

Changes in glycaemic parameters with Ramadan fasting in patients with type 1 and type 2 diabetes on insulin: a flash glucose monitoring (FGM) study

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Aim

In spite of being religiously exempt, many patients including those on insulin treatment choose to observe dawn to sunset Ramadan fasting resulting in risks and challenges. We investigated glucose profiles in patients with Type 1 and Type 2 diabetes on insulin during Ramadan fasting.

Methods

We used flash glucose monitoring (FGM) data on 20 patients including 5 Type 1 (all male) and 15 Type 2 (12 male) diabetes patients (age=50.6 ± 9.9 years; BMI=32.0 ± 5.8 kg/m²) on insulin, before, during and after Ramadan to calculate indicators of overall glycaemia, hyper- and hypo-glycaemia. Patients that missed fasting for more than 4 days and had less than 14 consecutive days of data with a minimum of 70% of FGM readings for every measurement period were excluded.

Results

Significant increases were seen in hyperglycaemia parameters during Ramadan [percentage of time in hyperglycaemia (35.3 ± 19.8 vs 45.7 ± 20.1) % and HbGI (8.5 ± 6.6 vs 11.1 ± 5.3)], whereas hypoglycaemic indicators [percentage of time in hypoglycaemia (3.0 ± 2.6 vs 1.9 ± 2.0) % and LBGI (1.2 ± 1.1 vs 0.8 ± 0.8)] decreased significantly. A reversal trend was observed in these parameters after Ramadan with a significance change reached after two months. Glycaemic variability did not change significantly during the periods studied.

Discussion

Our study indicates unfavourable changes in indicators of glycaemia in insulin treated patients who choose to fast during Ramadan. These return to their pre-Ramadan values two months post-Ramadan.