Accurate Self-Monitoring of Blood Glucose (SMBG) and Tailored Education Improves Metabolic Control in Type 1 Diabetes (The MEASURE Study).

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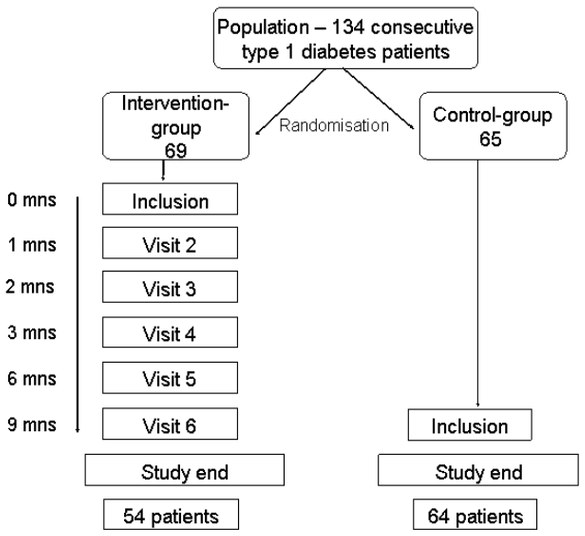
Conclusion: A structured and focused intervention on SMBG results and interpretation was used. The intervention resulted in a clinically and statistically significant decline in A1c compared with the control group receiving standard care (Figure 3). The intervention on SMBG was performed in a regular outpatient setting, on a population of unselected type 1 diabetes patients with inadequate metabolic control and could be relevant and applicable for most clinics providing diabetes care in a similar fashion.

Introduction:

•SMBG is a cornerstone in diabetes self-management. We designed the randomized controlled MEASURE-trial (Metabolic Effects of Accurate Blood Sugar Results and Education in Type 1 Diabetes) to study the effect of a targeted SMBG-based intervention on metabolic control in patients with type 1 diabetes.

Materials and methods

• **Study design:** Figure 1



• **Inclusion criteria:**
- A1c ≥8%
- Insulin: Multiinjectjon/pump
- Age 18-70 years
- Regular SMBG performers
- No ”hypoglycemia unawareness”
- Able to follow the protocol

• **Study groups:** The intervention group returned for 5 visits over the 9 month period, the control group continued with standard care. The intervention included the introduction of a new BG instrument (Monitor, Hemocue AB, Sweden) with good analytical quality (CV 3.6% when used by patients). At every visit patients provided their daily fasting BG values (f-BG “Map”) and a 3 day BG profile chart and the SMBG education was reinforced. After discussing SMBG performance and results, a predefined algorithm was applied and relevant changes in insulin dosage was agreed between the patient and the study personnel.

Results:

• **Background data**: The intervention and control groups were comparable with no difference in age, gender, BMI, diabetes duration or complication rate. Mean age was 38,4 years and diabetes duration 19,9 years.

• **A1c intervention group:**

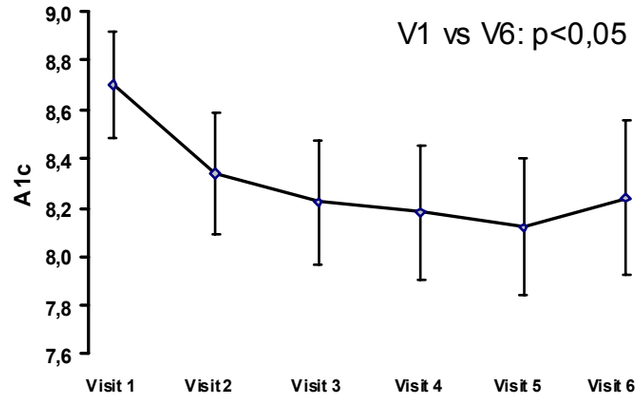


Figure 2: A1c for patients completing all 6 visits, t-test Visit1 vs visit 6 (p<0.05)

• **Comparison of groups:**

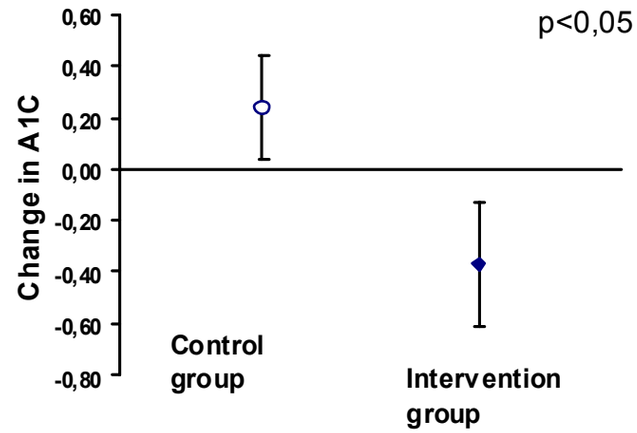


Figure 3: Change in A1c from baseline for control and intervention group, t-test (p<0.05).