Evaluation of the Effect of Carbohydrate Count on Nutritional Habits and Metabolic Control in Adolescents with Type 1 Diabetes

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INTRODUCTION

Type 1 Diabetes Mellitus (T1DM) is a chronic disease and requires lifelong care and management. Carbohydrate (CHO) counting is one of the meal planning methods that can be preferred in the treatment of diabetes.

AIM

This study aimed to investigate the effect of carbohydrate counting on the nutritional habits and metabolic control of adolescents with Type 1 DM.

METHOD

Patients with Type 1DM diagnosis between the ages of 10-19 who applied to our hospital's Pediatric Endocrinology outpatient clinic and wanted to participate in the study voluntarily were included in the study. A questionnaire form (Food Consumption Frequency Form) aimed at evaluating the nutritional habits of the patients was administered through face-to-face interviews. In addition, the clinical information of the patients registered in the hospital information management system was examined. HbA1c level was used to evaluate metabolic control. Data of patients who counted carbohydrates and those who did not were compared.

RESULTS

Fifty (58% female) adolescents diagnosed with T1DM with a mean age of 13.3 ± 2.6 years (10-19) were included in the study.

54% (n = 27) of the cases had received CHO count training, while 42% (n = 21) were performing CHO count.

The average age of the patients who performed the CHO count was 13.1 ± 2.3 years (10-19), 66.7% (n = 14) of them were female. The average age of the group that did not perform the CHO count was 13.5 ± 2.7 years (10-19), and 51.7% (n = 15) were female. There was no difference in age and gender distribution between the two groups (p = 0.62, p = 0.30, respectively).

The mean duration of diabetes was 5.2 ± 3.5 (1-12) years in the group using the CHO count, and 4.9 ± 3.0 (1-12) years in the group that did not, and did not differ between the groups (p = 0.16).

While there was no difference between the number of daily snacks and snacks and the amount of CHO consumed in the main meal between the group that used the CHO count and the group that did not use the CHO count, it was found that the group that used the CHO count consumed more CHO in snacks (respectively p = 0.40, p = 0.37, p = 0.50, p = 0.04).

No significant difference was found between the groups in terms of consumption frequency of food items (meat-eggs-legumes, milk and dairy products, bread and fruit, foods containing simple carbohydrates, butter-olive oil), ready-made food (toast-hamburger-sandwich) and tea-coffee (p> 0.05).

The mean HbA1c level was 8.4 ± 1.8% (6.1-13.7) in the group that used the CHO count, and 8.4 ± 1.7% (6.4-14.1) in the group that did not, and it was not different between the groups. (p = 0.95)

DISCUSSION

Metaanalysis reported by Bell et al showed that 5 of 7 randomised controlled studies which compared effects of carbohydrate counting and other nutrional plannings on glisemic control in children and adults with type 1 diabetes showed carbohydrate counting is superior, 2 study usage of procedures such as less not quantitative food changing lists are superior or equal. In a study designed in Turkey, Gökşen et al compared changing lists focused meal plans and carbohydrate counting and reported that HbA1c decreased at the end of 6th month in both groups but no differences in HbA1c levels between two groups.

CONCLUSIONS

We found that CHO count, which is known to provide diversity and flexibility in food selection for diabetic individuals, causes an increase in the amount of CHO consumed especially in snacks in adolescents with T1DM, but does not have a significant effect on nutritional habits and metabolic control.

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