Clinical Approach to Obesity in Primary Care

Birinci Basamakta Obeziteye Klinik Yaklaşım

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Abstract

Obesity is a multifactorial and multisystemic pathogenic condition that causes an increased risk of many diseases. As one of the major causes of preventable deaths, it also heavily features among the leading health problems worldwide. One of the main purposes of primary care is to prevent the development of obesity disease. Lifestyle changes, diet, and exercise programs to be made within the scope of primary care are some of the necessary interventions for an effective struggle. Primary care is a key point considering obesity and the pathological conditions caused by obesity. This review article presents the existing clinical approach to obesity in primary care.

Keywords Obesity, primary care, clinical approach

Özet

Multifaktöryel ve multisistemik bir patogeneze dayanan, birçok hastalıkta risk artışına sebep olan ve önlenebilir ölümlerin önemli nedenlerinden biri olan obezite tüm dünyadaki sağlık sorunlarının başında yer almaktadır. Birinci basamağın temel amaçlarından biri obezite hastalığının gelişmesini engellemektir. Birinci basamak sağlık hizmetleri kapsamında yapılacak olan yaşam tarzı değişikliği, diyet ve egzersiz programları etkin bir mücadale için gerekli müdahalelerden bazılarıdır. Obezite ve obezitenin neden olduğu patolojik tablolar göz önüne alındığında birinci basamak kilit bir noktayı temsil etmektedir. Bu derleme yazımızda birinci basamak sağlık hizmetlerinde obeziteye klinik yaklaşım konusu literatür eşliğinde sunulacaktır.

Anahtar Kelimeler Obezite, birinci basamak sağlık hizmetleri, klinik yaklaşım

INTRODUCTION

Although obesity, a disorder of positive energy balance associated with increased weight, stands for increased weight, it is the presence of excessive amount of fat tissue in the body (1-3). Since it is easier to measure body weight instead of body fat, obesity has been defined as an increased body mass index (BMI). Obesity is a multifactorial and multisystem pathogenesis condition which causes increased risk of many diseases, especially diabetes, hypertension, atherosclerotic heart, and vascular diseases. As one of the major causes of preventable deaths, it poses a serious health problem all over the world. Obesity is associated with approximately two hundred metabolic, mechanical, and psychiatric comorbid conditions, prevalence of which increase as BMI increases (4, 5). The disorder has also been associated with reduced quality of life and increased financial burden both at the personal and social levels (6,7).

According to a 2016 data issued by the World Health Organization, 39% of the world's adult population are estimated to be overweight. The data also shows that 13% (1% of men and 15% of women) are obese (8). In Türkiye, the prevalence of obesity is high and keeps gradually increasing. A 2010 study and subsequent studies have found obesity to be between 23% and %43. These studies also found that obesity varies from region to region (9-11). Similarly, data also show the prevalence of obesity in primary school age and adolescents in Türkiye to be high. According to a study conducted by the Türkiye Childhood Obesity Surveillance Initiative, one out of every four children aged 7-8 years was obese in 2016 (12).

To understand the reasons for the increase in obesity and to be able to make effective treatment plans, one first needs to understand what multifactorial pathogenesis is. Although this increase in recent years is attributed to environmental factors, some studies have reported obesity to be based on genetics at high rates (3). In genome-wide association studies (GWASs), association studies, many genes including the pituitary-adrenal axis, serotonin or dopamine receptors, circadian rhythm, and leptin receptor pathways were found to be associated with obesity (13). Also, studies have found some environmental factors likely to increase the risk of obesity by causing epigenetic changes in mechanisms such as methylation and acetylation, and in pathways such as the leptin pathway (14). Studies have also shown that many hormonal mechanisms affect food intake in the hypothalamus. As a result, intra-intestinal mechanisms, secretions of incretins, and changes in intestinal microbiota may increase the chance of having obesity (9). There is also a socioeconomic dimension to this discourse. Easier access to food and changes in the convenience food sector, changes in the transport sector, decrease in physical activity (for example, during pandemic) and changes in technological conditions are important contributors to obesity. This study presents the existing clinical approach to obesity in primary care.

