

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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Abbreviations: (ASIA) Auto-Surveillance Intervention Active study, (BMI) body mass index, (CI) confidence interval, (DiGEM) Diabetes Glycemic Education and Monitoring study, (FBS) fasting blood sugar, (HbA1c) hemoglobin A1c, (IEM) Institute of Endocrinology and Metabolism, (MBG) mean blood glucose, (MPP) mean postprandial blood glucose, (SD) standard deviation, (SMBG) self-monitoring of blood glucose, (T2DM) type 2 diabetes mellitus

Keywords: diabetes, metabolic outcomes, self-management behavior, self-monitoring of blood glucose

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