Improved quality of life metrics after using Real-Time Continuous Glucose Monitoring with remote monitoring in young children with T1D

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BACKGROUND

- Real-time continuous glucose monitoring (RT CGM) with the added feature of remote monitoring in young children with T1D has recently become available.
- Continuous monitoring of glucose has been shown to improve glycemic control in the paediatric population. However few trials have studied psychosocial factors as primary outcomes in children, and little is known about patient and caregiver’s experience of its use, particularly its impact on FOH and QOL.
- This study explored if the use of RT CGM with remote monitoring can reduce fear of hypoglycaemia and improve quality of life in children with type 1 diabetes and their parents.

DESIGN

Figure 1: Study design of randomised crossover study.

RESULTS

Demographics

Table 1: Characteristics of the children and their parents taking part in the study.

Glycaemic

Table 2: Glycaemic outcomes.

Outcome measures

Figure 2:

A: Fear of hypoglycaemia score: total, behaviour and worry. Higher scores = more fear of hypoglycaemia.
B: PedsQL: Quality of life: family impact, generic and diabetes. Higher scores indicate better quality of life.
C: Depression, stress, anxiety (DASS), State and Trait Anxiety (STAI) and Pittsburgh sleep quality index (PSQI) in parents: lower scores indicate less depression, anxiety and better sleep.

METHODS

- 50 RT CGM-naïve children with T1D diagnosed for >1 year, aged 2-12 years along with their parents, participated in a randomized cross-over study.
- They participated in two 3-month periods using conventional blood glucose monitoring (control) or using the Dexcom GS® Mobile CGM system and remote monitoring (intervention) in a random order.
- Parents and children (age 8-12 years) completed validated psychosocial questionnaires before and after each 3-month period.
- The primary outcome was parental FOH score assessed by the hypoglycaemia fear survey (HFS). Secondary outcomes included the PedsQL questionnaires, Depression-Anxiety-Stress Scale (DASS), State and Trait Anxiety and the Pittsburgh Sleep Quality Index (PSQI).

CONCLUSION

RT CGM and remote monitoring reduces the burden of type 1 diabetes in young children and their families by:

- Reducing fear of hypoglycaemia
- Improving family functioning and parent health-related quality of life
- Improving parental stress, anxiety and sleep
- Reducing the frequency of finger pricks in children

This is the first study that has psychosocial outcomes as primary outcome.