Comorbidities Associated with Obesity

Obesity characterized by metabolic disorders and chronic inflammation causes an increased risk of a range of diseases. These include type 2 diabetes, hypertension, dyslipidaemia, chronic kidney disease, cardiovascular disease, and obstructive sleep apnea syndrome (15). Metabolic syndrome is also one of the diseases strongly associated with obesity. In metabolic syndrome, obesity is accompanied by an increased risk of atherosclerotic heart and vascular disease and type 2 diabetes. Metabolic syndrome is a complex condition in which high blood pressure and cholesterol levels, high-density lipoprotein (HDL) levels, glucose intolerance, and central obesity coexist. Metabolic syndrome is diagnosed by using at least two criteria in addition to the first criterion (16) (Table 1). Metabolic syndrome in obese patients holds a significant pathophysiological ground in terms of type 2 diabetes and atherosclerotic cardiovascular disease (17). Consequently, the Turkish Society of Endocrinology and Metabolism have recommended that obese patients should have a yearly screening of metabolic syndrome and cardiovascular risk factors if obesity persists (9). In primary care, it may also be recommended for obese people to perform yearly evaluation.

During the yearly assessment of metabolic syndrome and

cardiovascular risk factors, patients should be assessed in primary care for type 2 diabetes and dyslipidaemia. If there is no absolute contraindication to patients in case of type 2 diabetes development, it is necessary to start the treatment with metformin. Patients with the following criteria should be referred to an advanced medical center: who cannot be regulated by monotherapy, those who have high HbA1c (higher than 9%), as well as those who need to commence insulin treatment, or who are likely to benefit from other drug therapies.

Care providers should bear in mind during follow-ups that dyslipidemia is proportional to BMI in obesity. It should also be noted that lifestyle changes may influence dyslipidemia. However, it is recommended that systems such as Framingham score risk assessment should be used to calculate 10-year cardiovascular risk of patients. Individuals should also be evaluated on a case-by-case basis according to the risk classification. Additionally, low or moderate-intensity statin therapy should be started and followed when necessary in the primary care. Patients should also be referred to an advanced medical centre when necessary. All of these are to ensure the reduction to the low density lipoprotein (LDL) levels as recommended in the Dyslipidemia Diagnosis and Treatment Guidelines of the Turkish Society of Endocrinology and Metabolism (18).

Researchers have long established the relationship between obesity and hypertension since the Framingham study. The increased risk associated with obesity and hypertension is composed of a variety of mechanisms such as the increase in insulin levels and insulin resistance in peripheral tissues that occur with an increase in leptin. It also composes of the subsequent increase in systemic vascular resistance and sympathetic activation as well as an increased activity of the renin-angiotensin-aldosterone system, and concomitant sleep apnea syndrome. In obese patients, the severity and frequency of hypertension are in association with BMI (9). In primary care, obese patients should be screened for hypertension at each visit. If hypertension is detected, primary angiotensin converting enzyme inhibitors or angiotensin receptor blockers should be recom-

mended. In the presence of absolute contraindications, calcium channel blockers (CCB) among dihydropyridine drugs can be prescribed. Considering that sleep apnea syndrome is also a contributing factor for hypertension, patients should be questioned accordingly during anamnesis. Validated tools such as the Epworth sleep scale can be used to evaluate the condition (9).

Obesity is strongly associated with mood disorders. There are studies showing both increased incidence of obesity in depressed people and increased incidence of depression in obese people. In fact, the presence of depression may adversely affect patients' adaptation to obesity treatment. Hence, obese patients should be screened for depression at every visit, using any of the validated tools such as the Beck Depression Scale (19).

