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Prevalence of Obesity-Related Health Disorders Detected During Preoperative Evaluation for Bariatric Surgery

Ahmed Salim Khazaal[1], Mohamed Ghalib Zakari[2]

M.B.Ch.B, FICMS, Assistant professor in General Surgery, Department of Surgery, College of Medicine, Tikrit University[1]

Assistant professor, Internal Medicine, College of Medicine, Tikrit University[2]

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ABSTRACT

Our research was conducted on 100 patients who underwent bariatric surgery due to morbid obesity in our metabolic and bariatric surgery clinic (Tikrit Hospitals) between October 2017 and March 2021 to determine the diseases that accompany or cause obesity with a multidisciplinary evaluation in the management of patients before bariatric surgery, we think that these determinations will enable us to predict the risk of preoperative mortality and postoperative success. Our research was conducted on 100 patients who underwent bariatric surgery due to morbid obesity in our metabolic and bariatric surgery clinic (Tikrit Hospitals) between October 2017 and March 2021. Anthropometric, physical examination and laboratory data were obtained and recorded retrospectively from the files and electronic records of each case. This research is a cross-sectional descriptive study, which is done by retrospectively examining the data of the patients, their files and electronic records. Our study was carried out in accordance with ethical rules. In the study group, the frequency of the diseases detected during the evaluation of the patients with a BMI > 40 kg / m2 with a multidisciplinary approach before bariatric surgery was used as data. Cases between the ages of 18-65 were included in the study. The records of 100 patients whose files were examined were evaluated. Of the patients, 64% were female, 36% were male, mean age was 48.6 years, and mean BMI was 39.7 kg/m2. In obesity patients, type-2 diabetes was detected in 13% hypertension in 32%, and metabolic syndrome in 64%. For the first time in this study, the prevalence of nodular goiter, thyroid cancer, adrenal adenoma, and gastric cancer before bariatric surgery was detected in obesity patients. Hypothyroidism and subclinical hypothyroidism found in 8% while Hyperthyroidism and subclinical hyperthyroidism recorded in 4%. Sleep Apnea plus Obstructive Sleep Apnea and Nodular goiter present in 48%. Regarding gastrointestinal problems; gallbladder disease 33%, Non-alcoholic fatty liver disease 63% and Gastro-esophageal reflux disease in 25%. In Depression and other Psychological Disorders there was a rate of 55%. Regarding Adrenal gland diseases, Non-functional adrenal adenoma represented in 7% and Cushing and Subclinical Cushing's syndrome in 4%.

1. INTRODUCTION

Obesity is a complex disease in which the amount of body fat increases excessively. Obesity is not just an aesthetic concern. Rather, it is a medical problem that increases risk factors for diseases and other health problems such as heart disease, diabetes, high blood pressure and certain types of cancer. There are many reasons why some have difficulty losing weight. Obesity is usually caused by genetic, physiological and environmental factors, as well as choices of diet, physical activity and exercise [1]. The reason for optimism is that even a small amount of weight loss can improve or prevent health problems associated with obesity. Eating a healthier diet, increasing your level of physical activity and introducing some behavioral changes can help you lose weight [2]. Prescription medications and surgical weight-loss procedures are also a possible treatment option for obesity [3], [4]. As a patient's body mass index increases, so does the risk of developing surgical complications [6]. Hypercapnia and sleep apnea in obesity, obesity-related atherosclerotic cardiovascular disease, heart failure, systemic and pulmonary hypertension, cardiac arrhythmias, deep vein thrombosis and it is known that the risk of pulmonary embolism increases [5], [6]. A multidisciplinary approach should be applied for the safe preparation of obese patients for the operation. Perioperative evaluation is very important in these patients [7]. Obesity-related diseases should be detected before bariatric surgery [9]. The aim of this study is to determine the diseases that accompany or cause obesity with a multidisciplinary evaluation in the management of patients before bariatric surgery, we think that these determinations will enable us to predict the risk of preoperative mortality and postoperative success.

2. Material and methods

Our research was conducted on 100 patients who underwent bariatric surgery due to morbid obesity in our metabolic and bariatric surgery clinic (Tikrit Hospitals) between October 2017 and March 2021. Anthropometric, physical examination and laboratory data were obtained and recorded retrospectively from the files and electronic records of each case. This research is a cross-sectional descriptive study, which is done by retrospectively examining the data of the patients, their files and electronic records. Our study was carried out in accordance with ethical rules. In the study group, the frequency of the diseases detected during the evaluation of the patients with a BMI > 40 kg / m2 with a multidisciplinary approach before bariatric surgery was used as data. Cases between the ages of 18-65 were included in the study. In our hospital, the multidisciplinary working group is formed by specialists in endocrinology, general surgery, occupational diseases, chest diseases, psychiatry and psychologist, cardiology, dietitian, and anesthesiologists. Patients were evaluated individually by this team. For the purposes of this study, cases that were not evaluated adequately at the beginning were excluded from the study.

Data analysis was performed using SPSS (Statistical Package for the Social Sciences) 22.0 statistical package program. Variables were expressed as mean ± standard deviation or as a percentage.

