

## Perioperative care for morbid obese patient undergoing bariatric surgery: challenges for nurses\*

*Assistência ao paciente obeso mórbido submetido à cirurgia bariátrica: dificuldades do enfermeiro*

*Asistencia al paciente obeso mórbido sometido a la cirugía bariátrica: dificultades del enfermero*

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### ABSTRACT

**Objective:** To identify the challenges for nurses during the perioperative for patients undergoing bariatric surgery. **Methods:** The sample consisted of 70 nurses who had experience in providing care for morbid obese patients. Data were collected from nurses who were participating in the 7<sup>th</sup> Brazilian Congress on Perioperative Nursing Care, Post Anesthesia Care, and Central Supply and Sterilization using a questionnaire. **Results:** Challenges included inadequate space in operating rooms, inadequate material and equipments, and having specific nursing skills to care for the morbid obese patients. **Conclusion:** Developing specific knowledge and skills and having specialization and clinical experience in the operation room will equip nurses to provide quality care, comfort, physical and emotional safety to attend the need of morbid obese patients.

**Keywords:** Obesity morbid/surgery; Bariatric surgery/nursing; Gastroplasty/nursing; Perioperative nursing; Nursing care

### RESUMO

**Objetivo:** Identificar as dificuldades de enfermeiros de centro cirúrgico ao assistir pacientes obesos mórbidos submetidos à cirurgia bariátrica no período transoperatório. **Métodos:** A amostra constou de 70 enfermeiros com experiência em assistência ao paciente obeso mórbido. Os dados foram coletados durante o 7º Congresso Brasileiro de Enfermeiros de Centro Cirúrgico, Recuperação Anestésica e Centro de Material e Esterilização por meio de um questionário. **Resultados:** A análise dos resultados apontou como dificuldades aquelas relacionadas ao espaço físico, materiais e equipamentos e à assistência de enfermagem específica ao paciente obeso mórbido. **Conclusão:** O conhecimento específico, a especialização e a experiência em Centro Cirúrgico darão o conforto, a segurança física e emocional necessárias a estes pacientes.

**Descritores:** Obesidade mórbida/cirurgia; Cirurgia bariátrica/enfermagem; Gastroplastia/enfermagem; Enfermagem perioperatória; Cuidados de enfermagem

### RESUMEN

**Objetivo:** Identificar las dificultades de enfermeros de centro quirúrgico en el cuidado a pacientes obesos mórbidos sometidos a cirugía bariátrica en el período transoperatorio. **Métodos:** La muestra constó de 70 enfermeros con experiencia en asistencia al paciente obeso mórbido. Los datos fueron recolectados por medio de un cuestionario durante el 7º Congreso Brasileño de Enfermeros de Centro Quirúrgico, Recuperación Anestésica y Centro de Material y Esterilización. **Resultados:** El análisis de los resultados identificó como dificultades aquellas relacionadas al espacio físico, materiales y equipos y a la asistencia de enfermería específica al paciente obeso mórbido. **Conclusión:** El conocimiento específico, la especialización y la experiencia en Centro Quirúrgico darán el confort, la seguridad física y emocional que necesitan estos pacientes.

**Descriptores:** Obesidad mórbida/cirugía; Cirugía bariátrica/enfermería; Gastroplastia/enfermería; Enfermería perioperatoria; Atención de enfermería

\* Study taken from the thesis "O desafio do enfermeiro na assistência ao paciente obeso mórbido submetido à cirurgia Bariátrica", presented at Escola de Enfermagem da Universidade de São Paulo - USP - São Paulo (SP), Brazil. (Programa PROESA). 2006.

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## INTRODUCTION

Obesity is considered a chronic metabolic and genetic disease defined as an abnormal health state associated with overweight and currently considered as a global epidemics. In Brazil, the percentage increase in the growth of obesity determines a great impact in public health<sup>(1)</sup>.

The term morbid obesity was created by Payne, in 1963<sup>(1)</sup>, to characterize the potential for complications due to this state. Morbid obesity is one of the diseases with greater mortality rate. In Latin America, annual deaths are estimated due to comorbidities related with obesity<sup>(2)</sup>.

Patients' therapy should involve a nutritional re-education plan, physical activity and use of anti-obesity agents, however, in morbidly obese patients, the clinical approach is usually ineffective and surgery ends up being the only treatment option<sup>(2)</sup>.

Thus, these patients need a special therapy that considers all their body dimensions associated with comorbidities and factors related to surgical and anesthesia risks.

Comorbidities may be: metabolic endocrinal (metabolic syndrome, insulin resistance, glucose intolerance, type 2 diabetes mellitus, dyslipidemia, polycystic ovary syndrome); cardiovascular (hypertension, coronary diseases, congestive heart failure, dysrhythmias, pulmonary hypertension, venous stasis, deep vein thrombosis, and pulmonary embolism); respiratory (abnormal pulmonary function, obstructive sleep apnea and obesity-hypoventilation syndrome); gastrointestinal (gastroesophageal reflux, gallstone, pancreatitis, inguinal hernia, steatosis, and cirrhosis); musculoskeletal disorders (osteoarthritis, gout and lumbar pain); gynecologic / genitourinary (irregular period, infertility and urinary incontinence) and cancer (esophagus, colon, gallbladder, prostate and uterus)<sup>(3)</sup>.

Even with the advances in the knowledge on the physiopathology of obesity, patients are still exposed to surgery and anesthesia related risk factors, with a high index of morbidity and mortality especially when compared to non-obese patients<sup>(4)</sup>.

These risk factors are related with the specificity of the surgery, to the anesthesia, to stress and the neuroendocrine response due to surgical anesthesia trauma, to the preoperative period, to surgical clothes, surgical hand washing and preoperative skin preparation as well as the procedures<sup>(5)</sup>.

