

Association of Self-Monitoring of Blood Glucose Use on Glycated Hemoglobin and Weight in Newly Diagnosed, Insulin-Naïve Adult Patients with Type 2 Diabetes

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Abstract

Background:

Clinical trials have shown that self-monitoring of blood glucose (SMBG) combined with patient education and medication titration can lead to improved glycated hemoglobin (HbA1c) and reduced weight in recently diagnosed non-insulin-treated type 2 diabetes mellitus (T2DM) patients. This retrospective matched cohort study assessed the association of SMBG with achieving long-term clinical outcomes in these patients in a real-world clinical setting.

Methods:

Using electronic medical records (2008–2011), we selected a population of adult patients recently diagnosed with T2DM not receiving insulin who were SMBG users and a population of non-SMBG controls with similar demographic and clinical characteristics using propensity score matching. The main study outcomes compared between the two groups were time to achieve (1) HbA1c <7% for patients with baseline HbA1c ≥7% and (2) a ≥5% reduction in weight from baseline.

Results:

Of the 589 patients identified in each group, 113 in each group had a baseline HbA1c ≥7% (mean, 8.2%). The SMBG users were more likely to achieve an HbA1c <7% (12 months: 58.4% versus 38.9%, $p = .0037$; 36 months: 84.0% versus 70.0%, $p = .0013$) and to do so faster (median, 6.5 versus 20.5 months; log-rank $p = .0016$). Self-monitoring of blood glucose was associated with faster weight reduction (median time to achieve a ≥5% reduction, 23.5 versus 35.9 months for SMBG and non-SMBG, respectively; log-rank $p = .0005$).

Conclusions:

In newly diagnosed T2DM insulin-naïve patients, SMBG users had an improved rate of achieving long-term glycemic control and weight loss in a real-world clinical setting.

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Abbreviations: (BP) blood pressure, (EMR) electronic medical record, (HbA1c) glycated hemoglobin, (HR) hazard ratio, (NIT2DM) non-insulin-treated type 2 diabetes mellitus, (RMG) Reliant Medical Group, (SMBG) self-monitoring of blood glucose, (T2DM) type 2 diabetes mellitus

Keywords: HbA1c, overweight, self-monitoring of blood glucose, type 2 diabetes mellitus

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