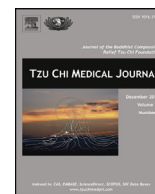




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Lifestyle modification to manage type 2 diabetes

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Diabetes mellitus is an epidemic disease worldwide. Obesity is a major risk factor for type 2 diabetes (T2DM). The goals of diabetic care include minimizing long-term complications and avoiding hypoglycemia. Lifestyle modification aimed at reducing energy intake and increasing physical activity is the principal therapy for overweight and obese patients with T2DM. Moderate weight loss in combination with increased activity can improve insulin sensitivity and glycemic control. Overweight or obese patients should try to achieve a gradual weight loss of 5–10% with a reduction in daily caloric intake of 250–1000 kcal.

A 53-year-old woman, who was a dentist, was incidentally found to have T2DM at a regular follow-up for breast cancer. She had received a left mastectomy and chemotherapy at the age of 49 years. Her weight was 71.5 kg, height 154 cm, and body mass index (BMI) 30.1 kg/m². Her blood pressure was 118/78 mmHg. Serum blood tests revealed that her fasting blood glucose was 303 mg/dL, glycated hemoglobin level (A1C) 11.5%, serum creatinine level 1.0 mg/dL, low-density lipoprotein cholesterol 119 mg/dL, high-density lipoprotein cholesterol 39 mg/dL, and triglycerides 130 mg/dL. She had no microalbuminuria, or micro- or macrovascular complications, and no family history of T2DM or cardiovascular disease.

An oral glucose-lowering medication, glimepiride (Amaryl, 2 mg daily), was prescribed by a primary care physician. After consultation with her family physician about nonpharmacologic treatment, she decided to modify her lifestyle. She discontinued drinking cola and eating candy. Her daily intake was <1000 kcal, with a diet high in fiber, low in fat, and low in carbohydrates. She tried to walk

30–45 minutes three times daily. She also actively monitored her blood glucose and body weight at home. One month later, she noticed that her fasting blood glucose level decreased to 100 mg/dL or lower. Her medication was changed to metformin 500 mg twice daily after consultation with her family physician.

With a low-calorie diet and moderate physical activity, her weight decreased dramatically, by 8.4% in the 1st month and 6.1% in the 2nd month. At the 3-month follow-up, she had lost 13 kg or 18.2% of her initial weight (Fig. 1). Blood biochemistry tests revealed that the patient reached the glycemic target of A1C 5.7% and low-density lipoprotein cholesterol of 79 mg/dL. At the 6-month follow-up, she had lost 25.2% of her initial weight and her BMI was 22.6 kg/m². Although she regained weight gradually the following year, her glycemic control was sustained (A1C < 6.0 %) (Fig. 2).

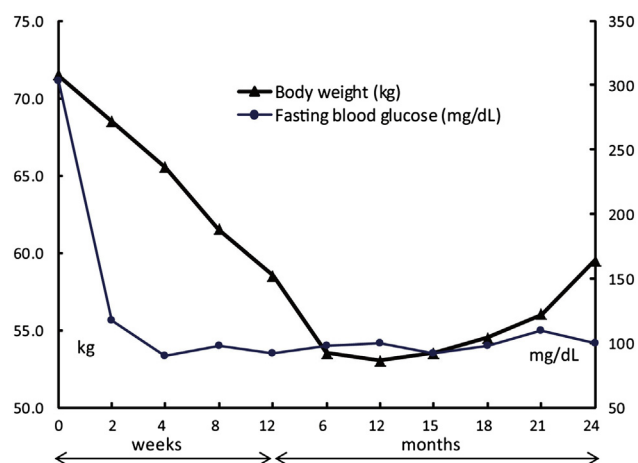


Fig. 1. Changes in body weight and fasting blood glucose of an obese diabetes patient.

Conflict of interest: none.

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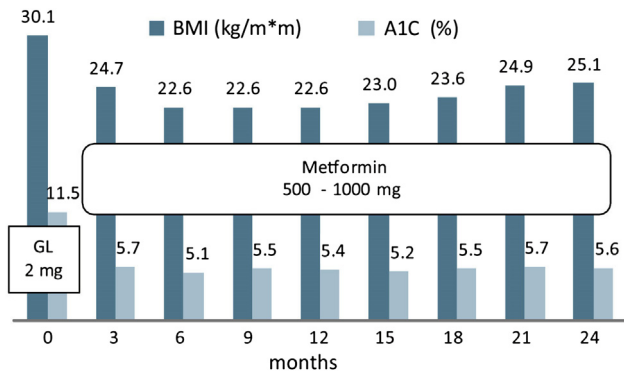


Fig. 2. Observation of BMI and glycemic level (A1C) over 2 years in an obese diabetic patient with oral medication and lifestyle modification. A1C = glycated hemoglobin level; BMI = body mass index; GL = glimepiride.

This patient's blood glucose level dropped to the normal range within 2 weeks with a low-dose oral medication. She lost 25% of her body weight in 6 months, mainly through lifestyle modification. An active role by the patient is crucial in the management of chronic diseases. Overweight or obese patients should be motivated to lose weight through lifestyle modification to improve diabetes care and reduce medical costs. Strategies such as cognitive rational therapy or shared decision making can be used after consultation.

Further reading

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