

## **Patterns of Management of Diabetic Mellitus and the Outcome in the Enugu State University Teaching Hospital, Enugu, South East Nigeria**

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### **Abstract**

**Aim:** To assess the patterns of management of Diabetic Mellitus and the outcome in the Enugu State University Teaching Hospital, Enugu Nigeria. **Method:** A total of 422 patients with type-2 Diabetes Mellitus (DM) who were being managed at the Enugu State University Teaching Hospital were studied within a six months period. They were issued with structured self-administered questionnaires which collected information on their socio-demographic profiles, types of management patterns being used for their illness ie, insulin therapy, oral hypoglycemic drugs, dietary restrictions and in some cases a combination of both. **Results:** The patients were well-matched for gender i.e. 51.9% males while 49.1% females. About 87.9% were above the age of 40 years while 63.5% of them were married. About 67.7% of the patients were employed, while some were in the government sector, others were in the private sector and the remaining were self employed. About 75.6% had basic education from the secondary level and above. About 6.9% of patients were being managed solely on dietary control, 24.9% were on drug therapy, while 68.2% were on both drug and dietary therapy. 38.9% are on insulin therapy, 81.5% use their personal glucometer to monitor their blood sugar. 76.1% testified that they have done well with the pattern used to manage their illness and hence were satisfied with it. **Conclusion:** Type-2 Diabetes Mellitus is a disease of old age hence over 87% of the patients in this study were above 40 years. About 70% were employed and of course the disease would have an effect on their jobs. Over 68% of the patients were on both dietary and drug therapy and 81.5% use their personal glucometer to monitor their blood sugar. Since 76.1% are satisfied with the outcome of their treatment, it means these management patterns are effective for the DM patients in ESUT Teaching Hospital Enugu.

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**Key words;** Enugu State University Teaching Hospital, Patterns of Management of Diabetes Mellitus and the outcome

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## Introduction

Type 2 diabetes (DM), formerly known as adult-onset diabetes, is a form of diabetes that is characterized by high blood sugar, insulin resistance, and relative lack of insulin.<sup>1</sup> Common symptoms include increased thirst, frequent urination, and unexplained weight loss.<sup>2</sup> Symptoms may also include increased hunger, feeling tired, and sores that do not heal.<sup>2</sup> Often symptoms come on slowly.<sup>1</sup> Long-term complications from high blood sugar include heart disease, strokes, diabetic retinopathy which can result in blindness, kidney failure, and poor blood flow in the limbs which may lead to amputations.<sup>3</sup> The sudden onset of hyperosmolar hyperglycemic state may occur; however, ketoacidosis is uncommon.<sup>4,5</sup> Type 2 diabetes primarily occurs as a result of obesity and lack of exercise.<sup>3</sup> Some people are more genetically at risk than others.<sup>1</sup> Type 2 diabetes makes up about 90% of cases of diabetes, with the other 10% due primarily to type 1 diabetes and gestational diabetes.<sup>3</sup> In type 1 diabetes there is a lower total level of insulin to control blood glucose, due to an autoimmune induced loss of insulin-producing beta cells in the pancreas.<sup>6,7</sup> Diagnosis of diabetes is by blood tests such as fasting plasma glucose, oral glucose tolerance test, or glycated hemoglobin (A1C).<sup>3</sup> A cohort study done by Datta-Nemdharry P et al on “Pattern of anti-diabetic medication use in patients with type 2 diabetes mellitus in England and Wales” showed that first line medication among diabetic patients varied. There was better glycemic control with metformin (mean HbA1c =8.68%) than with sulphonylureas (mean HbA1c = 9.31%) and insulin (mean HbA1c =9.98%).<sup>8</sup> The work done by Jingi AM et al on “Primary care physicians practice regarding diabetes mellitus diagnosis, evaluation and management in the west regions of Cameroon” showed varying patterns employed by health workers in diabetes mellitus management. Out of the sixty-six primary care physicians (PCPs) who were interviewed, only 6 PCPs (9.9%) prescribed the correct minimal work-up to evaluate diabetic patients at diagnosis. PCPs advised lifestyle modifications in 92.4% of cases, and thirty nine (53.1%) PCPs used to prescribe both generic and specific oral anti-diabetic drugs in cases of uncomplicated type 2 DM management. The two main classes of anti-diabetic drugs prescribed were biguanides (77.3%) and sulphonamides (60.6%). Nearly all PCPs (97%) used to give frequent follow-up appointments to their patients.<sup>9</sup> A cross-sectional study conducted by Rasaq A et al “To evaluate management approach and outcome in two diabetes-specialty clinics in Nigeria” showed there are differences and similarities between the diabetes-specialty clinics with respect to diabetes management and outcome. Out of the 185 patients- 113(64.2%) from UCH and 63(35.8%) in OAUTHC who were studied over a 3months period post-treatment, fourteen (13.1%) patients from UCH were placed on insulin therapy alone compared to none in OAUTHC (p=0.01). Proportions of patients on more than four medications were 57 (53.3%) in UCH and 46 (73.0%) in OAUTHC (p=0.01). Non-inclusion of supplementary instructions for anti-diabetes prescriptions was common in both hospitals, 81 (75.0%) UCH and 61 (98.4%) in OAUTHC (p=0.00). Also the study showed that patients who engaged in the practice of self-monitoring of blood glucose in UCH were 26 (23.0%) compared to 13 (20.6%) in OAUTHC (p=0.72). Ninety-seven (89.8%) patients from UCH and 60 (96.7%) in OAUTHC (p=0.10) did not keep record of blood glucose result either self-measured or hospital-measured.<sup>11</sup> In a study done by Nwawuba Stanley Udogadi, Nwozo Sarah Onyenibe et al on “Dietary Management of Diabetes Mellitus with Focus on Nigeria” they stated that knowledge of the glycemic index (GI) of food types is essential for rational advice on calorie recommendation. Glycemic index is rated on 1 to 100.

