

Changes in glucose profiles during Ramadan fasting at different levels of glucose intolerance: a continuous glucose monitoring (CGM) study

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Aims

Comparison of changes in glucose profiles during Ramadan fasting in subjects with diabetes mellitus, impaired fasting glycaemia (IFG) and healthy volunteers using CGM.

Methods

Continuous glucose monitoring was performed for at least three consecutive days on patients with type 2 diabetes (n=24), IFG (n=2) and healthy subjects (n=7) before and during Ramadan fasting days. Patients on insulin or insulin secretagogues were excluded. Changes to medication followed previously published guidelines. For each group two 24-hour mean glucose curves were constructed representing interstitial glucose profiles during these periods. Non-parametric tests were used for comparative statistics (SPSS version 20).

Results

Mean CGM curves in the three groups showed similar patterns with a rapid rise in glucose level at the time of breaking of the fast (iftar) which was most pronounced in the diabetes group. There was a significant difference in AUC for the mean CGM curve between healthy subjects (83.3 ± 0.3 mmol.min/l) and patients with diabetes

(109.9 ± 0.9 mmol.min/l, $p < 0.001$) during Ramadan fasting. With Ramadan fasting there was no significant change in mean interstitial glucose in healthy subjects (5.6 ± 0.2 v 5.8 ± 0.2 mmol/l), patients with IFG (6.3 ± 0.51 v 6.0 ± 0.56 mmol/l) or type 2 diabetes (7.9 ± 0.5 v 7.6 ± 0.9 mmol/l).

Conclusion Glucose changes in patients with diabetes during Ramadan fasting are fundamentally different from those seen in subjects with normal glucose tolerance and should be emphasised to patients during pre-Ramadan consultations.