Effects of a Structured Self-Monitoring of Blood Glucose Method on Patient Self-Management Behavior and Metabolic Outcomes in Type 2 Diabetes Mellitus

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Abstract

Background:

The purpose of this study was to evaluate the effect of structured self-monitoring of blood glucose (SMBG) on patient self-management behavior and metabolic outcomes in patients with type 2 diabetes mellitus (T2DM).

Methods:

From January to June 2009, 30 patients with basic diabetes education were followed for a period of 90 days. To provide assessment of glycemic control and frequency of dysglycemia, patients, underwent 3 consecutive days of seven-point SMBG during each month for 3 consecutive months, using the ACCU-CHEK 360° View tool. Glucose profiles of the first and third month were used for comparison.

Results:

Hemoglobin A1c (HbA1c) improved significantly during the 90-day period in all patients [confidence interval (CI) 95%, 0.32–1.64%, $p < .05$] and those with poor metabolic control (group B; CI 95%, 0.86–2.64%, $p < .05$). Mean blood glucose (MBG) values decreased significantly in group B (CI 95%, 0.56–24.78 mg/dl, $p < .05$) and all cases (CI 95%, 1.61–19.73 mg/dl, $p < .05$). Meanwhile, there was an average decrease of 15.7 mg/dl in fasting blood sugar (FBS) levels in the whole subjects. Mean postprandial blood glucose levels (MPP) decreased by 19.3 and 11.3 mg/dl in group B and in all cases, respectively. However, there were no significant changes in HbA1c, MBG, FBS, and MPP in people with good metabolic control.

Conclusion:

A structured SMBG program improves HbA1c, FBS, MPP, and MBG in people with poorly controlled diabetes. This improvement shows the importance of patient self-management behavior on metabolic outcomes in T2DM.

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