



# The Impact of COVID-19 Lockdown on Glycaemic Control and Body Mass Index in Children with Type 1 Diabetes Mellitus



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## INTRODUCTION

National lockdowns to prevent the spread of coronavirus COVID-19) in United Kingdom was first introduced in March 2020.

Consequently, the routine management of children and young people with Type 1 diabetes mellitus (CYPD) changed with a move towards virtual clinics.

The period also resulted in lifestyle changes relating to reduced physical activity and dietary habits.

To-date there is little data on the effects of lockdown on BMI and HbA1C in CYPD (see ref). There are no reports from the UK.

Therefore, we undertook this local study to investigate the effects of the lockdown on HbA1C and BMI of CYPD.

## RESULTS

- 49 children with T1DM were included (55% male and 45% female),
- mean age of 12.86 years (range 4-18 years),
- mean duration of diabetes was  $6.39 \pm 3.13$  years,

### HbA1C

- 21/49 (42.8%) patients had an increase of HbA1c > 0.5% (range 0.5- 3.7%)
- 8/49(16%) patients showed a decrease in HbA1c >0.5% (range 0.5-2.4%).
- Overall, there was a trend to higher HbA1C in the second period compared to the first ( $8.74 \pm 1.76$  vs  $8.53 \pm 1.91$ ; mean-difference  $0.2 \pm 1.29$ ;  $p=0.27$ ).
- Patients who had a decrease in their HbA1c had better control prior to lockdown (Mean HbA1C 8.86% vs 10.66% ( $p=0.004$ )).

### BMI

- 22/49 (44.8%) children had a BMI increase >1 kg/sqm
- The mean change in BMI was +1.21kg/sqm (range -2.9 to 9.0 kg/sqm) in absolute values, with a pre-lockdown mean BMI of  $19.90 \pm 4.39$  kg/sqm versus  $21.11 \pm 5.10$  kg/sqm in the post- lockdown period.
- More detailed age specific SDS score analysis was not undertaken due to small numbers.

## METHOD

- A retrospective data analysis of CYPD attending the Paediatric-diabetes service in an inner-city hospital.
- Paired values of 'hospital-measured' BMI and HbA1C during 2 periods covering pre and post-lockdown (January-June 2020 versus November 2020-April 2021) were included.
- HbA1C is expressed in DCCT% units.
- BMI calculated in absolute values.

## CONCLUSIONS

COVID-19 lockdown was not associated with a significant worsening of glycaemic control in CYPD.

BMI trended upwards during lockdown, although not statistically significant.

Further evaluation of the effect of the pandemic on BMI and HbA1C should be undertaken through national audits. This will also reflect the impact and analysis of virtual clinics.

## REFERENCES

- Cognigni M et al.** HbA1c and BMI after lockdown for COVID-19 in children and adolescents with type 1 diabetes mellitus. *Acta Paediatrica* 2021;110(7):2206-2207
- Verma A et al.** Impact of lockdown in COVID 19 on glycaemic control in patients with type 1 Diabetes Mellitus. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews.* 2020;14(5):1213-1216

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