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THE PROBLEMS OF OBESE PATIENTS IN SURGICAL CLINICS

ABSTRACT

Accepted as a global health problem, obesity is described as the amount of fat in the body exceeding ideal limits. Because obesity is seen as a risk-taker in the formation of chronic diseases, obesity may cause patients and healthcare professionals several difficulties in diagnosis, treatment and care processes by increasing the admission of patients to hospitals. This difficulties in obese patient care develops on physical environment, lack of suitable equipment and staff, and surgical process and cause inability to provide patient and nurse safety and decrease of nurses' satisfaction of giving care. The use of special devices designed for obese patients in the services ensures the safety of both the patient and healthcare professionals. The availability of these devices at the services alone is not enough, but it is also necessary for health workers to receive special training on how to use these devices and give obese patient care.

Keywords: Obese patient, Equipment, Nursing Care, Problems, Surgery

CERRAHİ KLİNİKLERİNDE YATAN OBEZ HASTALARIN YAŞADIĞI SORUNLAR

ÖZ

Günümüzde küresel bir sağlık sorunu olarak kabul edilen obezite; vücutta bulunan yağ oranının ideal sınırlar üzerine çıkması olarak tanımlanmaktadır. Obezite; kronik hastalıkların oluşmasında bir risk etmeni olarak görüldüğü için, hastaların hastaneye başvurularını arttırarak tanı, tedavi ve bakımda, hastanın ve sağlık çalışanlarının; fiziksel ortama, uygun araç/gereç eksikliğine, personel eksikliğine bağlı çeşitli zorluklar yaşanmasına neden olabilmektedir. Yaşanan zorluklar, hasta ve hemşire güvenliğinin sağlanamamasına, hemşirelerin bakım verme memnuniyetlerinin azalmasına neden olmaktadır. Obez hastalar için tasarlanan özel araçların servislerde kullanılması hem hastanın hem de personelin güvenliğini sağlamaktadır. Bu aletlerin servislerde bulundurulması tek başına yeterli olmamakla birlikte bu aletlerin nasıl kullanılacağı ve obez hasta bakımı hakkında sağlık çalışanlarının özel eğitim almaları da gerekmektedir.

Anahtar Kelimeler: Obez hasta, Araç-gereç, Hemşirelik Bakımı, Sorunlar, Cerrahi

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1. INTRODUCTION

The World Health Organization (WHO) defines obesity as "abnormal or excessive fat accumulation in the body to the extent that it can impair health" [1]. In men with average body weight there is an accumulation of fat between 15-20% and in women between 25-30% [2 and 3]. If this rate exceeds 25% in men and 35% in women, it is called obesity [2, 4 and 5]. However, because it is difficult to determine the amount of fat in the body, WHO makes definition of obesity according to body mass index (BMI) Accordingly, BMI 25.0-29.9kg/m^2 is overweight; BMI≥30kg/m^2 is obesity [3, 5 and 6]. It is obtained as a person's weight in kilograms divided by the square of his height in meters (kg/m^2) [1, 7 and 8]. The classification of BMI in adult is given in Table 1 [6].

Table 1. Classification of body mass index

Classification	BMI	Risk
Underweight	<18.50	Low
Normal	18.50-24.99	Average
Overweight	≥25.00	
Pre-Obesity	25.00-29.99	Increased
Obesity (Class I)	30.00-34.99	Moderate
Obesity (Class II)	35.00-39.99	Severe
Obesity (Class III)	≥40.00	Very Severe

Obesity is a health problem that is widespread in all populations and is becoming increasingly epidemic [3]. Every year, 2.8 million people lose their lives from obesity. Obesity associated with high-income countries is also widespread in low- and middle-income countries too [9]. The World Health Organization reported that obesity increased doubled from 1980 to 2014, 1.9 billion people over the age of 18 in 2014 are overweight and of these over 600 million were obese, 41 million children under the age of 5 were overweight or obese. Overweight children become obese adults, so increasing higher risk to develop diabetes and cardiovascular system diseases, leading to premature deaths and injuries [1]. All studies show that the prevalence of obesity is increasing rapidly in Turkey as well as all over world [10]. According to the Obesity Prevalence Study's (TURDEP I) data, the prevalence of obesity was found to be 22% in 2002 [11]. In the TURDEP II study in 2010, it was found that the prevalence of obesity increased to 35% [12]. According to WHO and the World Obesity Federation the prevalence of obesity in Turkey is 26.9% in 2010, 28.1% in 2014 and it is estimated %34.1 in 2025 [13]. According to the Turkish Nutrition and Health Survey-2010 Prestudy Report conducted by the Ministry of Health, it is stated that the prevalence of obesity in Turkey is 20.5% for males and 41% for females and total obesity prevalence is 30.3% [14].

