Patient Satisfaction and Clinical Efficacy of Flash Glucose Monitoring in Patients with Type 1 Diabetes

Keisuke Ueno, Daisuke Chujo,
Nobuyuki Takahashi, Mitsuru Ohsugi, Akiyo Tanabe, Kohjiro Ueki, Hiroshi Kajio
Department of Diabetes Endocrinology and Metabolism,
National Center for Global health and Medicine, Tokyo, Japan

Introduction

Frequent measurements of blood glucose levels, also known as self-monitoring of blood glucose (SMBG), are usually required as part of the treatment and management in patients with type 1 diabetes (T1D). Since flash glucose monitoring (FGM), a less-invasive glucose monitoring method without pricking the fingertips, was launched in Japan in September 2017, we evaluated the patient satisfaction and clinical efficacy of FGM in Japanese patients with T1D.

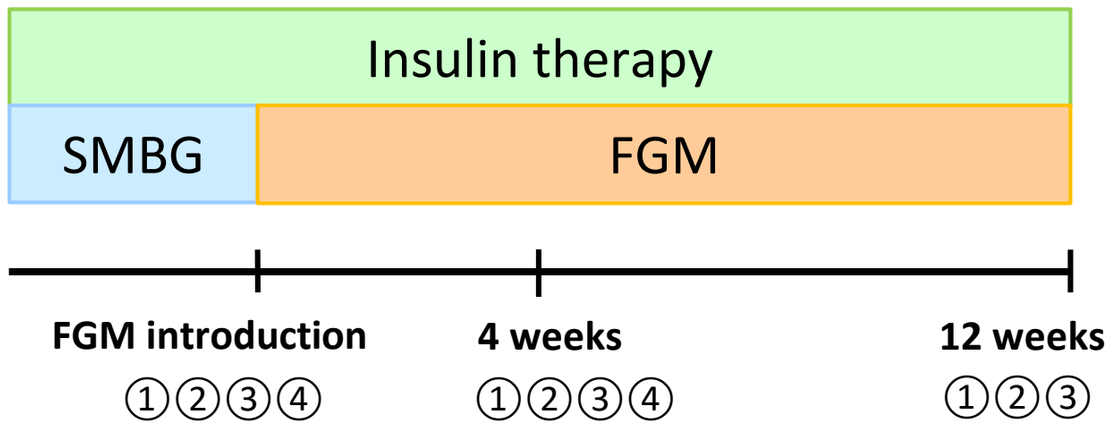
Meterials

Table 1. Baseline patient Characteristics

Patient (Male/Female)	20 (11/9)
Age	54.6±14.4 years
Duration of Diabetes	9.1±11.8 years
T1D subtype (Acute/Slowly/Fulminant)	9/9/2
Treatment (MDI/CSII)	15/5

Methods

Figure 1. Study design



① Patient satisfaction on FGM was assessed using Diabetes Treatment Satisfaction Questionnaire (DTSQ) and Diabetes Therapy-Related Quality of Life (DTR-QOL).

② Clinical parameters related to glucose metabolism, such as glycated hemoglobin (HbA1c) levels were obtained.

③ Glucose fluctuations were evaluated using the FGM data.

④ The correlation of glucose values between FGM and SMBG was also investigated.

These data were analyzed with the Wilcoxon signed rank test.

