# Establishment of Blood Glucose Monitoring System Using the Internet

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**OBJECTIVE—** The Internet is used worldwide as a communication tool. To improve the quality of diabetes control, we investigated the effectiveness of an Internet-based blood glucose monitoring system (IBGMS) on controlling the changes in HbA1c levels.

**RESEARCH DESIGN AND METHODS—** We conducted a randomized clinical trial involving 110 patients who visited the outpatient clinic at the Kangnam St. Mary's Hospital for 3 months. The study subjects were treated with IBGMS for 12 weeks, and the control group received the usual outpatient management over the same period. $HbA_{1c}$ and other laboratory tests were performed twice, once at the beginning of the study and again at the end of the study.

**RESULTS—** The test results from the beginning of the study established that there were no significant differences between the two groups with respect to age, sex, diabetes duration, BMI, blood pressure, $HbA_{1c}$, and other laboratory data. On follow-up examination 12 weeks later, $HbA_{1c}$ levels were significantly decreased from 7.59 to 6.94% within the intervention group ($P< 0.001$). At the end of the study, $HbA_{1c}$ levels in the intervention group were significantly lower than in the control group after adjusting the baseline $HbA_{1c}$ (6.94 vs. 7.62%; $P < 0.001$, respectively). Among patients with baseline $HbA_{1c}$ <7.0%, the patients in the intervention group had lower $HbA_{1c}$ than those in the control group (6.38 vs. 6.99%; $P < 0.05$). Among the patients with a baseline $HbA_{1c}$ ≥7.0%, the difference between the two groups appeared more obvious: $HbA_{1c}$ levels at the end of the study were 8.12%.

**CONCLUSIONS—** This new IBGMS resulted in a significant reduction of $HbA_{1c}$ during the study period. We propose that this IBGMS be used as a method for improving diabetes control.

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