. The World Health Organization (WHO), a few years ago observed that an epidemic of diabetes mellitus was occurring worldwide and warned that communities in developing countries and those living within the disadvantaged areas of industrialized countries were at greatest risk². It has been projected that by the year 2010 the population of diabetics worldwide would double³. Recent studies also noted an increase in the incidence of diabetes mellitus and hyperglycemia among Nigerians⁴ and diabetics constitute more than 10% of patients seen by general practitioners in Anambra State, Nigeria⁵.

Treatment of diabetes mellitus involves the use of drugs and appropriate dietary regime. Like all chronic diseases, successful long-term management of diabetes mellitus depends on the patient's cooperation and compliance with expert medical advice. Compliance with therapy is enhanced if the patient has a good understanding of the disease process. This report is on a prospective study of some Nigerians with diabetes mellitus seen at the Guinness Eye Centre, Onitsha. It

aimed at assessing their knowledge of the aetiology of diabetes mellitus and the role of diet in its management.

MATERIALS AND METHODS

Consecutive patients with diabetes mellitus seen at Guinness Eye Centre, Onitsha between February and July, 2000 were the subjects of this study. Each patient was interviewed with a structured questionnaire containing 6 key questions on cause(s) of diabetes; the role of diet and the type(s) of food (carbohydrates, fat, legumes and leafy vegetables) useful in its management. Correct answers to 4 or more questions showed that the patient had a good idea about the issues pertaining to the case of the diabetes mellitus. Statistical analysis was with the confidence intervals at an alpha level of 0.05.

RESULTS

Forty-six patients made up of 21 male and 25 female diabetics were interviewed. The age range was 43-72 years; mean (SD) 60.3 (6.5) years. Three patients (6.5%) were type 1 diabetics, while 43 (93.5%) had type 2 diabetes mellitus.

Twenty-five (54.3%) attained post-secondary education; 16 (34.7%) had secondary school education; 3 (6.5%) had primary school education and 2 (4.3%) were illiterates. All the patients had symptoms of ocular disease, and diabetic retinopathy was present in 61% of the patients.

As shown in Table 1, while 35 patients (76.1%) thought that diabetes mellitus was due to eating carbohydrate diet, only 2 patients (4.3%) knew that it was caused by lack of insulin. On the other hand, 28 patients (60.9%) said diabetes was not due to lack of insulin. These were statistically significant ($P>0.05$).

Table 2 shows that only 8 patients (17.4%) knew that diabetics could eat small quantities of the common Nigerian carbohydrates staple diet, while 29 (63.6%) felt that high fat diet was good for diabetics; forty-three patients (93.5%) believed that eating beans or cocoyam or breadfruit improves diabetes, while 40 patients (87.0%) were not sure of the role of leafy vegetable diet in the management of diabetes. Only 7 patients (15.2%) gave correct answers to at least 4 out of the 6 key questions and were deemed to have good idea about diabetes mellitus. These findings were also significant ($P<0.05$).

DISCUSSION

Diabetes mellitus is a chronic disease requiring the afflicted to be on life-long treatment and dietary advice. Reports from multi-centre clinical trials showed that sustained good control of blood sugar lowers both ocular (retinopathy) and renal complications of diabetes mellitus^{6,7}. Compliance with medical advice and treatment is enhanced if the affected patient understands the issues involved in diabetes mellitus. Such understanding will expectedly motivate the patient adherence to the correct treatment regime.

Of concern to both patients and health workers in Nigeria is the place of local food staple in the dietary management of diabetes mellitus. Food recipe for diabetics found in standard textbooks often dwell on non-Nigerian diet⁸. The diabetic food exchange formula being used in developed countries is difficult to use since the Nigerian local food staple cannot be easily measured with this method⁹. There is paucity of data on what would constitute the proper dietary management of the Nigerian diabetic with the commonly available foodstuffs. Ohwovoriole and Johnson¹⁰ in a study of the type of food useful for diabetics in Nigeria showed that boiled beans, 'dodo', rice, yam, and 'eba' (all Nigerians dietary staple) eaten with local sauce like 'egusi' or 'beef stew', evoke glycemic response with 'eba-egusi' mixture showing the highest response and boiled beans showing the least response. Oli, Ikeakor and Onwuamaeze¹¹ in another study documented that roasted yam and cocoyam evoked a higher glycemic response than boiled yam, cocoyam, plantain, rice, garri (eba) and beans. This suggests that method of preparing the good (cooking) can influence the blood sugar response.

In most hospitals and clinics in Nigeria, dietary management of diabetes mellitus usually consists of low carbohydrate and high protein diets with patients being advised to consume a lot of beans and little starchy food; attention is scarcely paid to dietary fat intake⁸. It is thus, not surprising that most patients in this study do not know the implication of high fat diet on the prognosis of diabetes mellitus. But lipid metabolism is also deranged in diabetes mellitus¹.

