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Association Between Dietary Patterns and Obesity Among Type 2 Diabetics in Patients Visiting a Tertiary Care Centre of Eastern Nepal

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ABSTRACT

Due to the rapid increase, obesity can now be considered as an epidemic. It has been seen that obesity and type 2 diabetes go hand in hand. Not only medical intervention, but proper dietary regimen is necessary to control diabetes. A questionnaire was administered regarding the dietary pattern, and all other data regarding socioeconomic status, and anthropometric measurements were taken. Detailed history regarding frequency of food intake were taken in a twenty-four hour recall method. More than 85 percent of the participants had a greater waist to hip ratio and more than 40 percent were overweight. Most of the participants consumed more quantity of carbohydrate –rich food which contributed to the increase in blood sugar. A balanced diet intake is absolutely necessary for effective weight loss and control of blood glucose levels.

KEYWORDS : dietary pattern, type 2 diabetes

Introduction

Obesity and overweight are the major causes behind the rapid increase in diabetes worlwide.[1] Among diabetics the prevalence of obesity is quite high. Uncontrolled type 2 diabetes causes many complications which increases morbidity. Once a person becomes obese the likelihood of having diabetes increases and therefore diabetes mellitus is also called a disease of obesity.[2]

Unlike Europe and the United States, in South Asia due to the sudden transition during adulthood to calorie high foods, there is a substantial spurt in the diabetic population.[3] Even the slightest amount of increase in body mass contributes a lot for the onset of diabetes. The consumption of foods which are rich in calories and poor in fibre play a major role in causation of diabetes.[4]

This dietary pattern, coupled with sedentary behaviors, promotes obesity, T2DM, and CVD in both urban and rural areas. This phenomenon has recently been confirmed by the first phase results of the ICMR–INDIAB study in 2011.[5] Economic growth and urbanization lead to predictable shifts in diet, called "nutrition transitions." In huntergatherer societies, people forage for food.[6] Next, they shift to rudimentary agriculture, often enduring famine. As wealth and technology grow and famine recedes, calorie intake rises, 6 leading to overeating and obesity.[7]

Therefore the objective of this study was to determine the interrelationship between dietary pattern, obesity and type 2 diabetes mellitus.

Materials and Methods

800 diabetic patients coming to the outpatient department were included in this study.

All the demographic parameters were collected and history regarding dietary pattern was taken. Anthropometric measurements like height, weight and BMI were recorded individually for all subjects. WHO criteria was used to establish the different classes of overweight and obesity. Chi-square test was done to find out the association between dietary pattern and obesity.

Results

Table 1 shows the prevalence of different levels of obesity.

Obesity grade	WHO range	Percentage of subjects
Underweight	Less than 18.5	1.2
Within normal range	18.5 to 24.99	9.0
Overweight	More than 25	13
Preobese	25.1 to 29.9	12.3
Obese	More than 30	64.5

Table 2 shows the association between dietary patterns and obesity.

Food Pattern	% of overweight, preobese and obese individuals	p-value
Non-vegetarians	52.8 %	0.002
Lacto-vegetarians	12.1 %	
Lacto-ovo vegetarians	14.3 %	
Ovo-vegetarians	9.0 %	
Vegetarians	11.8 %	

p-value of <0.05 considered as significant

Discussion

Diabetes has now become a worldwide epidemic and it has been seen that obese people are more prone to develop type 2 diabetes.[8] Similar findings were seen in this study as well. The percentage of overweight, preobese and obese were 13, 12.3 and 64.5 respectively. Obesity in diabetes is a very common phenomenon and it has been said that obesity and diabetes go hand in hand. Food pattern of the sample population is of five types. Strictly speaking, vegetarian type of food pattern means a diet completely devoid of all animal products and by products like meat, milk, eggs, cheese, poultry, fish, yogurt etc, while lacto and ovo vegetarian refers to the inclusion of milk and egg in the diet respectively. On the other hand ovo-lacto vegetarian implies the inclusion of both eggs and milk and its products while non

vegetarian includes all the above types of food in the diet.[9]

It is seen in Table 2 which shows the association between obesity and dietary pattern, that the maximum number of overweight, preobese and obese individuals are non-vegetarians. Nutrition recommendations for diabetics are crucial since they not only bring down the blood sugars but also targets the adequacy of nutrition in addition to bringing down the weight.

Conclusion

Awareness about dietary habits emphasizing the more intake of vegetables, lesser carbohydrate consumption, the need to maintain an optimum body weight are important in preventing obesity which could later become a cause for diabetes. Right eating practices, concept of balanced nutrition intake and the need of scheduled exercise regimen should be considered to improve the quality of life of the diabetics.

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