2. RESEARCH SIGNIFICANCE

The physiological characteristics of obese patients are different from normal weight patients [15]. Due to physiological differences, complications and chronic diseases caused by obesity, functional health status and quality of life of individuals are negatively affected [5]. This situation increases the number of obese patients appeal to health institutions and admission to surgical services. Obesity patients who are admitted to surgical services have difficulty in diagnosis, treatment and care [16]. When obese patients are given nursing care, the more different problems can arise than the problems that occur in the care of normal weight patients [17]. Obese

patients in surgical clinics are accompanied by chronic diseases and general health conditions can be bad. Therefore, the risk of complications in obese patients [15] and mortality from surgical intervention is higher than in normal weight patients [3 and 18]. In this review; it is aimed to provide information to guide and to solve problems for nurses who provide obese patients care in surgical clinics.

3. THE PROBLEMS OF OBESE PATIENTS IN SURGICAL CLINICS

When obese patients are given nursing care, they may experience various problems related to physical conditions, lack of appropriate equipment, lack of personnel, and the surgical process.

3.1. The Problems of Physical Conditions

A special room for obese patients who admitted to the hospital for surgical intervention is required [4]. Washbasins and toilets in the hospital room are not suitable for the use of obese patients. Toilet and shower cabinets must fit the dimensions of the patients and support their weight. Therefor, special bariatric rooms which the doors of the sink and shower cabin can be expanded should be developed for obese patient. Holding bars are also needed to sit and support in patient rooms and washbain [18].

3.2. The Problems due to Lack of Suitable Equipment

Special equipments must be used to provide qualified and holistic nursing care in obese patients [19]. Most clinics do not have wheelchair, stretcher, chair, seat, toilet, commode, mechanical lift, trapeze, blood pressure cuff, gowns, weighing machine, injektor, peripheral catheters and abdominal binder special to obese patients [20]. Standard equipment is inadequate as patients' BMI increases and does not supply with the needs of patients [21]. In order to ensure the safety of obese patients, bariatric beds with a carrying capacity of 360 kg should be available in clinics [4], but, the majority of hospitals do not have a suitable bed for obese patients [22 and 23]. It is also necessary to pay attention to the height of the bed. High beds are not protecting the patient which can be a fall risk issue [24]. Trapezes that provide easy positioning to the patient and support movement should be placed on the bed. Special chairs and beds should be available for a more comfortable sleep and sitting position [22].

In the room of obese patients; lifting equipments must be provided for use in changing position and taking patient in the bed from the stretcher. While an average of 5-6 personnel is required to remove an obese patient in a clinic without lifting equipment, the number of personnel required to remove a patient in the presence of portable or fixed lifting systems drops to 2 [25]. There are no suitable gowns for obese patients in the majority of health institutions [23]. Existing gowns are inadequate as the BMI of patients increases. Patient privacy can not protected by wearing gowns that are not suitable for the patient's measurements [4]. Routine evaluation of the obesity patient's weight, respiration, and blood pressure is difficult due to the lack of appropriate weighing machine, pulse oximetry, and blood pressure cuffs [26]. It is not possible for a nurse to correctly assess the blood pressure with a standard blood pressure cuff [4, 24 and 27]. The blood pressure that is assessed by the small blood pressure cuff which does not fit around the arm is higher than normally [28]. As the width of the arm circumference of the patient increases, the length of the appropriate cuff is also increased. Longer and wider blood pressure cuff should be used for

accurate blood pressure measurement in obese patients. The arm circumference and the recommended blood pressure cuff are located in Table 2 [29].

