Case report:

Covid-19: The impact on GSD-1a management as revealed by continuous glucose monitoring

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BACKGROUND

We report the experience of a patient with glycogen storage disease (GSD) type 1a using a continuous glucose monitor (CGM) during COVID-19 infection.

CASE REPORT

A 27 year old male patient with GSD-1a developed symptoms of COVID-19 following similar illness in daughter. He routinely uses a Freestyle Libre CGM to manage blood glucose levels and carbohydrate intake. When daughter first displayed symptoms, he increased un-cooked corn starch (UCCS) pre emptively to 120g at night and 30g three hourly daytime (90g/night and 30g x 3/day pre-illness). As symptoms developed, dose was further increased to 30g two hourly, in response to CGM trends. Dietary intake remained unchanged. 98% of glucose levels remained within target range (4-10 mmol/L) throughout illness – with only one reading of glucose <3mmol/L (2.9) treated with 20g of 20% glucose polymer followed by 30g of UCCS or a carbohydrate snack. At peak of symptoms, a glucometer was used to verify glucose levels recorded on CGM.

Image 1: Sample of continuous blood glucose trend over three days during the initial period of illness. Exact blood glucose levels shown at times the monitor was scanned.
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Outcome
217% extra UCCS was needed to prevent hypoglycaemia/hyperglycaemia/reactive hypoglycaemia during COVID 19 illness. CGM correlated with blood glucose monitor.

DISCUSSION
This case demonstrates the utility of CGM in management of patients with GSD 1a. It enabled personalised dosing of UCCS, and empowered the patient by allowing greater autonomy in managing his disease.

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