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Effects of Weight Loss in an Adolescent Obese Patient: A Case Report

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ABSTRACT

Obesity is a major health problem that affects individual's quality of life. It is characterized by an increase in the body fat and predisposes the person to the development of chronic diseases. Its prevalence is increasing in the world and in Turkey. The aim of this case report is to illustrate physical, metabolic changes and changes in depressive symptom level and self-esteem in a 16 years old male patient with obesity who was admitted to our polyclinic after a follow-up period of eight months. With the weight loss fat mass, insulin resistance and cholesterol level was detected as decreased in the patient; and also depressive symptom scores were measured as low and self-esteem level was high when compared to 8 months ago. Prevention or treatment of obesity is thought to be important in terms of the physical and mental health of the patients.

Key Words: *Obesity, Adolescent, Weight loss, Self-esteem.*

Ergen Obez Hastada Kilo Kaybının Etkileri: Bir Olgu Sunumu

ÖZET

Obezite vücutta yağ dokusunun artması ile karakterize, kronik hastalıklara zemin hazırlayan, kişinin yaşam kalitesini etkileyen önemli bir sağlık problemidir. Dünyada ve ülkemizde prevelansı gittikçe artmaktadır. Bu olgu sunumunda obezite nedeniyle polikliniğimize başvuran 16 yaşındaki erkek hastanın 8 aylık takibi sonucunda meydana gelen fiziksel, metabolik değişiklikleri; depresif belirti düzeyi ve benlik saygısındaki değişiklikleri göstermeyi hedefledik. Kilo kaybı ile birlikte hastada yağ dokusunda, insulin direncinde ve kolesterol seviyesinde azalma saptandı; ve ayrıca 8 ay öncekine kıyasla depresif belirti puanları düşük ve benlik saygısı düzeyi yüksek olarak ölçüldü. Obezitenin önlenmesi veya tedavi edilmesinin hastaların fiziksel ve ruhsal sağlığı açısından önemli olduğu düşünülmektedir.

Anahtar Sözcükler: *Obezite, Ergen, Kilo kaybı, Benlik saygısı.*

INTRODUCTION

Obesity or overweight is an important health problem that affects about 25-30% of children and adults (1). As of 2010, it is estimated that there are 150 million adults and 15 million children and adolescents are obese in Europe (2). According to the 2010 *Investigations on the Turkish Eating Habits and Health Preliminary Report*, obesity prevalence in Turkey has been found as follows: 8.5% in 0-5 years old (10.1% male and 6.8% female); 8.2% in 6-18 years old (9.1% male and 7.3% female). Again according to this report, 17.9% of them in 0-5 years old are categorized as heavy and 28.4% as having extra weight and fat. Similarly, 14.3% of them in 6-18 years old are categorized as overweight, and 22.5% of those as being overweight and obese. (3).

Childhood obesity is a health problem that tends to continue into adulthood. 70-80% of obese children tend to become obese adults (4). Early diagnosis and treatment of obesity is important as a risk factor for the adult obesity that can also cause respiratory, cardiovascular, hormonal, orthopedic and psychosocial problems (5).

The aim of the obesity treatment is to reduce the fat weight of the body. For this reason it is necessary to reduce the calories taken and increase burning more calories. While

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doing that, the aim should be to make this change a habit that can last a lifetime.

CASE REPORT

A sixteen years old male patient was admitted to our clinic in November 2013 complaining about obesity. He had no other complaints or diseases. When asked about the eating behavior and daily activities, he told us the following: skipping meals, having late breakfasts or skipping breakfasts; eating processed food and biscuits; having fruit juices or chocolates between meals; no regular exercise, spending over 4 hours in front of TV or computer.

For his anthropometric values, his height was measured on a flat surface without shoes and his weight and fat content was determined using a bio-impedance device (Table 1). His body mass index was 31.4 (over 95% for his age). Although the percentage of fat content should be around 17.9% for his age, his fat content was 38.8%.

The patient was told that he was in the obese category that would put him in high risk for developing chronic diseases (diabetes mellitus, hypertension, heart diseases, etc). He was given advice regarding what he needs to do in terms of eating habits (three regular meals- breakfast, lunch, dinner- and *small-portion-low-calorie* snacks in between) and was given instructions about exercise routines (At least, one hour activity of his choice every day). He was asked to come for control once a month. He had lost 5% of his weight by the end of the third month and 14% by the sixth month.

By the eighth month he has lost 19.4% of his weight, 34% reduction of his fat percentage, 46% loss of his fat weight and 2.2% loss in his fat free mass.

There were 15.8% reduction in fasting blood sugar, 11.73% in cholesterol, 2.12% in LDL (low dansity lipoprotein) cholesterol, 58% in TG (triglyceride) , 69.95% in insulin, 74% in HOMA index (Homeostasis Model Assessment), 17.6% in AST (aspartate aminotransferase), 39% in ALT (alanine aminotransferase). There was an increase in Vitamin D levels by 20.38% (Table 2). There was a reduction of 32 cm in his waist circumference, 7 mm Hg reduction systolic blood pressure and 9 mm Hg reduction in diastolic blood pressure.

