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Dietary practices of type 2 diabetes mellitus in Nigeria: The case of Lagos state

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Background: Type 2 diabetes is rapidly increasing in Nigerian densely populated cities, such as Lagos. Dietary and lifestyle practices of type 2 diabetic patients in Nigeria have not been explored and the results of the study will serve as useful guide in formulating evidence-based policies in the health sector.

Objective: This study aims to examine the relationship of macronutrient intake and physical activity level to improve blood glucose and body mass index (BMI) of type 2 diabetic patients.

Method: 56 respondents were selected from the list of diabetic patients (≥18 years) from the Lagos State Ministry of Health. Anthropometrics and biochemical indicators for blood glucose results were obtained from the teaching hospital. 24-hour dietary recall and information on physical activity were assessed using principal component analysis. Pearson correlation, multiple linear and logistic regression analysis were used to assess the relationship of macronutrient intakes with other parameters.

Results: Participants (mean age of 48 years, BMI of 28.3±4.3 kg/m2 and total energy intake of 1,883 kcal/day) were selected while carbohydrate provided 56% of energy intake. Contrary to nutritional recommendations for diabetic patients, 80% had low daily intake of fiber, which affects blood sugar control and promote other risks associated with diabetes. 26.8%, 53.6% and 19.6% respectively met recommended carbohydrate, protein and fat daily intake. Physical activity was negatively related with BMI and other risk profiles of diabetes. Women physical positioning at work was positively associated with BMI.

Conclusion: Findings suggest that improved dietary habits and caring will potentially improve clinical and metabolic outcomes in patients living with diabetes.

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Alogliptin DPP4 inhibitor, improved cognitive and depressive function of obese ApoE-/- mice

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Objective: Obesity has been associated with cognitive deficits and even dementia, accordingly the metabolic abnormalities such as diabetes. We hypothesized anti-diabetic agent, alogliptin and DPP4 inhibitor affect on cognition deficits and metabolic abnormality.

Methods: Three months oral administration of alogliptin (30 mg/kg/day) were performed in ApoE-/- mice with high-fat diet (HFA, n=15). The non-treated mice with high-fat diet (HFD, n=15) became obese. Mice were fed from the age of 8 weeks until 20 weeks. As a control, non-exercised mice without high-fat diet (NOR, n=15) were prepared. Morris water maze test as spatial learning and novel object recognition test as recognition memory were performed. Forced swimming test as depressive state was also performed.

Results: Mice in HFD showed cognition deficits, depressive condition and metabolic abnormality. The alogliptin treatment did not reduce the body weight compared with non-exercised mice with high-fat diet (HFA; 46.5±5.9 g vs. HFD; 49.7±2.7 g vs. NOR; 30.4±1.6 g, P<0.05). The liver weight/ body weight ratio was significantly reduced in HFA compared with HFD (HFA; 59±17 x10-3 vs. HFD; 76±18 x10-3 vs. NOR; 48±9 x10-3, P<0.05). The circulating levels of liver enzyme and triglyceride were significantly lower in HFA compared with HFD. Both Morris water maze test and novel object recognition test were significantly recovered in HFA compared with HFD. The forced swimming test was also recovered in HFA compared with HFD.

Conclusions: We could mention that alogliptin treatment could attenuate cognitive deficit and depressive function in association with metabolic advantages.

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