Additionally, obesity is also accompanied by many other diseases. These include non-alcoholic fatty liver disease, polycystic ovary syndrome, male and female infertility, osteoarthritis; sleep apnea syndrome, reactive airway diseases, gastroesophageal reflux, and gallstones pancreatitis. In primary care, it should be known that these diseases are comorbidities of obesity. Thus, treatments for obesity reduce the severity of these comorbidities. Nevertheless, these comorbidities should however be treated appropriately. It should be known that drugs used by patients may also contribute to weight gain. Anti-diabetic drugs such as insulin, sulfonylureas and tisolidinediones, antihypertensives beta-blockers, antidepressants (except fluoxetine, sertraline, and bupropion), antipsychotics and antiepileptics (except topiramate) are drugs that should attract attention during drug anamnesis. When starting these treatments for obese patients, the benefit and harm, absolute indication and alternative drug options should be considered. Hence, it is recommended that patients be evaluated within the bounds of possibility in primary care and referred for upper-line treatment so that they can be evaluated in this context, when necessary (9).

Table 1. International Diabetes Federation Diagnostic Criteria for Metabolic Syndrome (16)

International Diabetes Federation Diagnostic Criteria[16]
Increased waist circumference (based on values determined by Türkiye(Table-2)) +
Presence of any two of the four criteria:
Serum triglyceride > 150 mg/dl (or antihyperlipidemic use)
Low Serum HDL (<40 mg/dl for men, <50 mg/dl for women)
(Or antihyperlipidemic use)
Blood pressure >130/85 mmHg or use of antihypertensive drugs
Fasting plasma glucose >100 mg/dl or diagnosis of type 2 diabetes

Table 2. Anthropometric Measurements that Can Be Used to Evaluate Obesity in Türkiye

		In women	In men	In adolescents
BMI	Overweight	25-29.9 kg/m^2		85-95percentile
	Obese	>30 kg/m^2		>95 ercentiles
Waist circumference	Overweight	>80 cm	>90 cm	-
	Obese	>90 cm	100 cm	-

Evaluation of the Obese Patient

Obesity is a disease that has reached epidemic proportions in our country. It has severe comorbidities and is associated with a wide range of pathogenesis. As a result, standard definition and active screening of obesity is of immense importance in reducing the risks of other diseases. The Turkish Society of Endocrinology and Metabolism recommends adults to get screened for obesity at least once every 5 years (9). The interval mentioned in this recommendation was calculated based on weight gain of about 2 kg per year. Cases with more weight gain may require frequent screening. For instance, opinions of international associations suggest evaluation of all adults at each visit (20, 21). A retrospective study has provided that 90% of obese people with a BMI over 30 have never been diagnosed with obesity before by their doctor (22). Therefore, screening and detection of obesity is very important.

There is no consensus on the tools to be used for screening. However, anthropometric tools are widely used because of their ease of use and standardization. There are however variations depending on communities and regions. The most used tools are the BMI and waist circumference. Table 2 shows the recommended standard values for the definition of overweight and obesity for adults in Türkiye. BMI has some limitations. The biggest limitation is that it does not consider factors such as body composition, gender, or height loss in the elderly since it is a method based on weight and height. In specific populations, there are cut-off values of BMI, which vary depending on age and gender.

The recommended model for use in the evaluation of obese patients is 5A model. This model was first used as a behavioural approach to evaluate smoking cessation behaviour. Since then, it has been modified for use in the evaluation of obesity. The model creates a patient-centred treatment understanding, protect patient autonomy, and open the discussion about obesity and making treatment plans together with patients by evaluating them in a behavioural model. This understanding arises from a person-and patient-based understanding. The 5A model uses verbs such as "ask, assess, advise, agree, and assist". In Turkish, the model is known as the 5Ö model. The verbs have also been translated into Turkish as "öğren, ölç, öner, önderlik et and önle" (23). Table 3 presents this model, with its positive effects on patient-physician communication.

