

## News Release

### Title

Flash glucose monitoring helps achieve better glycemic control than conventional self-monitoring of blood glucose in non-insulin-treated type 2 diabetes

### Key Points

- The recently developed flash glucose monitoring (FGM) technology allows for continuous monitoring of interstitial glucose levels using a sensor worn on the back of the upper arm.
- Although FGM has been shown to reduce hypoglycemia and HbA1c in patients with type 1 and type 2 diabetes treated with insulin, the effect of FGM in patients with non-insulin-treated type 2 diabetes, which are the majority of diabetic patients, has been unclear so far.
- In this study, FGM significantly improved glycemic control, glucose variability indices, time in hyperglycemia, and treatment satisfaction compared to self-monitoring of blood glucose (SMBG) with conventional finger-pricking method in patients with non-insulin-treated type 2 diabetes.
- Intervention with FGM preserved good glycemic control even after the cessation of glucose monitoring.
- FGM seems to have the potential to improve glycemic control by affecting the lifestyle of diabetic patients, and it is important to clarify in future whether the intervention with FGM leads to lifestyle improvement in type 2 diabetes patients during or even after glucose monitoring.

### Summary

The recently developed flash glucose monitoring (FGM) technology allows for continuous monitoring of interstitial glucose levels using a sensor worn on the back of the upper arm. Although FGM has been shown to reduce hypoglycemia and HbA1c compared to self-monitoring of blood glucose (SMBG) with conventional finger-pricking method in patients with type 1 and type 2 diabetes treated with insulin, the effect of FGM in patients with non-insulin-treated type 2 diabetes, which are the majority of diabetic patients, has been unclear so far. The present study aimed to evaluate the effects of FGM and conventional SMBG on glycemic control in patients with non-insulin-treated type 2 diabetes.

In this 24-week, multicenter, open-label, randomized (1:1), parallel group study, non-insulin-treated type 2 diabetic patients at 5 hospitals in Japan were randomly assigned to the FGM (n = 49) or SMBG (n = 51) groups and were provided each device for 12 weeks. HbA1c was significantly reduced from baseline values in both groups at 12 weeks (FGM: -0.43%; SMBG: -0.30%). On the other hand, HbA1c was significantly decreased from baseline values in

the FGM group, but not in the SMBG group, at 24 weeks (FGM:  $-0.46\%$ ; SMBG:  $-0.17\%$ ). Diabetes Treatment Satisfaction Questionnaire score was significantly improved, and the mean glucose levels, standard deviation of glucose, mean amplitude of glycemic excursions, and time in hyperglycemia were significantly decreased in the FGM group compared to the SMBG group.

Our results indicate that providing an opportunity to use FGM in non-insulin-treated type 2 diabetes patients has the potential to provide a sustained improvement in glycemic control that persists after discontinuation of use. FGM seems to have the potential to improve glycemic control by affecting the lifestyle of diabetic patients, and it is important to clarify in future whether the intervention with FGM leads to lifestyle improvement in type 2 diabetes patients during or even after glucose monitoring.

## Research Background

SMBG helps achieve better glycemic control in diabetes patients on insulin therapy by facilitating appropriate titration of insulin doses based on the blood glucose levels. Such improvements in glycemic control by SMBG have been shown not only in patients with type 1 diabetes but also in those with type 2 diabetes treated with insulin. In addition, some studies showed that SMBG improved glycemic control, when combined with training to learn how to adjust diet and lifestyle, in non-insulin-treated type 2 diabetes patients under poor metabolic control.

The recently developed FGM—also referred to as intermittently scanned continuous glucose monitoring (isCGM)—technology allows for continuous monitoring of interstitial glucose levels using a sensor worn on the back of the upper arm. Although FGM has been shown to reduce hypoglycemia and HbA1c compared to self-monitoring of blood glucose (SMBG) with conventional finger-pricking method in patients with type 1 and type 2 diabetes treated with insulin, the effect of FGM in patients with non-insulin-treated type 2 diabetes, which are the majority of diabetic patients, has been unclear so far.

The present study aimed to evaluate the effects of glucose monitoring with FGM and SMBG on glycemic control of non-insulin-treated type 2 diabetic patients to clarify whether the reported superiority of FGM over SMBG is due only to adjustments in insulin dosage.

## Research Results

In this 24-week, multicenter, open-label, randomized (1:1), parallel group study, non-insulin-treated type 2 diabetic patients at 5 hospitals in Japan were randomly assigned to the FGM ( $n = 49$ ) or SMBG ( $n = 51$ ) groups and were provided each device (FGM: Free Style Libre®; Abbott Japan LLC) for 12 weeks. Forty-eight participants in the FGM group and 45 in the SMBG group completed the study. HbA1c was significantly reduced from baseline values in both groups at 12 weeks (FGM:  $-0.43\%$ ; SMBG:  $-0.30\%$ ). On the other hand, HbA1c was significantly decreased from baseline values in the FGM group, but not in the SMBG group, at 24 weeks (FGM:  $-0.46\%$ ; SMBG:  $-0.17\%$ , difference  $-0.29\%$ , 95% CI  $-0.54$  to  $-0.05$ ;  $p = 0.022$ ).

Diabetes Treatment Satisfaction Questionnaire score was significantly improved, and the mean glucose levels, glucose variability indices, and time in hyperglycemia were significantly decreased in the FGM group compared to the SMBG group at 12 weeks. No significant between-group differences were observed in changes in antidiabetic drugs at 12 and 24 weeks.

### **Research Summary and Future Perspective**

While both FGM and SMBG had a comparable effect in improving glycemic control in non-insulin-treated type 2 diabetic patients during 12-week glucose monitoring, glycemic control was better with FGM than with SMBG at additional 12 weeks after the cessation of glucose monitoring. Our results indicate that providing an opportunity to use FGM in non-insulin-treated type 2 diabetes patients has the potential to provide a sustained improvement in glycemic control that persists after discontinuation of use. FGM seems to have the potential to improve glycemic control by affecting the lifestyle of diabetic patients, and it is important to clarify in future whether the intervention with FGM leads to lifestyle improvement in type 2 diabetes patients during or even after glucose monitoring.

### **Publication**

Flash glucose monitoring helps achieve better glycemic control than conventional self-monitoring of blood glucose in non-insulin-treated type 2 diabetes: a randomized controlled trial

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