Continuous Glucose Monitors

The effect of continuous glucose monitoring-guided glycemic control on progression of coronary atherosclerosis in type 2 diabetic patients with coronary artery disease: The OPTIMAL randomized clinical trial

YU KATAOKA, SATOSHI KITAHARA, SAYAKA FUNABASHI, ET AL.
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Reviewed by OUR EXPERTS **With Expert Review from Dr Michelle Barrow**

Glycaemic fluctuations and in particular hypoglycaemia promote pro-atherogenic responses in those with type 2 diabetes (T2D) and may contribute to an increased risk for the development of atherosclerosis. Recently, research has indicated that continuous glucose monitors (CGMs) may aid better blood glucose control.

This randomised control trial aimed to compare the effects of CGM use and HbA1c-guided glucose control on coronary atherosclerosis development in individuals with T2D and coronary artery disease (CAD). This study included 94 individuals who were monitored for 48 weeks.

The results showed that CGM use resulted in a greater reduction in glucose variability and more time with glucose in the healthy range. However, the progression of CAD in the CGM group remained similar to those who underwent HbA1c guided glucose control.

It was concluded that despite better glucose control, CGM monitoring did not slow CAD progression in individuals with T2D when compared to standard HbA1c monitoring.

Continuous glucose monitoring in pregnant women with type 1 diabetes (CONCEPTT): a multicentre international randomised controlled trial

DENICE S FEIG, LOIS E DONOVAN, ROSA CORCOY, ET AL. JOURNAL: LANCET (LONDON, ENGLAND) 2018;390(10110):2347-2359

Reviewed by OUR EXPERTS **With Expert Review from Ana-Paula Agrela**

A randomised controlled trial was conducted in women aged 18–40 years with type 1 diabetes receiving intensive insulin therapy, to evaluate the effectiveness of continuous glucose monitoring (CGM) on maternal glucose control, as well as obstetric and neonatal health outcomes. 325 women (215 pregnant and 110 planning pregnancy) were randomly assigned to either: CGM plus standard finger-prick capillary glucose testing group or a capillary glucose testing only group.

Results found differences in HbA1c reported in pregnant women using CGM compared with those using standard monitoring (mean difference −0·19%; 95% CI −0·34 to −0·03; p=0·02). Pregnant women using CGM spent more time within the target glucose range (68% vs 61%, p=0.003) and less time in hyperglycaemia (27% vs 32%, p=0.028) than the control group and had fewer episodes of severe hypoglycaemia than the control group (18 v 21) but this was not significant. The infants of CGM-using mothers had lower rates of large-for-gestational-age births, fewer neonatal intensive care admissions lasting more than 24 hours and fewer cases of neonatal hypoglycaemia requiring treatment with intravenous dextrose.

Authors concluded that CGM use during pregnancy in women with type 1 diabetes receiving intensive insulin therapy leads to better glucose control and improved neonatal outcomes

Reviewed by OUR EXPERTS

PHAIK LING QUAH, LAY KOK TAN, NGEE LEK, ET AL.
JOURNAL: AMERICAN JOURNAL OF PERINATOLOGY 2024;41(S 01):E3374-E3382 **With Expert Review from Sarah Cassar**

Continuous Glucose Monitoring Feedback in the Subsequent Development of Gestational Diabetes: A Pilot, Randomized, Controlled Trial in Pregnant Women.

This study's aim was to examine the effects of receiving glucose feedback from continuous glucose monitoring (CGM) by intermittent scanning (unblinded group) versus masked feedback (blinded group) in the subsequent development of GDM. This study was a prospective randomised controlled trial which enrolled 206 pregnant women who were in their first trimester of pregnancy.
Results showed no significant differences in GDM outcomes or plasma glucose concentrations between study arms. The unblinded group had higher percentage time-in-range during pregnancy compared to the blinded group. CGM feedback, coupled with better glycaemic control, indicates its potential use for promoting better glucose control during pregnancy. Authors conclude that CGM feedback may enhance glucose management in pregnant women, but further research is needed to validate these findings.

Impact of Continuous Glucose Monitoring Versus Blood Glucose Monitoring to Support a Carbohydrate-Restricted Nutrition Intervention in People with Type 2 Diabetes

CAROLINE G P ROBERTS, BRITTANIE M VOLK, HOLLY J WILLIS, ET AL.
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Reviewed by OUR EXPERTS **With Expert Review from Ana-Paula Agrela**

The use of continuous glucose monitors (CGMs) has been shown to improve glycaemic control compared to blood glucose monitoring (BGM) in individuals with type 2 diabetes (T2D). CGMs have also been hypothesised to guide dietary and lifestyle changes in those with T2D. However, their use in this cohort for nutrition advice is still poorly understood. This study aimed to determine differences in diabetes-related outcomes based on the type of glucose monitoring during a medically supervised ketogenic diet program. This was a randomised control trial of 163 individuals with T2D given a ketogenic diet. 81 used a CGM, whilst the remainder used a BGM to aid understanding of how meals and food influenced their blood sugar for 6 months.
The results showed that time in range of optimal blood glucose levels, medication use, HbA1c levels, and nutritional ketosis was significantly improved in both groups regardless of the method of blood glucose monitoring. It was concluded that both CGM and BGM when combined with a ketogenic diet and remote care significantly improved glycaemic outcomes, with no superior benefits of either monitoring method.

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