



Continuous glucose monitoring and hypoglycaemia events: unmet needs

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Abbreviations

CGM Continuous glucose monitoring
SMBG Self-monitoring of blood glucose

To the Editor: We read with great interest the study by Teo et al on the effectiveness of continuous glucose monitoring (CGM) in maintaining glycaemic control among people with type 1 diabetes mellitus [1]. We would like to highlight a few technological and clinical issues that could be useful for the interpretation of the results of this study, while stimulating future research in this field.

The authors concluded that CGM intervention, compared with self-monitoring of blood glucose (SMBG), did not significantly reduce the number of severe hypoglycaemia events [1]. Since this finding further conflicts existing evidence [2], as the authors already mentioned, it is worth having a closer look. This apparent controversy could be attributed to several factors, such as technological differences among various CGM systems. A critical feature of real-time CGM is the ability to predict glucose high–low values and notify (i.e. via alarms) the individual about upcoming hypoglycaemia events. Since this feature is absent in the older intermittent scanning

glucose monitors (most commonly known as flash glucose monitors), this difference should be taken into consideration when comparing results between flash glucose monitors and real-time CGM.

An additional variable, related to the effectiveness of flash glucose monitors, which depends on the individual's compliance and training, is the daily number of flashing/scanning of the sensor; real-world data support that self-monitoring frequency is significantly associated with glycaemic measures, namely, higher rates of scanning may lead to increased time in range and reduced time in hyper- and hypoglycaemia [3].

On the other hand, it should be mentioned that a recent systematic review and meta-analysis on diagnostic accuracy of hypoglycaemia detection by real-time CGM systems [4], reported a limited accuracy of hypoglycaemia prediction by mainly older, minimally-invasive or non-invasive glucose monitoring systems, concluding though that most recent devices may be more accurate. In this respect, more research in this complex field is needed to fulfil the unmet needs. Further analysis of real-world evidence, as well as data concerning patients' compliance with proper use of CGM/flash glucose monitoring and SMBG might shed more light on this important yet challenging topic.

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