In the evaluation of obese and overweight patients, the patient's diet and exercise habits, psychological and social

Table 3: 5A Model Approach to Obesity

Ask	Evaluate whether the patient is ready and motivated to talk about body weight and obesity.
Assess	Assess the patient in terms of obesity and comorbidities, nutrition, and exercise.
Advise	Inform the patient about the risks of obesity and comorbidities, that these risks can be eliminated independently of weight loss with lifestyle changes and evaluate treatment options.
Agree	Set realistic goals together with the patient, lead his or her motivation in achieving these goals.
Assist	Closely monitor the patient for relapses, prevent loss of motivation, help him or her solve unfamiliar problems that will arise.

conditions, previous weight loss attempts, and willingness to lose weight should be considered. It is important to consider obesity as a disease, not a weakness of will, and provide a healthy communication between the patient and doctor by ensuring the patient's willingness to lose weight. This will not only help to achieve weight loss but will also help to maintain the new body weight and eliminate the factors that cause weight gain. It will further help to identify and treat diseases, the risks of which are increased by obesity, and to create permanent changes in the patient's lifestyle (24). For weight control, the Turkish Society of Endocrinology and Metabolism recommends treatment of people who are overweight according to BMI, those who are exposed to concomitant cardiovascular risk factors, or those who develop comorbidities, risk of which is increased by overweight, and those who are obese according to BMI (9). Additionally, primary care should recommend healthy nutrition and exercise to even people of healthy weight who are concerned about weight gain and who think they need preventive interventions within the scope of preventive medicine.

In the evaluation of obese patients, information about the patient's age and gender, as well as his or her social anamnesis are especially important. Anamnesis traces such as patients' marital status, profession, eating frequency, the types of foods they consume, by whom and how their dishes are cooked, whether they eat at home or outside, eating during the use of technological devices, and exercising provides detailed information about the patient's food intake. The goal is not just to implement a diet or exercise program, but also to make a lifestyle change and keep it permanent.

Dietary Recommendations for Obesity

Weight loss in obese patients has been identified as an effective tool to improve obesity complications such as diabetes, dyslipidemia, hypertension, and cardiovascular diseases. Observational studies have also provided evidence that weight loss reduces mortality in overweight and obese adults (19). Additionally, many studies have shown that weight loss has positive effects on cardiovascular risk markers (25). In primary care, the following principles and guidelines have been developed to help obese patients lose weight:

• Ensuring that the patient is fed with a deficit of 500–1000 calories per day

• Ensuring a rate of weight loss of 0.5-1 kg/week

• Reducing total caloric intake without disturbing the nutritional balance in terms of protein, fat, and carbohydrates

• Ensuring a daily pulp intake of 20-30 grams on average

- Stopping smoking and alcohol consumption
- Regulating fluid consumption in such a way as to ensure consuming at least 2 litres per day, of which 1 litre is water
- Reducing salt consumption below 1 teaspoon (5-6 grams) per day
- Planning the number of meals to be 4-6 per day at 3–4-hour intervals, and reducing the portions
- Avoiding additional food intake between meals, skipping breakfast, and avoiding eating at night

In the literature, dietary approaches have been developed to help reduce cardiovascular risk independently of weight loss in obese patients. However, there is not enough evidence-based information about these approaches. Consequently, it is necessary to advise the patient to avoid extreme diets based on uniform food intake. With a low-calorie diet, a weight loss of 5% of body weight is targeted per 3 months, while 6 to 12 kg weight loss per month is targeted for 10% weight loss. In cases where rapid weight loss is intended, very low-calorie or low-carbohydrate diets can be preferred. It is important that these diets are implemented under the observation of a physician or dietitian (9,26,27). The primary care physician should consult the dietitian when needed. According to recommendations of the Centers for Medicare & Medicaid Services for diet monitoring, face-to-face meetings are recommended once a week for the first month, once every 15 days between 2-6 months, and once a month between 7-12 months. The first interview usually takes 1 hour. A period of 20-30 minutes (depending on the diagnosis, health status and education level of the person) is sufficient for subsequent interviews. (28) The Mediterranean diet is a dietary pattern characterized by the consumption of enormous quantities of vegetables, fruits, nuts, cereals, preferably whole grain, fish, poultry meat, low-sugar, red meat, and dairy products. It can be recommended for obese patients because of its favourable effects on metabolic syndrome, diabetes, and reducing cardiovascular risk factors (29,30). Although the Mediterranean diet's effects on obesity are controversial when it is implemented without energy restrictions, it has additional health benefits. Therefore, it can be preferred as a weight maintenance strategy in primary care. There are studies showing that it positively improves obesity when implemented together with calorie restriction in obese patients (31). In primary care, the Mediterranean diet with caloric restriction is recommended to be evaluated with a case basis approach. This happens when the physician is of the opinion that the Mediterranean diet would improve the adherence to the treatment, by considering the additional benefits that it provides. It is necessary to avoid popularized uniform-food-based dietary approaches, which are not based on adequate evidence or scientific data (9).