Table 2. Recommended cuff sizes for accurate measurement of blood pressure

Patient	Size
Adults (by arm circumference)	
22 to 26 cm	12 x 22 cm (small adult)
27 to 34 cm	16 x 30 cm (adult)
35 to 44 cm	16 x 36 cm (large adult)
45 to 52 cm	16 x 42 cm (adult thigh)

Pulse oximeter cannot penetrate the fatty layers so making it difficult for the nurse to assess the oxygen saturation. Chairs with weighing scale, beds with weighing scale [17], or scales with 360 kg measuring capacity should be used to measure the weight of the patient [26]. The standard bedpan used for toilet needs in non-mobilized patients is inadequate for obese patients. Thus, commodes designed to be suitable for obese patients are needed [17]. Suitable operating table for obese patients; It should have a carrying capacity of 450kg [24], a hydraulics system that allows easy positioning of the patient, a support systems for the patient's arms and legs, and long wide 2 safety belts [30]. If an appropriate position or fixed position is not given to patient in the operating table, this may cause the development of pressure ulcer and nerve injuries to the patient's slippage [27]. Invasive nursing interventions which used the most commonly in the treatment of patients in surgical services are subcutaneous injection, intramuscular injection and intravenous catheterization.These invasive procedures, which are applied to obese patients, are encountered with intramuscular injection (IM) and intravenous catheterization problems.

Intramuscular injection application techniques are based on the weight and the BMI of the patient. The needle must reach muscle tissue for the effectiveness of IM injection. For this reason, it is important to know the thickness of the fat tissue [31]. Because of excess fat tissue in obese patients causes the drug to be given to the fatty tissue, rather than injecting it into the muscle [32]. In obese patients, the use of long needles is recommended to reach muscle tissue [31, 33 and 34].

The intense subcutaneous fat tissues of obese patients [17] cause changes in the anatomical structure. This causes the peripheral vessels to settle deep into the subcutaneous tissues, thereby causing the vessels to be inspected and palpated to become difficult [35]. This leads to intravenous catheterization difficulties. Standard catheters are short for obese patients. For this reason, long catheters should be used in obese patients and antecubital site should be preferred for intravenous catheterization [4]. Studies suggest that intravenous catheterization is difficult in obese patients [35 and 40]. Obese patients are having problems with their transfer to another area of the hospital for diagnosis or treatment. Some of these problems; the limitation of the weight of the moving instruments, the limit of the rays of the x-ray machine, the inadequacy of the scanning size of imaging such as magnetic resonance imaging and computed tomography [18]. The use of special tools designed for obese patients in clinics provides healthcare professionals and patient safety [30]. It is not enough to keep these devices in the clinic. It is necessary

for health workers to receive special training on how to use these devices and how to care for obese patients [15].

3.3. The Problems due to Lack of Staff

The risk of injuries of patients is increasing due to limitation of movement due to obesity. so they need help during self-care requirements such as in-bed positional changes, mobility and bathing [4 and 23]. obese patients require more nurse's help while meeting the self-care requirements such as urinary catheterization and skin cleansing, due to excessive folds in the skin, irregularity of the abdominal shape and more fat tissue. A larger number of personnel are needed to prevent falls when the patient is taken to the bedside table after surgery or taken from bedside to bedside [41].

3.4. The Problems due to Surcıgal Process

Problems related to the surgical procedure can be showed up before, during and after surgery (Table 3).

Table 3. Problems related to the surgical procedure

Surcigal Procedure	Problems Related to Obesity
Preoperative Problems	• Sleep apnea • Hypoventilation due to cough, breathlessness • More stres and anxiety • Urinary tract infections • Kidney stone • Urinary incontinence • Gastritis • Reflux • Biliary diseases • Constipation
Intraoperative Problems	• Difficulties in anesthesia management • Difficulties in ventilation • Difficulties to control anesthetic drug applications • Increased blood requirement
Postoperative Problems	• Low blood pressure • Respiratory depression • Respiratory abnormalities such as atelectasis, hypoxia • Wound infection • Pressure ulcer • Deep vein thrombosis • Urinary incontinence • Sleep problems • Dumping syndrome

- **Preoperative Problems:** Nurses should collect detailed information about height, weight, BMI measurements, eating habits and exercise when collecting data from obese patients. The nurse should make a complete assessment of obese patient of physical limitations, social interaction and personal issues [such as whether the patient is obese, whether it is sexuality, whether it has an effect on the subject, such as changes in the

financial situation]. Because obesity is an increased risk factor for other diseases, nurses should pay attention to areas where patients express their concerns and problems in evaluations. The nurse must closely monitor the signs and symptoms of the illnesses [9]. Sleep apnea and hypoventilation cause hypoxia in patients. This prevents patients from constantly falling asleep and making extensive physical assessment [19]. Obese patients in the hospital are experiencing more stress and anxiety than other patients [42]. Patient anxiety should be reduced by providing information about the surgical technique to be applied, risks and benefits of surgical treatment, post-operative nutrition, exercise and controls [23].

