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Title

Periodic use of a fasting-mimicking diet in patients with type 2 diabetes – a randomized controlled trial

Priority 1 (Research Category)

Diabetes and endocrine disease

Presenters

Marjolein Schoonakker, MD, Hildo Lamb, Elske van den Burg, Petra van Peet, MD, PhD, Hanno Pijl, Elske van den Akker-van Marle, PhD, Mattijs E Numans, MD, PhD

Abstract

Context Several severely calorie-restricted continuous diets have been shown to be able to reverse the underlying pathophysiologic causes of type 2 diabetes (T2D). However, these diets can be difficult to sustain. Periodic fasting might be a feasible alternative, as fasting evokes evolutionarily conserved responses that optimize glucose metabolism. Recently, a periodic fasting-mimicking diet (FMD) has been developed that allows the intake of small amounts of food while mimicking the physiological effects of water-only fasting. Since promising results have been found in people with metabolic anomalies at baseline, this could be an interesting treatment option for patients with T2D.

Objective To evaluate the impact of periodic use of an FMD as an adjunct to usual care on glycemic management in patients with T2D under regular primary care surveillance.

Study design and analyses A randomized controlled, assessor-blinded trial.

Setting Patients with T2D in primary care in the Netherlands

Population Studied One hundred patients with T2D, aged 18-75 years with a BMI > 27 kg/m2, using only metformin and/or diet alone for glycemic control.

Intervention The participants are randomized to receive a periodic FMD for 5 consecutive days every month as an adjunct to usual care (n=51) or usual care only (n=49) for a period of one year.

Outcome measures Primary outcome measures are changes in glucose-lowering medication use and HbA1c levels. Changes in HbA1c and the use of glucose-lowering medication in individual patients were also combined to yield a clinically relevant primary outcome measure to indicate glycemic management, categorized as improved, stable, or deteriorated.

Results Preliminary results show that a significant part of the FMD participants had a decrease in metformin use, while only a small part had to use more glycose-lowering medication. In the control

group on the other hand, glucose-lowering medication use could only be decreased in a small portion, while a significant part had increased glucose-lowering medication use. HbA1c levels were comparable between groups, as could be expected when glucose-lowering medication is adequately adapted during the follow-up year. Glycemic management was improved in the majority of participants using FMD, while the majority of the control group deteriorated.

Conclusions Periodic use of a fasting-mimicking diet can be a valuable treatment option for patients with T2D using metformin only or no medication.