Estimation Of the Glycemic Index of Some Local Meals in Patients with Type-2 Diabetes Mellitus By Using The Continuous Glucose Monitoring System

Samir H Assaad (1), Talaat A Abdelaaty (2), Magdy H Megallaa (3), Hossam E Mahmoud (4)

1. Professor of internal medicine, Faculty of medicine, University of Alexandria.

2. Professor of internal medicine, Faculty of medicine, University of Alexandria.

3. Professor of internal medicine, Faculty of medicine, University of Alexandria.

4. Master degree of internal medicine, Faculty of medicine, University of Alexandria.

Abstract:

Background:

Nutrition therapy is the cornerstone of treatment in patients with type 2 diabetes mellitus (T2DM) and should be part of the continuing care of the patient throughout the course of disease. The aim of this study was to determine the glycemic index values of some local meals in patients with type 2 diabetes.

Methods:

In this study 33 different mixed meals that Egyptians commonly consume were tested for their glycemic index values on 40 type 2 diabetic patients. All meals contained 50 gram carbohydrate. The tested meals were divided into 3 groups according to time of consumption (meals for breakfast, meals for lunch, meals for dinner).

Determination of the glycemic index (GI) of each meal was accomplished via the help of the continuous glucose monitoring system (CGMS).

Results:

The test meals in this study had significantly different glycemic index values. On the basis of a GI for glucose of 100, we've been able to classify our results into lower GI foods ((GI ≤ 55), medium GI foods ((GI = 56-69) and high GI meals ((GI ≥ 70). It was also shown that glycemic responses to carbohydrate foods are greatly modified by the co-ingestion of other macronutrients like fat, protein and dietary fiber. We also noticed a significant positive relationship between the GI and the maximum increase in plasma glucose across the 33 tested food items. However, we couldn't find any consistent relationship between the GI and the time to peak BGL.

Conclusion:

The GI of foods have a large inter- and intra-individual variability due to various factors. It was also observed that Differences in the GI of individual foods were greatly diminished or even "lost" when the foods were incorporated into meals, possibly because fat and protein were found to be more strongly associated with the GI of foods than with the carbohydrate itself. CGMS has been shown to give identical values of GI when compared to traditional methods.

Key words:

Type 2 diabetes mellitus, glycemic index, continuous glucose monitoring system, blood glucose level.