Breathlessness, sleep apnea, cough are the most common symptoms in obese patients [19]. Obese patients are affected by breathing shortness, decreased neck extension, narrow mouth opening, hypertrophic tonsils and soft tissues that constrict the respiratory tract, causing sleep apneas [43 and 44]. To prevent pulmonary complications, lift the bed head which is a position that facilitates the expansion of the patient's lungs, frequent position changes, deep breathing cough exercises should be done and patient spirometers [23].

Urinary tract infections, renal dysfunction due to hypertension, kidney stone and urinary incontinence are common in obese patients [19]. Medications and bed rest used in patients can lead to urinary retention by reducing blood flow to the kidneys [23]. Excessive pubic fatigue in these patients causes exposure of the mesentery to external pressure. Exposure of the mass to external pressures and failure to achieve adequate hygienic conditions lead to the development of urinary tract infections [19, 23]. Urinary culture should be taken from these patients who are at risk of urinary tract infection and antibiotic therapy should be started if necessary [19]. To prevent urinary retention, the hydration and mobility of the patient should be increased [23].

Gastritis, reflux, biliary diseases and constipation are common in obese patients. Patients' pre-operative hunger, reduced post-operative mobility, difficult positional positioning, absolute bed rest, and analgesia use constrain bowel function and lead to constipation development [19 and 23]. Intestinal cleaning should be performed to obese patient with constipation problem in the perioperative period [23]. According to the institution protocol of the patient with constipation problem, bowel cleansing can be performed in the preoperative period [19 and 23].

- **Intraoperative Problems**: In the management of anesthesia of obese patients face many difficulties. Obese patients are difficult to intubate because of short and thick neck [30] narrowing of the airway [45 and 46], loss of muscle tone, tongue rooting and epiglottis resting on the posterior wall of the pharynx [43 and 44]. Increased stomach and abdominal pressure can cause hypoxia and aspiration during intubation. The high abdominal weight in obese patients causes vena cava inferior oppression, making it difficult to achieve ventilation during surgery for obese patients who have high oxygen consumption and carbon dioxide production [46]. Increased renal clearance and excess fat affects the volume of distribution of fat soluble drugs. This makes it difficult to control dose setting in anesthetic drug applications in obese patients [27].

  In obese patients, cardiac load is increased because of increased blood requirement in fat tissues. Increased cardiac

load poses great risk for severe myocardial ischemia, congestive heart failure, arrhythmia, and arrest, especially for patients with gastric bypass [19 and 47].

- **Postoperative Problems:** It is important to control pain in postoperative patients. The most effective method that can be used to relieve pain in obese patients is patient-controlled analgesia [4]. Before attempting to relieve pain, it is necessary to look for factors that increase the pain [bad position, bladder distension, etc.]. Because drugs to be given to obese patients may cause low blood pressure and depression in respiration, the patient's blood pressure and respiration must be checked before giving the drug [23]. Patients with sleep apnea have a high risk of respiratory depression and should be monitored soon if patient-controlled analgesia is administered [48]. If there is pain caused by leakage from the operating site, the doctor should be notified [23].

  In obese patients, fat tissues, which are found in abundant amounts of the chest and abdominal area, can cause superficial and rapid respiration by pressure on the diaphragmatic, thoracic and abdominal areas after surgery. These respiratory abnormalities cause atelectasis, hypoxia, which makes the patient's oxygenation difficult, leading to polycythemia, pulmonary hypertension and hypoxemia [23 and 27]. In order to prevent these problems, the head of the bed should be raised by 30-45° to reduce the pressure of fat tissue on the chest and abdominal area, deep breathing cough exercises should be performed, and the patient should be encouraged to use spirometer. The hydration and movement of the patient should be ensured to facilitate the excretion of the secretions. When performing deep breathing cough exercises, the patient should be informed that supporting the surgery site will reduce the pain and the risk of opening the surgery site [49 and 50] The patient should be encouraged for early ambulation. For this purpose portable or ceiling-mounted lifting devices/lifts can be used [27].

