

Safe Implementation of a Well-formulated Ketogenic Diet in Australian Type 2 Diabetics.

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Aim

A well-formulated ketogenic diet (WFKD) has a high fat and moderate protein content but < 20 g/day of carbohydrate, promoting sustained ketosis. The utility of WFKDs in the management of type II diabetes (T2DM) remains controversial. We report the safety, tolerability, and efficacy of a WFKD in individuals with T2DM under dietary management in an Australian clinical setting.

Methods

A retrospective case review was conducted on all patients with T2DM referred to a specialist weight loss clinic from November 2018 to April 2022. Weight, anthropometry, blood glucose (BG) and blood ketones (BK) were monitored. Compliance was assessed using an app to track food choices, and all adverse effects were recorded. Patients were defined as nutritionally ketotic if their BKs were > 0.4 mmol/L. Remission of T2DM was defined as a fasting BG < 7 mmol/L and/or HbA1c% < 6.5 and cessation of all T2DM medication by their treating physician.

Results

There were 61 deemed suitable for the WFKD who had at least 2 consultations over the study period. Mean follow up was 130 days (range 10-697). Compliance was deemed good in 41 patients, variable in 8 and poor in 12. All patients lost weight and 45 had significant improvements in BG level; 49 patients achieved nutritional ketosis and 42 (68.9%) achieved fasting BG levels < 7 mmol/L consistently. Mean weight loss was 8.1 kg (range 0.7-36.8 kg). In 22 patients where HbA1c readings were known, the mean reduction in HbA1c% was 1.98 (range 0.4 to 4.4). There were 47 patients taking T2DM medications at baseline, of these, 39 (83%) reduced or ceased medication. There were 15 patients requiring insulin at baseline, of these, 9 ceased insulin and 6 continued at a reduced dose. There were no reported episodes of hypoglycaemia or ketoacidosis. There were no major adverse events. Eight patients reported minor adverse events such as constipation, dizziness, headache, or nausea. All of these were reversed by adjustment of electrolyte intake or medication. Three patients had asymptomatic ketone readings > 5 mmol/L managed with medication adjustment. Overall, 16 (26%) met criteria for reversal of their diabetes.

Conclusion

With specialist nutritional support, a WFKD diet is a safe and powerful tool to achieve weight loss and improve T2DM control in motivated patients. Long-term studies are required to determine the sustainability of improved health care outcomes and the effect on T2DM-related complications.