Results

Figure 2. Changes in DTSQ scores

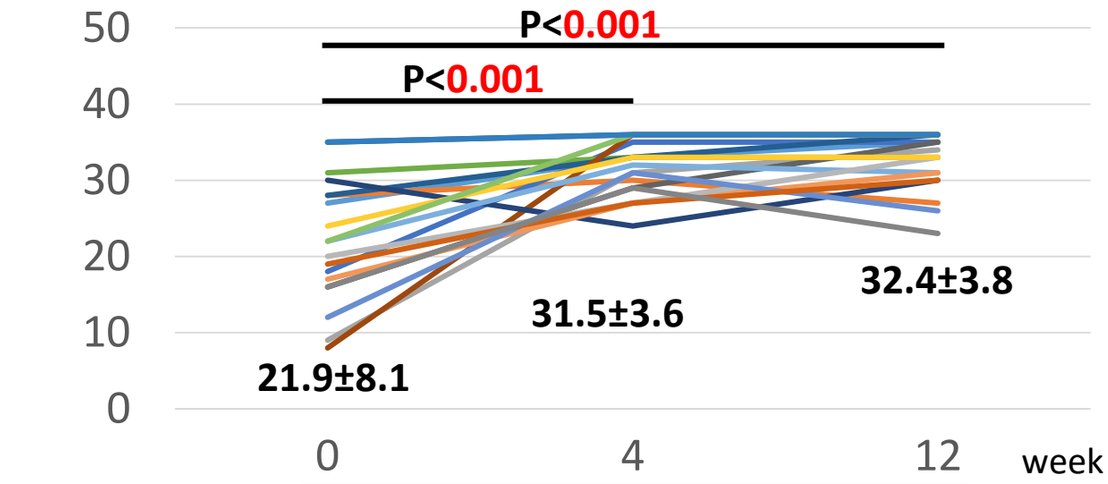


Figure 3. Changes in HbA1c

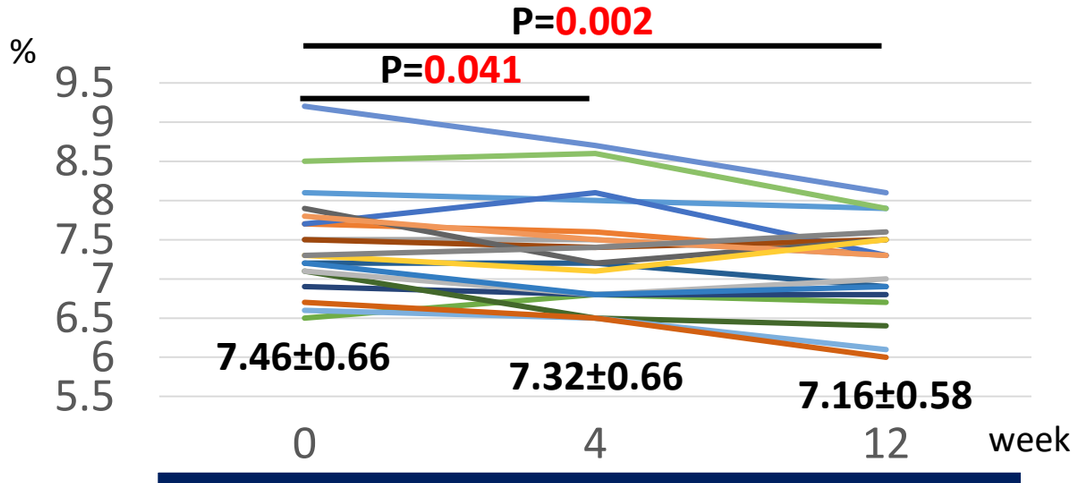


Figure 4. Correlation between glucose values in FGM and those in SMBG

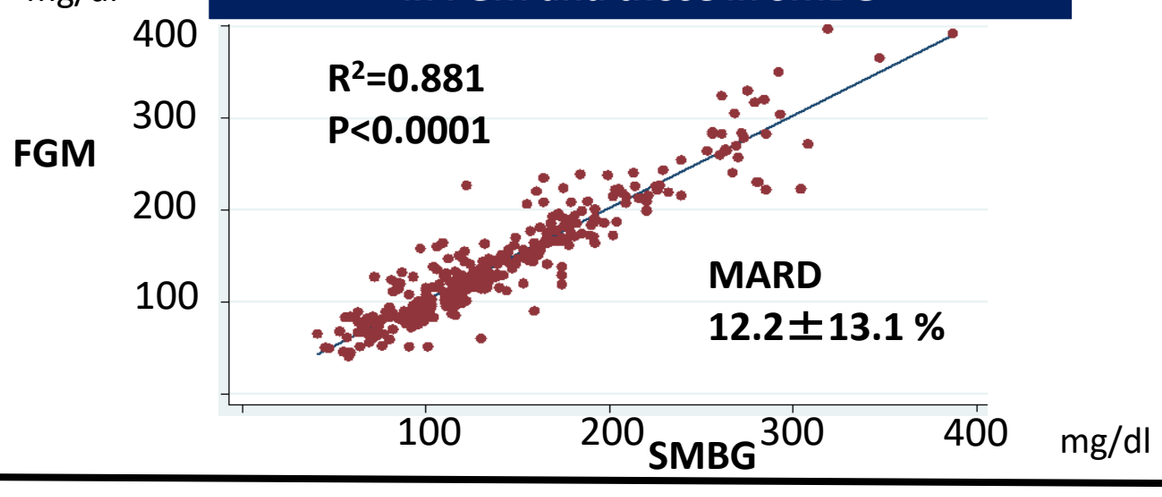


Table 2. Changes in DTR-QOL scores

	Before	4 weeks	12weeks
Burden in social activities	52.8±26.3	71.0±23.0 *	67.5±24.7 *
Anxieties and dissatisfactions	47.2±24.4	57.3±23.2 *	58.1±22.8
Hypoglycemia	34.8±25.2	55.5±29.3 *	48.5±25.7
Treatment satisfaction	48.3±25.3	65.6±22.9 *	69.5±23.7 *

* *P*<0.05

Table 3. Changes in glucose levels and fluctuations

	Before	4 weeks	12 weeks
Average glucose	167.6±34.3	161.8±27.6	155.7±22.2
SD	64.8±17.0	60.7±17.4	58.5±18.1 *
% <70 mg/dL	4.6±5.6	5.1±5.9	5.2±6.7
% 70-140 mg/dL	36.1±14.9	41.1±14.9	43.4±10.8 *
% >140 mg/dL	58.6±18.2	54.8±14.1	52.8±13.1

* *P*<0.05

Conclusion

FGM contributed to improving the patient satisfaction and adjustment of blood glucose levels in patients with T1D.

References
1) Bolinder at al. Novel glucose-sensing technology and hypoglycaemia in type 1 diabetes: a multicentre, non-masked, randomised controlled trial. Lancet. 2016; 388: 2254-2263.

Keisuke Ueno kueno@ncgm.go.jp