

A Case of Regressed HgA1c and LDL through Lifestyle Change

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Abstract

Case Report

This case report is intended to present a metabolically controlled case of weight loss through a good diet follow-up and exercise. Upon adaptation of the followed-up case to lifestyle changes, HgA1c elevation and hyperlipidemia were taken under control, and body mass index decreased. This case is significant to demonstrate that diabetes and hyperlipidemia can be controlled with lifestyle change in newly identified cases of uncomplicated early stage diabetes and hyperlipidemia.

Keywords: Diabetes, Hyperlipidemia, Diet, Lifestyle, Non-drug follow-up.

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INTRODUCTION

Obesity is the problem of more than 300 million people today. In the last 7 years alone, an increase of 50% has been observed [1,2]. Obesity leads to endocrine and metabolic disorders. Obesity has been shown to be associated with endocrine and metabolic complications, such as insulin resistance, Type 2 diabetes mellitus (DM), hyperlipidemia, and metabolic syndrome [3,4].

Obesity is a major risk factor for Type 2 diabetes. Particularly, abdominal obesity is associated with this increased risk. Diabetes affects more than 135 million people worldwide. This figure is expected to reach 300 million in 2025 [5]. Medical Nutrition Therapy is one of the cornerstones of the treatment of diabetic patients and should be a part of the treatment throughout the course of the disease. In some patients with Type 2 diabetes, blood sugar levels can be adjusted only by administering Medical Nutrition Therapy [6, 7]. Regular physical activity is recommended for all patients with diabetes. Regular physical activity reduces insulin resistance and prevents Type 2 diabetes in high-risk people [8].

Dyslipidemia is defined as the excessive presence of cholesterol and triglycerides in the blood and has been demonstrated to be a risk factor for cardiovascular diseases. Obesity-related dyslipidemia is mainly characterized by increased plasma free fatty acids and triglyceride levels, decreased HDL, and abnormal LDL composition. Inflammatory molecules and macrophages produced from adipose tissue play an

important role in the development of obesity-related dyslipidemia [9-12].

Apart from its known endocrine and metabolic effects, obesity is still being investigated as an important public health problem and we confront with a new complication every single day. All known scientific facts reveal that patients should be educated about combating obesity and should undergo changes in lifestyle. When this is achieved, many endocrine and metabolic complications can be prevented or stopped [13].

In this report, a case with newly diagnosed DM Type-2 and hyperlipidemia followed by lifestyle changes, such as good dietary follow-up, exercise, and weight loss is presented.

CASE REPORT

Twenty-three years old female patient arrived at Family Medicine Specialist Clinic of Ardanuç District State Hospital with the complaint of not being able to get rid of her excess weight. In the first evaluation of the patient made on 06/01/2023, HgA1c was measured as 7.5, total cholesterol as 236, HDL cholesterol as 50.9, and LDL as 155. Liver function tests were normal. The patient's height was 165 cm, weight was 108.4 kg, body mass index was compatible with obesity, and she was at the brink of morbid obese, and waist circumference was 126 cm. Her blood pressure was measured 125/82 mm Hg. The patient was recommended change of lifestyle, well-regulated diet, and exercise program to regulate lipid profile and control sugar levels. The diet program

was calculated as 20-30 kcal/day per kilogram. The calculated calorie was planned to consist of 50-60% carbohydrates, 15-20% protein, and 20-30% fats. The patient was recommended to implement a moderate physical activity (brisk walking) program of around 150 minutes per week. During exercising, the patient's heart rate was recommended to be adjusted at around 100-120/min.

In the evaluation made on 21/03/2023, HgA1c was measured as 5.1, total cholesterol as 255, HDL as 54.3, and LDL as 143. In the measurements made, her weight was evaluated as 101 cm and waist circumference as 112 cm. Although the body mass index was still in the obesity range, she had moved away from morbid obesity. The patient had lost 6.48% of her initial weight. The patient fully complied with the recommendations of lifestyle changes and in this manner the sugar and cholesterol values were controlled, and the patient without additional ailment continues with her checks.

DISCUSSION

The first treatment strategy of Type 2 diabetics who are overweight or obese is almost always a lifestyle change determined by nutritional change and activity increase. These changes in lifestyle demonstrate favorable results in lowering blood sugar levels [14]. Increased physical activity can also effectively lower blood sugar levels; because it makes the muscles more sensitive to insulin, which allows sugar in the blood to be circulated to the muscles. Physical activity also allows to lose weight over time and maintain new weight. Longer-term changes in lifestyle intended for weight loss have a lowering effect on insulin resistance by further correcting insulin secretion [15-17]. In Type 2 diabetes, lifestyle changes have a huge impact on diabetes, especially blood sugar control. For the purpose of preventing Type-2 diabetes and respective complications, body mass index should be optimized, adequate and balanced nutrition should be ensured in addition to physically active.

There are studies showing that weight loss reduces the risk of cardiovascular diseases through decrease in blood lipids [18-20]. A 5-10% reduction in body weight results in a decrease in triglycerides by approximately 20% and LDL cholesterol by approximately 15%. It has also been reported to increase HDL cholesterol by approximately 8-10%. In a meta-analysis study, it was confirmed that the triglyceride level decreased by 1.9% or 1.5 mg/dl for every 1 kg decrease in weight [21].

In the light of the foregoing information, family physicians should first increase their knowledge about healthy lifestyle changes.

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