3. Results

The records of 100 patients whose files were examined were evaluated. Of the patients, 64% were female, 36% were male, mean age was 48.6 years, and mean BMI was 39.7 kg/m2. The socio-demographic characteristics of the study group are shown in Table 1.

Table 1: Sociodemographic characteristics of the patients

Variables	n:100
Age years (Mean±SD)	48.6 ± 4.7
Sex	
Women (%)	64%
Men (%)	36%
BMI	39.7 ± 4.7

In obesity patients, type-2 diabetes was detected in 13% hypertension in 32%, and metabolic syndrome in 64%. For the first time in this study, the prevalence of nodular goiter, thyroid cancer, adrenal adenoma, and gastric cancer before bariatric surgery was detected in obesity patients. Hypothyroidism and subclinical hypothyroidism found in 8% while Hyperthyroidism and subclinical hyperthyroidism recorded in 4%. Sleep Apnea plus Obstructive Sleep Apnea and Nodular goiter present in 48%. Regarding gastrointestinal problems; gallbladder disease 33%, Non-alcoholic fatty liver disease 63% and Gastro-esophageal reflux disease in 25%. In Depression and other Psychological Disorders there was a rate of 55%. Regarding Adrenal gland diseases, Non-functional adrenal adenoma represented in 7% and Cushing and Subclinical Cushing's syndrome in 4%, Table 2.

Table 2: Patients identified during the evaluation of obese cases during preparation for bariatric surgery.

Parameters	N (%)
Metabolic-hormonal diseases Metabolic syndrome	65%
• Type 2 diabetes	33%
• Dyslipidemia	42%
• Hypertension	60%
Atherosclerosis + coronary artery disease	11%
Sleep Apnea + Obstructive Sleep Apnea	48%
Thyroid diseases	
• Hypothyroidism and subclinical hypothyroidism	8%
• Hyperthyroidism and subclinical hyperthyroidism	4%
• Nodular goiter	48%
gastrointestinal problems	
• gallbladder disease	33%
• Non-alcoholic fatty liver disease	63%
• Gastro-esophageal reflux disease	25%
Cancer	
•Gastric cancer	1%
Thyroid cancer	12%
Depression and other Psychological Disorders	55%

Adrenal gland diseases	
Non-functional adrenal adenoma	**7%**
Cushing and Subclinical Cushing's syndrome	**4%**
other diseases	**17%**

4. Discussion

The increase in the prevalence of obesity causes an increase in the frequency of obesity-related diseases. The risk of metabolic-hormonal diseases, hypertension, and heart disease increases with obesity [9], [10]. The incidence of metabolic syndrome, hypertension, dyslipidemia, type 2 diabetes, and atherosclerotic cardiovascular disease in obese patients has increased in the world and in our country [11]. In particular, Sleep apnea and obesity hypoventilation syndrome are frequently seen in people who are obese. The reason is the increase in soft tissue in the upper airway and collapse of the upper airway during sleep [12]. The prevalence of moderate to severe obstructive sleep apnea (OSA) is very high (~60%) in patients with metabolic syndrome. In our study, the prevalence of sleep apnea and OSA was found to be low in the literature, and we think that this is due to the inadequacy of preoperative evaluation. Reflux disease 18.1% - 27.8%, gallstone frequency ~35%, again fatty liver and non-alcoholic steotohepatitis frequency ~62.4%--80% obesity [13], [14]. In our study, we found that gastrointestinal problems were compatible with the literature. From the clinical perspective, obesity and subclinical thyroid hormone deficiency are common diseases and often coexist [15], [16]. Studies have shown that there is no parallelism between VKl and thyroid diseases in obesity cases [17], [18]. Although the prevalence of subclinical hypothyroidism is high, it is not actually a thyroid dysfunction; In our study, we found the prevalence of thyroid diseases, hypothyroidism and subclinical hypothyroidism 7.9%, hyperthyroidism 4.1%, and nodular goiter 47.2% in obese subjects. In clinical studies, it has been shown that the prevalence of depression and other psychological disorders increases in obese patients [19]. An increase in anxiety, depression, and self-dissatisfaction rates was noted in patients. In studies, depression and other psychological disorders were found at a rate of 45.2-50% [20], [21]. In our study, we found the frequency of depression and other psychological disorders to be 57.9%. In studies, the prevalence of adrenal adenoma was 1-2%, and the prevalence of subclinical Cushing's syndrome was ~9%^.27 In other studies, the frequency of adrenal incidentaloma was found to be ~3%, 10% in the elderly [22], [23]. Ours in our study, we found adrenal adenoma 8.1%, Cushing's and subclinical Cushing's syndrome 2.8%. In addition, we detected gastric cancer in 0.67% and thyroid cancer in 11.8%. Studies have shown that obesity increases the risk of gastric and thyroid cancers [24- 26]. In our study, we found that both gastric and thyroid cancers increased significantly in obese cases.

In conclusion, bariatric surgery is a good method for the treatment of obesity in severe cases. Obese patients should be evaluated in detail by a multidisciplinary group in the preoperative period. Diseases associated with obesity should be identified. This type of clinical approach reduces the risk of operative complications, mortality, and morbidity. Thus, cases in which bariatric surgery is contraindicated are detected before the operation.

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