Recommendations for Exercise in Obesity

Undoubtedly, besides a healthy eating plan, regular exercise is also important for a healthy life. Regular exercise has innumerable benefits. It improves metabolic and inflammatory parameters, reduces the risk of diabetes, hypertension, and atherosclerotic diseases. It positively improves arterial blood pressure and cholesterol levels, which are components of metabolic syndrome. It also reduces inflammatory markers such as C-reactive protein (CRP) (32). Exercise, independently of weight loss, has a positive effect on metabolic, respiratory, and cardiovascular functions (33). The positive effects of exercise, especially on cardiovascular risks, have also been reported to be independent of weight loss. In the short term, regular exercise programs in obese patients increase both dietary adherence and the rate of achieving weight loss goals. For a healthy life, the Turkish Society of Endocrinology and Metabolism recommends 150 minutes of moderate-intensity exercise per week. While it recommends 150 to 300 minutes of moderate-intensity exercise per week to prevent weight gain and weight regain, it also suggests 225 to 420 minutes of moderate-intensity exercise for weight loss (9). However, it is recommended that both aerobic and muscle-strengthening exercises be divided into sessions. In primary care, it is recommended to adhere to the following principles, to be able to design a healthy exercise program:

- At least 150 minutes of moderate-intensity exer-

cise per week (enables reaching 50-70% of maximum heart rate) or 75 minutes of high-intensity exercise (enables reaching 70-90% of maximum heart rate)

• At least three sessions (or more sessions) per week

• For a medium-intensity program, exercise time should not be less than 30 minutes and not more than 90 minutes for each session

• It is necessary to burn 200 kcal per session on average

• Besides aerobic exercise, muscle strengthening resistance exercises should also be done 2 to 3 times a week.

There are many exercise guidelines for obese patients in the literature. These include the American College of Sports Medicine (ACSM), the Obesity Medical Association (OMA), and the Obesity Society (TOS). All of these are clinically available to assist individuals in prescribing exercise. In the light of these guidelines, general recommendations can be listed as follows; (34)

• At least 150 to 300 minutes of moderate physical activity per week or 75 to 150 minutes of vigorous physical activity per week are necessary to prevent weight gain, increase weight loss, and improve fitness.

• For individuals looking to lose weight, at least 200 to 300 minutes of moderate to vigorous physical activity each week is recommended to promote long-term weight loss.

• For sedentary individuals, the recommendation is "start low and go slow," starting with lower-intensity activities and gradually increasing the frequency and duration of the activity.

• A better option is to spread aerobic activity over a week rather than a day.

• Anaerobic training can be applied and even increase muscle mass. Anaerobic exercise has not been shown to be effective in altering energy expenditure or absolute weight loss. If the patient's goal is to increase muscle mass, anaerobic exercise is highly recommended.

