Efficacy of Real-Time Continuous Glucose Monitoring in Type 1 Diabetic pre-school and school children treated with Multiple Daily Injections

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BACKGROUND
Young children affected by Type 1 Diabetes (T1D) are prone to fluctuation in glucose levels and hardly reach a stable good glycometabolic control, especially when treated with Multiple Daily Insulin Injections (MDI). The recent Real-Time Continuous Glucose Monitoring (RT-CGM) System, Dexcom G5, the only available device registered for non-adjunctive insulin intervention, potentially facilitates a better management of the disease, mostly due to hypo and hyperglycemia alerts and glucose trend's arrows.

AIM OF THE STUDY
To evaluate the effect of the RT-CGM on glycometabolic control, glucose variability and hypoglycemic risk in T1D children under 10 years, treated with MDI, compared to a control group traditionally monitored with Self Monitoring of Blood Glucose (SMBG).

RESULTS
HbA1c resulted significantly reduced at T2 in the RT-CGM treated groups as compared to control groups (7.2±0.72% vs 7.7±0.94%; p<0.007 – FIG.1). TIR resulted significantly (p < 0.03) increased at T2 in the integrated RT-CGM treated group (FIG.2). In particular, the increase of TIR at T2 was observed for both CGM groups (FIG.3), at onset and during consolidated TID.

Reduction of Time in Hypo was reported for all patients using CGM, both at onset of diabetes and also during consolidated disease.

CONCLUSIONS
RT-CGM Dexcom G5 was proven to have a clinically significant effect on glucose control and glucose variability in very young children with TID treated with a MDI scheme, both at onset of diabetes and during disease's follow-up.

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