The results of this study show that only 15.2% of the patients have good idea of the causes and dietary issues as they relate to the care of diabetics. This finding is surprising and statistically significant. All the patients in the cohort had been previously diagnosed diabetics by general practitioners or physicians and they only consulted the ophthalmologist on account of visual symptoms. The presence of diabetic retinopathy in 61% of the cohort points to the long duration of the disease in the patients. Most of the patients studied had good formal education with 89% having at least secondary school education. Yet a poor knowledge of issues relating to the care of diabetes mellitus prevails among them. A higher ignorance rate is therefore expected in the general population.

As can be inferred from the results of this study, formal education even up to tertiary level, does not automatically confer the individual with good knowledge of disease processes; its natural history and the scientifically proven modes of care. Smith⁸ had opined that many diabetics in Nigeria not only lack knowledge of the disease and the role of diet in its management but their problems are compounded by misinformation they receive especially from members of the public and some care-givers. The results of the present study support that opinion. In an environment where the juju or demonic concept of disease still prevails, it requires a lot of effort to convince patients that their problems are not due to the machinations of the enemy.

It is therefore recommended that regular and repetitive health education be given to all diabetic and indeed the general public on the cause of diabetes mellitus, and its management. Information on the role of diet; the types and quantity of the local diet useful in the management of diabetes should also be made available to health workers. The trained dieticians apart from determining the actual food portions based on the caloric requirements prescribed by the physicians should also be actively involved in the dietary education of the diabetes mellitus patients in the out-patient clinic.

REFERENCES

1. American Academy of Ophthalmology. Basic and Clinical Science Course. Section 1: Update on General Medicine. San Francisco: *American Academy of Ophthalmology* 1998:155-168.
2. King H, Rewers M. Diabetes in adults is now a third world problem. *Bull WHO* 1991;69(9):643-648.
3. Amos AF, McCarty DJ, Zimmet P. The rising global burden of diabetes and its complications: estimates and projections to the year 2010. *Diabetes Med* 1997; 14 (suppl 5):S1-85.
4. Ohwovoriole AE, Kuti JA, Kabiawu SIO. Casual blood glucose levels and prevalence of undiscovered diabetes mellitus in a Nigerian diabetic population. *Diabetes Res Clin Pract* 1988;4:153-158.
5. Nwosu SNN. Medical practitioners and eye care of diabetic patients. *Niger Med J*. 2000; 38(2):42-45.
6. The Diabetes Control and Complication Trial Research Group. The effect of intensive treatment of diabetes on the development and development of long term complications in insulin-dependent diabetes mellitus. *N. Engl. J Med* 1993;329:977-986.
7. UK Prospective Diabetes Study Group. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes. UKPDS 38. *BMJ* 1998;317-703-713.
8. Smith IF. Current trend in dietary management of diabetes mellitus. *Nigerian Journal of Nutritional Science* 5(2):79-86.
9. Otuyelu F. Diabetic diet for the Nigerian. *Nigerian Medical Practitioner* 1982;3:48-51.
10. Ohwovoriole AE, Johnson TO. Which food for the Nigerian diabetic? *Nigerian Journal of Nutritional Science* 1984;5(1):59-62.
11. Oli JM, Ikeakor IP, Onwuamaeze IC. Glucose response to some Nigerian staple foods. *Proc. Nutr. Soc Nig*. 1983;14:8.

TABLE 1: PATIENT'S VIEW ON CAUSES OF DIABETES MELLITUS

	Yes (%)	No (%)	Don't know (%)	95% Confidence limits
DM* caused by insulin lack	2 (4.3)	28 (60.9)	16 (34.8)	11.63-18.97
DM caused by carbohydrate diet e.g. rice, yam or garri	35 (76.1)	7 (15.2)	4 (8.7)	10.36-20.24
P value				<0.05

*DM = Diabetes Mellitus

TABLE 2: PATIENT'S VIEW ON DIETARY CARE OF DIABETES MELLITUS

	Yes (%)	No (%)	Don't know (%)	95% Confidence limits
Diabetes improved by beans or yam or breadfruit diet	43 (93.5)	0 (0.0)	3 (6.5)	9.91-20.69
High fat diet is good for diabetics	29 (63.6)	17 (36.4)	0 (0.0)	11.09-19.51
Predominantly leafy vegetable diet is good for diabetics	7 (15.6)	20 (44.6)	19 (41.3)	10.92-19.68
Diabetics can eat little rice, yam, or garri	8 (17.4)	21 (45.7)	17 (37.0)	11.48-19.12
P value				<0.05