Macronutrients intake & its association with risk factors of micro- & macrovascular diseases in type 2 diabetic subjects

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Background

Intake of macronutrients by diabetic subjects has major implication on the development of diabetic complications. The intake and degree of association between intake and the risk factors may vary substantially among populations depending on environmental, economic and socio-cultural factors. The above issues, essential for designing lifestyle modification have not yet been adequately investigated among Pakistani population.

Aims

To assess the intake levels of carbohydrate, protein and fat among newly registered type 2 diabetic subjects at BIDE.
To investigate the proportions and level of micro- and macrovascular diseases risk factors.

Methodology

An observational analytical study was conducted on a diabetic cohort managed at Baqai Institute of Diabetology and Endocrinology in Karachi, Pakistan. First visit data of 9563 subjects was retrieved from the digital Hospital Management System. Macronutrient intake data was based on 24-hr dietary recall. Anthropometric (height and weight) and biochemical (FPG, RPG, HbA1c, lipid profile, and BP) measurements were done using the standard protocols. Univariate, bivariate and multivariate analysis were done accordingly.

Results

General Characteristics of the Study Subjects:

Age: 51 % between 35 to 55 years

Sex: 54 % male, 46 % female

Occupation: 43 % housewives, 42 % employed

Marital Status: 92 % married

Smoking: 85 % non-smokers

Drinking: 98.5 % non-drinkers

Dietary Compliance: 69 % moderately compliant

Physical Activity: 60 % sedentary and 33 % lightly active

Average macronutrient intake in terms of grams and calories

Level of macronutrient intake with respect to HbA1c

Prevalence of risk factors among the study subject

Macronutrient intake with respect to LDL-C

Macronutrient intake in BMI sub-group

Macronutrient intake with respect to triglyceride

Discussion

The frequency of macro- and microvascular diseases risk factors are fairly high among this cohort of people living with diabetes. The high prevalence of uncontrolled diabetes and obesity can be attributed to excessive intake of carbohydrates, which was almost 15 to 20% higher than generally accepted guidelines for people with diabetes. The higher frequency of the risk factors can be due to high saturated fat intake as well but since the nature of data did not reveal the sources of protein we cannot calculate the actual intake of fat of the study subjects. An addition of some variables like type of protein source and, type and duration of physical activity will allow us to have a clearer picture of the situation. Following the subjects over time will assist in tracking the improvements in health practices and outcomes.