Foods which raises the blood glucose quickly after meal are known as high glycemic index meals and they are assigned a value of 70 and above, Medium- GI = 56-69 %, while foods which releases glucose slowly into the blood stream are known as low GI foods and their values are 55 and below. Low GI foods reduce postprandial blood glucose levels and this knowledge can be used in recommending and planning meals for people living with diabetes. It is apparent that food meal type with high glycemic index classification (Table 2) should not be encouraged in the dietary plan for people with diabetes. However, food meals with intermediate GI may sparingly be allowed<sup>12</sup>

## RESULTS

**A total of 422 questionnaires were distributed and retrieved.**

Variables	Frequency	Percentage
<b>Gender</b>		
Male	215	50.9
Female	207	49.1
Total	422	100.0
<b>Age</b>		
<30 years	11	2.6
31 - 40 years	40	9.5
41 - 50 years	82	19.4
51 - 60 years	110	26.1
>61 years	179	42.4
Total	422	100.0

<b>Marital status</b>		
Single	78	18.5
Married	268	63.5
Divorced/separated	30	7.1
Widowed	46	10.9
Total	422	100.0

<b>Occupation</b>		
Unemployed	49	11.6
Government employed	149	35.3
Private sector employed	77	18.2
Self employed	60	14.2

Retired	53	12.6
Farming	23	5.5
House wife	11	2.6
Total	422	100.0

<b>Educational level</b>		
None	37	8.8
Primary school	66	15.6
Secondary school	88	20.9
OND/HND	87	20.6
Tertiary	144	34.1
Total	422	100.0

59.1% were males while 49.1% were females.

Over 75.6% have secondary education and above.

68.6% were above the age of 50years

Most are married (63%),

(35.3%) were government employed

**Table 2: Management patterns of diabetic mellitus employed by health care professionals at the medical clinic in ESUTH and their outcome.**

Variables	Frequency	Percentage
<b>Which options of management did your doctor present to you</b>		
Dietary control	29	6.9
Drug therapy	105	24.9
Both	288	68.2
Total	422	100.0
<b>Are you on insulin injections</b>		
Yes	164	38.9
No	258	61.1
Total	422	100.0

<b>Does your physician advise you to use personal glucometer</b>		
Yes	344	81.5
No	78	18.5
Total	422	100.0
<b>Have you been satisfactorily controlled with your pattern of management</b>		
Yes	321	76.1
No	101	23.9
Total	422	100.0

Majority 68.2% were given the options of both dietary and drug management, while those on only drug therapy were 24.9% and those on dietary control only were 6.9%

About 61% of the respondents are not on insulin injection, 38.9% are using insulin injection. Majority 81.5% were advised to use personal glucometer and 76.1% are satisfactorily controlled with the pattern of management.

**Discussion;** Although our own study dwelt on the use of oral hypoglycemic drugs, insulin and dietary control, the results were comparable to the study done by Rasaq A et al at UCH Ibadan and OAUTHC Ile-Ife<sup>11</sup> While our study found out that there was a mixture of use of oral hypoglycemics, and dietary control, our colleagues found that there was a mixture of different types of oral hypoglycemic drugs. However there was non-inclusion of supplementary instructions for patients studied at UCH and OAUTHC and this could largely account for the non use of dietary therapy on these patients. Our study largely agrees with the work done by Nwawuba Stanley Udogadi, Nwozo Sarah Onyenibe et al on “Dietary Management of Diabetes Mellitus with Focus on Nigeria”<sup>12</sup> While we found out that use of dietary therapy alone or in combination with oral hypoglycemic drugs was beneficial to the patients, our colleagues argued that the knowledge of the glycemic index (GI) of food types is essential for rational advice on calorie recommendation for patients with type-2 diabetes mellitus.

**Conclusion;** Diabetes mellitus (DM) is a chronic disorder that is not only assuming pandemic proportions worldwide but also poised to affect the developing countries of the world much more than their developed counterparts. The world prevalence is increasing and in Africa the number of people with diabetes is also on the increase. This calls for concerted efforts aimed at tackling this disease globally and more especially in Africa where the health resources are too meager to cope with this rate of astronomical increase in the prevalence. It is therefore necessary that use of

a combination of multiple management strategies (as can be seen in this study) would produce more acceptable outcomes than continued use of just one method.

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