The effect of a lifestyle programme for moderate hypertriglyceridemia - a case report

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ABSTRACT
In this report, we describe the case of a 45-year-old man with moderate hypertriglyceridemia, having a total triglyceride (TG) count of 800 mg/dL without any cardiovascular diseases or acute pancreatitis. In this case, controlling all the risk factors and applying the lifestyle changes are essential to reverse the dyslipidemia and to maintain a low cardio metabolic risk.

Keywords: hypertriglyceridemia, lifestyle medicine, plant-based diet

INTRODUCTION

Hypertriglyceridemia is a common form of dyslipidemia, which can increase morbidity and mortality. Changes in diet are regarded as the primary and most cost-effective intervention to lower serum triglycerides.

CASE DESCRIPTION

A 45-year-old man with a history of type 2 diabetes and exocrine pancreatic insufficiency was referred to our health center for the management of a persistently high triglyceride (TG) level of > 800 mg/dL (result above the linearity limit of the laboratory). Other pertinent lab values included: total cholesterol of 280 mg/dl, low-density lipoprotein (LDL) cholesterol of 97.4 mg/dl (result affected by the high TG levels); blood glucose of 115 mg/dL; HbA1c of 6.57%; and C-Peptid of 2.19 ng/ml. The EKG showed normal sinus rhythm with no ST-T wave changes. The patient was obese, with a BMI of 36.5 kg/m². At admission, he reported a poor overall health, with dyspnea with little effort, sweating, headaches, and dizziness. Also, at the clinical examination, his abdomen was distended, with mild diffuse pain on palpation. The ultrasound scan revealed hyperechogenic liver and pancreas.

His social history revealed no alcohol consumption and a diet that was high in carbohydrates and fat, associated with eating too frequently, and having a lot of snaking. The patient lived a rather sedentary life, with no regular exercise. His medications included insulin, pancrelipase, trimebutine, esomeprazole. The patient had no treatment for his dyslipidemia. During his stay in our lifestyle center, the patient had a two-meal plan with a very low content of fat and no added oil. Also, he had a plant-based, 80% raw, hypoglycemic diet. Besides this, the program included physical activity (morning gymnastics, aqua gym, walking, etc.) and different hydrotherapy procedures.

At the end of the 8-day program, we repeated the lipid panel, and serum triglycerides came down to 365 mg/dl, total serum cholesterol was noted to be 242 mg/dl, LDL-cholesterol was 167.6 mg/dl. Also, the blood glucose dropped to 84 mg/dl, with the mention that we stopped the insulin after day 4.

DISCUSSION

An unfavorable lipid profile, characterized by high levels of triglycerides and LDL-cholesterol and low high-density lipoprotein (HDL) cholesterol concentrations, is well known to be a risk factor for cardiovascular diseases [1,2]. Also, high levels of triglycerides increase the risk of acute pancreatitis [3].
According to the Endocrine Society Clinical Practice Guideline, the diagnosis of mild and moderate hypertriglyceridemia is made for plasma triglycerides of 150–999 mg/dl, while severe and very severe hypertriglyceridemia are diagnosed when the triglycerides are higher than >1000 mg/dl [4].

Dietary interventions are recommended as first-line therapy for dyslipidemia because they don’t have side effects and are cost-effective. The populations following a plant-based diet have the lowest lipid concentrations compared with other diets [5].

Also, it is important to notice that an unhealthy plant-based diet (i.e., with the consumption of fruit juices, sugar-sweetened beverages, refined grains, etc.) is associated with less favorable lipid and lipoprotein profiles, characterized by lower HDL cholesterol and greater triglyceride concentrations. On the other hand, a more healthful plant-based diet, which includes whole grains, fruits, vegetables, nuts, and legumes, was associated with a more favorable lipid and lipoprotein profile [6]. Fantino M. et al. obtained a decrease in TG concentration in fasting subjects by 55% during a low-fat diet (P = .002) and by 48% during a low-carbohydrate diet (P = .005) after a 3-week intervention program [7]. Probably the combination of a plant-based, low-fat, and low-carbohydrate diet was the key to the reduction of triglycerides in our case.

**CONCLUSION**

Hypertriglyceridemia is a dyslipidemia frequently diagnosed in clinical practice. The reduction of serum triglycerides is essential to reduce the risk of acute pancreatitis. Also, another concern is related to long-term hypertriglyceridemia, which has been associated with coronary artery disease. In this context, the lifestyle changes are essential to reverse the dyslipidemia and maintain a low cardio metabolic risk.

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**REFERENCES**


