ABSTRACT

Pharmacoresistant epilepsy (DRE) is defined as a condition in which the patient fails to fully compensate in the long term using two appropriately chosen antiepileptic drugs in adequate therapeutic doses, either in monotherapy or in combination therapy. One of the treatment options for DRE is the classical ketogenic diet (KD) therapy consisting of an increased fat and reduced carbohydrate diet.

Hypoglycaemia is known to be a side-effect of KD treatment, but glucose concentrations in KD have not been investigated in detail.

The study aimed to measure glucose during conventional KD using a continuous glucose monitor (CGM) displaying glucose values á 5 min. This device was used in ten pediatric patients with pharmacoresistant epilepsy before and at the initiation of KD therapy (6 days, 10 hours, and 44 minutes of measurements) and subsequently in eight of these patients over 12 weeks of KD treatment (8 days 1 hour and 32 minutes of measurements). A gradual increase in ketogenic ratios (KR) was chosen to initiate KD and 1 day up to a maximum KR of 3.5:1.

The mean monitored time per person during the KD initiation was 6 days, 10 hours and 44 minutes. The mean ± SD glycemia for the regular diet was 4.84 ± 0.20 mmol/L, for the carbohydrates/fat ratio of 1:1 it was 4.03 ± 0.16, for the ratio of 2:1 it was 3.57 ± 0.10, for the ratio 3:1 it was 3.39 ± 0.13 and for the final ratio of 3.5:1 it was 2.79 ± 0.06 mmol/L ($P < 0.001$).

The mean monitored time per person 12 weeks after KD initiation was 8 days, 1 hour and 32 minutes. The mean±SD glycemia for the fat/nonfat ratio of 3:1 was 3.6±0.14 and for the ratio of 3.5:1 it was 3.01±0.24. The likelihood of hypoglycemia was lower after 12 weeks of KD than with the same KR during its initiation.

Keywords

Epilepsy, pharmacoresistant epilepsy, ketogenic diet, glucose concentration, hypoglycemia