

RISE IN SERUM CHOLESTEROL AND TRIGLYCERIDES IN MORBIDLY OBESE PATIENT AFTER UNDERGOING WEIGHT LOSS TREATMENT

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ABSTRACT:

This report describes the 12-week treatment outcomes of a 49-year-old morbidly obese Caucasian male who entered an Optifast® Weight Management Program. The patient was very successful with the weight loss program losing 69.6 kg over 12 weeks. Most patients undergoing this treatment program have improved blood lipid levels but this case is unique with increase in serum cholesterol and triglyceride levels at the end of the program. The patient did not continue in the maintenance program and regained his weight over the next two years. He returned to the program at that time to restart the supplemented fast and the same trend of increasing serum cholesterol and triglyceride levels with decreasing weight was noticed again. This case highlights the need for more research into the effect of rapid weight loss in morbid obesity on blood lipid levels.

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INTRODUCTION:

It has been shown that weight reduction in morbidly obese individuals significantly reduces risk factors for cardiovascular disease (including blood lipid levels). Improvements in risk factors were significantly and linearly related to reduction in BMI (1). The effect of a body weight reduction on serum lipids was tested on 69 obese women. The results suggested that weight reduction modifies favorably the lipid profile in obese women (2). The effect of weight loss on serum lipoprotein (a) concentrations in an obese population was assessed. The subjects were participating in a weight-reduction program of diet, exercise and behavior modification plus combination anorectic drug therapy. This placebo controlled double-blind study lasted 104 weeks. Results showed that there was no clinically significant change in Lp(a) concentrations, however there was normalization of insulin, lipid, and lipoprotein concentrations with weight loss (3). In yet another study, it was shown that a low calorie diet associated with weight loss in obese subjects have beneficial effects on serum lipoprotein levels. This effect seems to be independent of the hormonal changes observed during weight loss (4). Numerous

other studies have also cited similar results. However, the case discussed in this report has repeatedly shown an opposite trend in blood lipid levels while undergoing weight loss treatment. The patient participated in the Optifast® Weight Management Program twice and his blood cholesterol and triglyceride levels increased during significant weight loss in both 12-week programs.

CASE REPORT:

The patient was a 49-year-old Caucasian male with a history of obesity present throughout his life. The patient was a truck driver by occupation and was satisfied with his job. He weighed 211.4 kg entering the program and was 5'11" tall.

His highest weight after age 21 was 216.8 kg and the lowest weight after age 21 which he maintained for at least 1 year was 104.5 kg at 30 years of age. He felt that snacking between meals and after dinner and eating excessively when socializing / celebrating contributed significantly to his weight problem. He was not engaged in any significant physical activity at the time of joining the program. He stated he was unable to exercise because of his weight. He was divorced and lived with his parents. He had achieved moderate weight loss with various very-low-calorie diets but was unable to maintain the loss for more than 6 months. His current physical findings included morbid obesity, congestive heart failure, atrial fibrillation, hypertension and Pickwickian syndrome.

At our weight management center, he was put on 1,300 Kcal diet, which included 4 Optitrim liquid supplements (230 kcal each), and 1 self-prepared meal which was a "Dinty Moore meal". His starting weight was 211.4 kg. After one week on the program he weighed 197.3 kg, with a loss of 14.1 kg. In the second week, his weight was 186.9. In 6 weeks his total weight loss was

50 kg . At the end of the program (12 weeks) he weighed 141.2 kg, with the total weight loss of 69.6 kg. Some of the weight reduction observed could possibly be due to water loss.

His cholesterol level at the beginning of the program was 109 mg/dl and triglyceride level was 63 mg/dl. After just one week of treatment his cholesterol and triglycerides were 115 mg/dl and 95 mg/dl respectively. At the end of the treatment, the cholesterol was 171 mg/dl and triglyceride was 77 mg/dl. Increase in cholesterol and triglycerides, despite 69.6 kg weight loss is a very unusual and paradoxical finding.

The patient's treatment program was multidisciplinary including behavior modification, nutritional education, exercise prescription, psychological support and medical monitoring. The patient dropped out of the maintenance program and after a two- year absence had regained all the weight lost when he returned to our program. He was started on a 1,400 kcal diet with 3 Optitrim supplement and 1 self-prepared meal. Similar trends were noticed during the 12-week treatment program. His initial weight was 210.6 kg. He lost 17.8 kg in the first week. This may indicate severe fluid overload. At the end of the 12-week treatment, he weighed 165.0 kg with a total weight loss of 45.4 kg.

The starting blood cholesterol and triglyceride levels the second time were 116 mg/dl and 55 mg/dl, respectively, which reached 172 mg/dl and 91 mg/dl respectively at the end of the treatment.

This is an unusual case since the normal trend is reduction in blood values of cholesterol and triglyceride after weight loss in obese patients. In addition, he appears to have reduced cholesterol and triglycerides levels during the 2-years away from the treatment, when he regained the lost weight. This case emphasizes the need for future research on different weight loss treatment methods and their effect on blood lipid levels.

REFERENCES:

1. Anderson JW, Brinkman-Kaplan VL, Lee H, Wood CL. Relationship of weight loss to cardiovascular risk factors in morbidly obese individuals. *J Am Coll Nutr* 1994; 13 (3): 256-61.
2. Guanche GH, Beatriz TM, Martinez QC. Effect of weight reduction on lipids and lipoprotein (a) serum levels. *Med Clin (Barc)* 2002; 119 (19): 730-1.
3. Corsetti JP, Sterry JA, Sparks JD, Weintraub M. Effect of weight loss on serum lipoprotein (a) concentrations in a obese population. *Clin Chem.* 1991; 37(7): 1191-5.
4. Kiortsis DN, Tzotzas T, Giral P, Turpin G. Changes in lipoprotein (a) levels and hormonal correlations during a weight reduction program. *Nutr Metab Cardiovasc Dis.* 2001; 11(3):153-7.