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# Effects of intermittently scanned continuous glucose monitoring on body weight and glycemic variability in overweight individuals with impaired glucose tolerance or mild diabetes: A pilot randomized controlled trial

Seiji Nishikage [a,1], Yasushi Nakagawa [a,1], Yushi Hirota [a,*], Kai Yoshimura [a], Mariko Ueda [a], Akane Yamamoto [a], Tomofumi Takayoshi [a], Atsuko Matsuoka [a], Michiko Takahashi [a,b], Akihiko Takeda [c], Kazuki Yokota [d], Tomoaki Nakamura [e], Kazuhiko Sakaguchi [f], Wataru Ogawa [a]

[a] *Division of Diabetes and Endocrinology, Department of Internal Medicine, Kobe University Graduate School of Medicine, 7-5-1 Kusunoki-cho, Chuo-ku, Kobe 650-0017, Japan*
[b] *Department of Nutrition, Kobe University Hospital, 7-5-1 Kusunoki-cho, Chuo-ku, Kobe 650-0017, Japan*
[c] *Department of Diabetes and Metabolism, Shinko Memorial Hospital, 1-4-47 Wakihama-cho, Chuo-ku, Kobe 651-0072, Japan*
[d] *Yokota Medical Clinic, 1-6-1 Ooakashi-cho, Akashi 673-0891, Japan*
[e] *Department of Diabetes and Endocrinology, Akashi Medical Center, Aijinkai Social Medical Corporation, 743-33 Yagi, Ookubo-cho, Akashi, Japan*
[f] *Division of Community Medicine and Medical Education, Department of Social/Community Medicine and Health Science, Kobe University Graduate School of Medicine, 7-5-1 Kusunoki-cho, Chuo-ku, Kobe 650-0017, Japan*

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ABSTRACT

*Objective:* To investigate the effect of visualizing blood glucose variability by intermittently scanned continuous glucose monitoring (isCGM) on weight reduction in overweight individuals with impaired glucose tolerance (IGT) or mild type 2 diabetes mellitus (T2DM).

*Materials and methods:* Forty overweight (BMI, ≥25 kg/m2) individuals with IGT or T2DM (drug naïve; HbA1c, ≤7.0 %) were included in this 24-week randomized controlled trial. Participants were randomly assigned to the control group (diet and exercise therapy) or the isCGM group (diet and exercise therapy plus isCGM). The primary endpoint was the change in body weight during the 24-week intervention period.

*Results:* One participant in the isCGM group withdrew consent. We therefore analyzed 19 individuals in the isCGM group and 20 in the control group. Baseline BMI was significantly higher in the isCGM group (35.2 ± 5.7 kg/m$^2$) compared to the control group (31.6 ± 6.8 kg/m$^2$). Weight change in the isCGM and control groups (–1.8 and –2.2 kg) did not differ. However, the change in coefficient of variation (–0.9 and 2.9 %) of sensor glucose differed significantly between the two groups. isCGM scan frequency was positively correlated with time above range (TAR) during the first month, positively correlated with the change in protein intake, and negatively correlated with that in TAR.

*Conclusion:* While isCGM use in overweight individuals with IGT or mild T2DM did not reduce body weight, it might have influence dietary behavior. The negative correlation between scan frequency and TAR, and the positive correlation between scan frequency and protein intake suggest that self-awareness of glucose fluctuations contributed to behavioral change.

* Corresponding author.
*E-mail addresses:* nskg@med.kobe-u.ac.jp (S. Nishikage), shibakentaro777@yahoo.co.jp (Y. Nakagawa), hirota@med.kobe-u.ac.jp (Y. Hirota), kyoshim@med.kobe-u.ac.jp (K. Yoshimura), udm0520@med.kobe-u.ac.jp (M. Ueda), akane@med.kobe-u.ac.jp (A. Yamamoto), taka@med.kobe-u.ac.jp (T. Takayoshi), atsukofu@hotmail.com (A. Matsuoka), okazaki@med.kobe-u.ac.jp (M. Takahashi), akihiko418jp@yahoo.co.jp (A. Takeda), yoyochibiakiko@yahoo.co.jp (K. Yokota), tomnak333@gmail.com (T. Nakamura), kzhkskgc@med.kobe-u.ac.jp (K. Sakaguchi), ogawa@med.kobe-u.ac.jp (W. Ogawa).
[1] These authors contributed equally to this work.

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