Recommendations for Pharmacological Treatment in Obesity

Pharmacological treatment in obesity, in addition to lifestyle changes, should be indicated to achieve weight loss and/or prevent weight regain, improve adherence to treatment, and create favourable changes in the quality of life. Metformin improves blood glucose control through insulin-stimulated glucose excretion in skeletal muscle. Metformin decreases hepatic glucose output, inhibits gluconeogenesis, and decreases intestinal glucose absorption from the gastrointestinal tract. These mechanisms provide less glucose for energy storage in adipose tissue. In particular, metformin has been shown to reduce adipose tissue but not lean body mass, in contrast to weight loss induced by a hypocaloric diet. Studies have shown that metformin causes a decrease in appetite and that metformin contains a primary anorectic factor. In other studies, it has been determined that there may be a decrease in leptin levels in in vivo adipose tissue and in vivo serum levels under metformin treatment. This suggests an improvement in leptin resistance. It has been stated that Glucagon-like peptide-1 (GLP-1) levels are significantly increased under metformin treatment and therefore can support weight loss. (35) Sodium-glucose co-transporter 2 (SGLT2) inhibitors are glucose-lowering drugs. SGLT2 inhibitors reduce plasma glucose levels by inhibiting glucose and sodium reabsorption in the kidneys. SGLT2 inhibitors cause direct loss of body weight by excretion of glucose (calorie loss) from the kidneys. Inhibition of SGLT2 acts in a glucose molecule dependent manner. It may result in the elimination of approximately 60-100 g of glucose per day in the urine. (36) GLP-1 receptor agonists such as exenatide and liraglutide are agents used in the treatment of type 2 diabetes. These drugs have been reported to be effective in reducing body weight in patients with type 2 diabetes. However, studies have shown that liraglutide and exenatide are effective in reducing body weight for non-diabetic individuals. (37) For treatment options other than metformin, the patient should be referred to an advanced medical center.

Bariatric Surgery for the Treatment of Obesity

In cases where lifestyle change, the main treatment for obesity, is insufficient, and in cases where adequate weight loss cannot be achieved with pharmacological treatment, a group of surgical procedures combined under the definition of bariatric surgery can help patients achieve weight loss. Turkish Society of Endocrinology and Metabolism recommends that individuals be evaluated for the surgical procedure if they have a BMI over 40 kg/m2 or over 35 kg/m2, have a history of an additional obesity-related disease(s), and have been followed in an obesity or endocrinology centre for at least six months but could not lose weight enough (9). In the first-line approach, standard obesity treatment approach should be applied for obese patients when they are admitted to evaluation for bariatric surgery. Medical practitioners should thoroughly learn about the patient's medical and psychosocial histories as well as his or her nutrition and exercise behaviours. The motivation level of patients should be questioned, and the treatment plan be made accordingly. Patients with poor adherence to treatment or those who do not respond to treatment should be referred to the next step for their evaluation for pharmacological treatment (9).

Follow-Up on Obese Patients' Treatment Goals

For obesity patients undergoing lifestyle change treatment, setting realistic goals and ensuring that they continue their treatment will be beneficial for increasing their adherence to treatment. Therefore, it is a reasonable goal to achieve weight loss of up to 5% of body weight in the first 3 months. Weight losses that remain below 5% of the body weight in a 3-month period are considered inadequate responses to the treatment, while 5-10% and 15% and above are considered successful and excellent responses, respectively. However, it should be noted that a sustainable long-term lifestyle change should be created as a behavioural model of the patient; and that the additional risks of rapid weight loss should be avoided. Nevertheless, even when weight loss is less than 5% of the body weight, continued lifestyle changes and even continued use of pharmacotherapy can be considered in cases where patients have clinical benefit (including prevention of weight gain) (38). Patients should be put in a follow-up program after the initial planning. Their weight loss values should be documented by following then at weekly or 15-day intervals during the first 3 months. Lifestyle changes should also be revised, if necessary, by re-evaluating the problems experienced by the patients in the process. Follow-up examinations can be done once a month after the first 3 months, and less frequently after lifestyle changes become standard (24). During the diagnosis or follow-up period, situations that require referral to an advanced medical centre should be studied at the primary level. In case of indication, the patient should be motivated and referred to an advanced medical center.

CONCLUSIONS

Primary care physicians prevent, follow-up and treat obesity and diseases linked to obesity which increase mortality and morbidity rates all over the world. Preventing obesity is more important than treating it. Primary care institutions can help in this regard. These include identifying causes of obesity, preventing obesity, and raising the level of public health.

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