  The most common complication in postoperative to obese patients is wound infection in postopetarive [23]. The high number of skin folds in obese patients [30 and 41] makes routine skin evaluation difficult [30]. It also increases the rate of superficial inflammation of bacteria in humid areas and the presence of moist areas between these folds [47]. In obese patients, excess fat tissue and inadequate blood flow in the fat tissue cause the oxygenation of the wound area to be reduced and thus the wound healing to be delay [1 and 26]. This is the basis for wound infections. Obese patients who has scar, all injuries must be kept clean and dry [22 and 51]. For this, the patient's skin folds should be ventilated with abdominal binders [41].

  Post-operative infections (such as lung, urinary tract infection, wound infections) can cause body temperature to rise above 38°C in patients. Pulmonary complications such as atelectasis and pneumonia due to difficulties in the use of diaphragm due to pain after upper abdominal and thoracic operations are increasing. The rise in body temperature from 4-7 days postoperatively indicates wound infection. In obese patients, excess fat tissue on the abdominal wall delays wound healing and increases the risk of infection in the incisional area. The patient's incision area should be monitored for signs of delay and infection in wound healing such as bleeding, swelling, discoloration, leakage [23].

Due to high pressure on bone protrusions [4] and pressure sores develop due to absolute bed rest in postoperative period in obese patients [23]. To reduce the risk of pressure ulcer, patients should be encouraged to make a position change once every 2 hours [4] and the patient to move as far as possible in the bed [19]. Beds that support the patient's weight must be used to prevent pressure wounds, check for collapse in bed, care should be taken not to have medical devices (such as serum set) and foreign substances in bed and the integrity of skin and skin folds should be assessed continuously [52].

Obesity prepares the ground for cardiovascular diseases and this can cause death. Diseases such as hypertension, heart failure, coronary diseases [19 and 23], deep vein thrombosis (DVT) can be seen in patients. The inactivity or assisted movement of patients after surgical treatment further increases these risks [51]. Early postoperative ambulation is effective in preventing DVT in patients. Because obesity makes early ambulance more difficult, low molecular weight heparin, active passive exercises, varicose socks or compression devices can used to prevent DVT in patient [30]. , Immobility, reduced venous return and heart failure can cause edema in the legs in obese patients. It is important to identify the etiology and cause of edema and effective treatment [19].

The increase of intraabdominal pressure in obese patients is the basis for the development of incontinence. The patient should not remove the urinary catheter until the stand up in the postoperative period. Urinary catheterization-related infection signs and symptoms should be monitored and perineal care should be provided [4].

Negative factors such as acute pain, bed rest and hospital environment affect sleep activity. Snoring, daytime sleepiness and sleep apnea are the most important problems in obese patients. Although this is reduced in proportion to weight loss in obese patients, current snoring and daytime sleepiness and nighttime sleeplessness complaints are common [19 and 23].

The wrong nutrition of the patients causes fluid and gas accumulation in the stomach and intestines in the early postoperative period. Liquid and gas accumulation in obese patients; abdominal distension, abdominal pain, nausea, vomiting, diarrhea and fatigue may develop dumping syndrome [47]. To prevent dumping syndrome in patient, sugary food intake, one of the factors that speed up the syndrome, should be stopped [53].

In addition to physical problems, obesity can also cause psychological and psychosocial problems such as prejudice, discrimination and abuse. Also obesity increases anxiety and depression risk. The majority of obese patients have low self-esteem and patients often experience feelings of shame and fear [19]. Obese patients are later adapting to the clinic and experiencing more stress than other patients [42]. It is important that the nurse is sensitive to the psychological and emotional effects of being obese when he or she cares for this disease [46], that it is unbiased and that the patient takes care of the patient's privacy [41]. However, the vast majority of nurses working in clinics do not want to care for obese patients. The lack of necessary staff for care, the lack of equipment for care, the difficulty of meeting the care needs of obese patients, and the difficulty, exhausting and time

consuming to care for; cause nurses to not care for obese patients [20].

4. CONCLUSION AND RECOMMENDATIONS

Obesity is a health problem that affects quality and duration of life and the prevalence is increasing rapidly in Turkey and in the world. The increase in the prevalence of obesity increases the number of obese individuals applying to health care facilities and hospital admissions. Problems encountered in the diagnosis, treatment and care of obese patients in the hospital may cause nurses to not care for obese patients, prevent patients from receiving qualified care, prevent patient and staff safety and decrease nursing care satisfaction. The use of patient rooms and special equipment designed for obese patients and the availability of adequate care personnel will bring together patient and employee safety by preventing the injury of both the patient and the healthcare worker.

NOTICE

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