After 8 months follow-up, the patient completed two psychiatric rating scales: *The Children's Depression Inventory (CDI)* [6,7] and *Piers-Harris Children's Self-Concept Scale (PHCSCS)* [8,9,10] to measure the levels of depressive symptoms and self-esteem respectively (Table 3). As well as completing the psychiatric rating scales after 8 months of follow-up, the patient was also asked complete the same scales retrospectively for the time of his first day of visit to the clinic 8 months ago. When the CDI scores were analyzed, he scored **28** for the first time of his application and **7** after the eight months, this decrease in CDI scores indicate the decrease in depressive symptoms. When the two total scores of the PHCSCS were compared, the patient's self-esteem score increased by **26** points. Comparison of subscale scores of the PHCSCS indicated more marked increase in 'happiness and satisfaction', 'freedom from anxiety','popularity', 'physical appearance and attributes' subscales.

DISCUSSION

Take home message in this case report is as follows:

1. Regulating the diet is an important factor for weight loss and weight maintenance: This is probably due to the fact

Table 1: Patient's anthropometric values.

	Before follow-up	After follow-up
Height (cm)	174	175
Weight (kg)	91,5	76,5
BMI (kg/m²)	31,4	25
Fat percentage (%)	38,8	25,6
Fat mass (kg)	36,9	19,6
Fat free mass (kg)	58,2	56,9
Fat to loss (kg)	25	7,9
Waist circumference (cm)	105	73
Arterial BP (mm/Hg)	104/70	97/61

BMI: Body mass index.

Table 2: Biochemical values of the patient.

Biochemical values	Before follow-up	After follow-up
Glucose (mg/dl)	101	85
Insulin (µU/ml)	20,2	6,07
Cholesterol (mg/dl)	213	188
HDL-Cholesterol (mg/dl)	44	38
LDL-Cholesterol (mg/dl)	141	138
Triglyserid (TG) (mg/dl)	143	60
AST u/L	17	14
ALT u/L	23	14
TSH ulU/mL	7,72	3,15
T4 ng/dL	1,05	1,12
Vit D ug/L	15	18,84
HOMA-IR	5,03	1,27

HDL (high density lipoprotein), **LDL** (low density lipoprotein), **AST** (aspartate aminotransferase), **ALT** (alanine aminotransferase), **TSH** (Thyroid stimulating hormone), **T4** (thyroxine), **Vit D** (vitamin D), **HOMA-IR** (Homeostasis Model Assessment- Insülin rezistans).

Table 3: Piers-Harris Children's Self-Concept Scale Scores.

Subscale scores	Points	
	Before follow-up*	After follow-up
Happiness and satisfaction	4	11
Freedom from anxiety	6	9
Popularity	3	9
Behavioral adjustment	11	12
Physical appearance and attributes	0	6
Intellectual and school status	2	3
Total score	**35**	**61**

*Points for '**Before follow-up**' were obtained during his last visit to the clinic, 8 months after his first visit retrospectively.

that taking regular meals makes it easier for the body to maintain its physiological parameters.

2. It is important that the dieting person is followed regularly by a professional team: In this lengthy process, it is necessary to keep up the motivation of the person.
3. As others also advocated, balanced and sufficient diet should include at least three main courses and two in-between courses (11).
4. In our patient, the difference in the CDI scores between before and after weight loss was very noticeable. He scored **28** for the first time of his application and **7** after the eight months. When the two total scores of the PHCSCS were compared, the patient's self-esteem score increased by **26** points. The two PHCSCS subscale scores between before and after weight loss revealed more marked increase in 'happiness and satisfaction', 'freedom from anxiety', 'popularity', 'physical appearance and attributes' domains.

Obesity and risk of diseases: It has been shown that a loss of 5-10% of body weight significantly reduces the risk of developing diabetes and heart disease and also reduces drug dependence (12). Weight loss in obese people reduces cardiovascular risk factors and improves the quality of life. Studies have shown that a loss of 10% of body weight reduces coroner problems by 20% in men and 48% in women (13,14). Since we have noted significant reductions in glucose, insulin and HOMA index in our patient, his risk of developing diabetes must have been reduced. The observed fall in his systolic and diastolic blood pressure may also bring about a reduction in the risk of developing hypertension. The observed fall in his cholesterol, TG and LDL levels, and loss of 19.4% of his body weight may reduce his risk of developing cardiovascular problems. Since our patient has lost significant amount of weight and decreased his waist circumference, it was also easier for him to find comfortable cloths.

Body image and obesity: Negative body image often brings about low self-esteem, depression, difficulty in finding jobs due to society bias and problems with marriage. It has been reported that these problems do affect the quality of life of individuals with obesity (15). Obesity in childhood and puberty can induce physiological and psychological problems that lead to important health problems (16). There are studies that have indicated a relationship between childhood/puberty obesity and low self-esteem (17). There are a number of studies that have advocated that changes in lifestyle can affect psychological parameters, brings about weight loss (18,19), reduce anxiety and depression (20) and improves body image and self-esteem (18,21).

If untreated, childhood obesity can become an important health problem that affects the entire life style of the person and reduces his quality of life. Treatment can take a form of a change in life style and making a habit to maintain it.

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