CGM Testimonial

Controlling glucose in diabetes remains key to prevent complications in this condition. However, glucose levels can undergo large fluctuations secondary to daily activities, consequently creating management difficulties. The current review summarizes the basics of glucose management in diabetes by addressing the main glycemic parameters. The advantages and limitation of HbA1c, the gold standard measure of glucose control, are discussed together with the clinical importance of hypoglycemia and glycemic variability. The review subsequently moves focus to glucose monitoring techniques in diabetes, assessing advantages and limitations. Monitoring glucose levels is crucial for effective and safe adjustment of hypoglycemic therapy, particularly in insulin users. Self-monitoring blood glucose (SMBG), based on capillary glucose testing, remains the one of the most widely used methods to monitor glucose levels, given the relative accuracy, familiarity and cost. However, patient inconvenience and the sporadic nature of SMBG limit clinical effectiveness of this approach. Not to mention, non-compliance is high due to inflicting pain, and many describe it as antisocial and is affected by daily life activities, which can pose a problem in all age groups. This practice was first recommended by the ADA in 1987. In contrast, continuous glucose monitoring (CGM) provides a more comprehensive picture of glucose levels - the Dexcom G6 and the Freestyle Libre 2.

The Dexcom G6 requires no calibrations, provides real-time blood glucose numbers as well as it is connected to Clarity which provides interactive reports for all providers to assist both patient and provider in management of diabetes. The Freestyle Libre 2 requires calibration and it is a intermittently scanned which the patient has to initiate. Avoiding the inconvenience of SMBG and optimizing glycemic through CGMs will help to reduce the risk of complications and improve quality of life in patients with diabetes and pre-diabetes.

It is well known that hyperglycemia in diabetes directly contributes to short/long term microvascular complications and has a long-term role in the development of macrovascular disease. Several mechanisms have been proposed for the adverse vascular effects of hyperglycemia, including increased oxidative stress and enhanced mitochondrial sure-oxide production as well as endothelial dysfunction leading to the development of an inflammatory/thrombotic environment. The role of improving glucose in preventing vascular complications has been extensively studied in various diabetes populations. The Diabetes Control and Complications Trial (DCCT) conducted on 1441 patients with T1DM, has shown that a reduction in HbA1c by 1.7% decreases microvascular complications over a median follow-up of 6.5 years.

Hypoglycemia is increasingly seen in diabetes given the ever tighter glycemic targets and this complication of therapy can have detrimental effects through a number of mechanisms, including cardiac dysrhythmias, increased production of vascular inflammatory molecules, and an enhanced thrombotic environment. There have been a number of studies to show associations between hypoglycemia and high mortality in patients with both T1DM and T2DM. Furthermore, accumulating evidence suggests that hypoglycemia is more frequent than initially evident. HbA1c fails to address hypoglycemia and therefore frequent SMBG is impractical, to accurately identify hypoglycemic events.

Currently frequent SMBG is required to effectively alter management and achieve good glycemic control which can be difficult to maintain long term. Finally the quality of glucose testing strips can be variable and some versions do not necessarily provide high accuracy, emphasizing the importance of ongoing quality control studies. In a recent study by ALERT1, 254 T1DM participants were recruited and randomly assigned to rtCGM (real-time - Dexcom G6) or isCGM (Intermittent scan - Freestyle Libre 2). After 6 months, time in range was higher with rtCGM than with isCGM. After 6 months, HbA was lower as was time and hypoglycemia decreased. In an unselected T1DM adult population, switching

from isCGM to rtCGM significantly improved time in range after 6 months of treatment, implying that clinicians should consider rtCGM instead of isCGM to improve the health and quality of life of people with Type 1 Diabetes. In another study by Mobile, 175 patients in adults with poorly controlled T2DM treated with basal insulin without prandial insulin, CGM as compared with blood glucose monitoring resulted in significantly lower HbA1c levels at 8 months.

90% of the patient population I currently see, are pre-diabetic, have Type 1 or Type 2 diabetes. Currently the number of individuals that will develop diabetes is only increasing. What I have seen amongst the patients that I am treating, is I place a CGM - Dexcom G6 on them immediately and see at least a 20-30 point decrease in their average BG over the first week. The main reason is that most of these patients are non-compliant with finger sticks and I do not blame them. Diabetes is the only disease we ask our patients to hurt themselves in order to better manage their condition. Having the Dexcom G6 allows for full compliance, real time numbers so the patient will make a more educated and informed disease on their treatment to include medications and lifestyle choices as well as it does not hurt. I started the CGM initiative 2 years ago on all of my patients that are pre-diabetic and that have either Type 1 or Type 2 diabetes with 100% of my patients being compliant, it decreases their risk of other complications and they are empowered to make choices that SMBG is not supportive of. My intent of this testimonial is to showcase the value that CGMs bring to all of the patients in Arizona as well as throughout the United States to be an advocate to all those providers and patients. My wish is that you will release Prior Authorizations for Type 1 diabetes patient and Type 2 diabetic patients that are on insulin. My wish is that you release the restrictions for those diabetic patients not on insulin and pre-diabetic patients so that they all can be proactive with their care vs reactive like they are currently doing now.

CGMs or continuous glucose monitors studies have shown an improvement in glycemic, measured as HbA1c, and/or reduction in hypoglycemia, rendering them cost-effective in diabetes populations despite the high outlay compared with SMBG. This will not only save costs in the long run for hospital visits, other medical conditions associated with diabetes but will drastically improve patient's quality of life, increase compliance and will see improved time in range, glycemic variability and HbA1c levels.

Thank you, Crystal Scott

References

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