In morbidly obese patients, minimizing risk factors is directly connected with patients' assessment in the preoperative period. Important physiopathologic changes occur in the cardiovascular, respiratory and gastrointestinal systems which are especially important.

Heart function related with obesity is complex. Diabetes, severe obesity, duration of obesity, blood hypertension and coronary disease may be associated with

severe heart dysfunction. In obese patients, circulatory and plasma volumes, cardiac output, filling pressure, and oxygen consumption increase proportionally with the increase in weight. The increase in blood volume and pulmonary flow make obese patients more likely to present pulmonary hypertension, which may be worsened by pulmonary vasoconstriction and may lead to hypoxemia<sup>(6)</sup>. Increased blood volume and cardiac output overload the heart leading to myocardial hypertrophy. Polycythemia suggests chronic hypoxemia. Pulmonary hypertension frequently appears as a consequence for hypoxemia. Electrocardiogram may show several changes and complications in the pre and intraoperative period.

In the respiratory system, there is an increase in oxygen consumption and the production of carbon dioxide in obese patients, as a result of the high metabolic demand and energy expenditure needed to supply for the great body mass. Fat tissue of the chest and abdominal walls reduce thoracic compliance. Functional residual capacity is also decreased and upper airways are closed during normal ventilation. Some patients have normal partial oxygen pressure during the day, but at night there are episodes of CO<sub>2</sub> retention, sleep problems, upper airway obstruction with severe hypoxemia and cardiac dysrhythmias.

Obese patients, whose gastric volume is usually higher than 25 ml, pH is lower than 2.5 in the gastrointestinal system, presented higher rate of gastroesophageal reflux and hiatus hernia, with a great risk for aspiration pneumonia. Fatty hepatitis is common in 25% of morbidly obese patients. Therefore, liver functions must be assessed to diagnose liver diseases<sup>(6)</sup>.

In addition to these risk factors, there are other factors related to comfort and physical safety that are difficult to be handled by nurses. Being aware and able to overcome them is a challenge for nurses since they will enable them to give an individualized perioperative nursing care for morbidly obese patients.

## OBJECTIVE

To identify the difficulties faced by nurses in operating rooms to help morbidly obese patients undergoing bariatric surgery during the intraoperative period.

## METHODS

Exploratory, descriptive, quantitative study developed at the 7<sup>o</sup> Congresso Brasileiro de Enfermeiros de Centro Cirúrgico, Recuperação Anestésica e Centro de Material e Esterilização (7th Brazilian Congress of Operating Room Nursing, Anesthetic Recovery and Material and Storage Sterilization), organized by the *Sociedade Brasileira de Enfermeiros de Centro Cirúrgico, Recuperação Anestésica e*

*Centro de Material e Esterilização* (Brazilian Society of Operating Room Nursing, Anesthetic Recovery and Material and Storage Sterilization SOBECC), carried out in São Paulo.

All 750 participants received the questionnaires together with an invitation letter containing the study objective, deadline to return questionnaires and the consent form. In the last day of the congress, questionnaires were collected and participants gave their written consent.

We have included nurses with experience in operating room and care of morbidly obese patients who filled in and returned the instrument of data collection, together with the signed consent form, resulting in a sample of 70 nurses.

A questionnaire was formed by two sections: section I – with closed questions to characterize the sample (age, gender, year of graduation, time working at the operating room, specialization in operating room, type of institution and time working at the specialty); section II – with closed questions and multiple choice questions concerning the difficulties found to perform the surgery; section II b – open question regarding the difficulty in nursing care of morbidly obese patients during these surgical procedures.

After SOBECC's approval for data collection, the Consent Form was written, according to Resolution # 196/96 of the National Health Council. The ethical aspects involved were project approval at the Ethical Committee of the Nursing School, Universidade de São Paulo and Informed Consent Form signature by professionals taking part in the study

## RESULTS

There was predominance of female nurses, 68 (97.1%) with mean age of 37.0 years (SD = 8.25 years), ranging from 31 to 40 years (37%).

Regarding years after undergraduate course, 20 (29%) nurses had graduated in less than five years (SD = 7.88 years). As for specialization, 33 (47%) nurses attended specialization courses. Most nurses (42-61.0%) worked for private institutions. Forty-four nurses (63%) worked for two to four years with bariatric surgery.

Difficulties mentioned by nurses were identified and are presented on Table 1.

There were 48 mentions to the lack of appropriate operating room, as well as 46 mentions to the lack of special stretchers for morbidly obese patients, of a special operating table and accessories, there were 41 references to the lack of special table, and accessories to enlarge table width or special compression boots; and materials for special anesthesia; there were 37 references to the lack of belts for the safety of these

patients.

**Table 1** – Difficulties regarding the physical aspects, material, and equipment necessary to bariatric surgery – July, 2005

Difficulties mentioned	n
Size of the operating room	48
There is not special stretcher for transferring patients	46
There are no special accessories and surgical table	41
There are no compression boots	41
There is no special material for anesthesia	41
There is no belt for patients' safety	37
Total	254

**Table 2** – Difficulties regarding nursing care provided for morbidly obese patients July, 2005

Difficulties mentioned	n
Patients' transfer, mobilization, positioning and transport.	42
Absence of special materials and equipment.	23
Absence of psychological intervention.	3
Technique for bladder catheterization.	3
Total	71

Difficulties related to transference, mobilization and transport were mentioned 42 times. Other 23 mentions referred to lack of material and specific equipment which hindering care provided. Bladder catheterization was three times mentioned as a complication together with the psychological and emotional support to minimize patients' anxiety.

## DISCUSSION

Among the patients in the study, there was predominance of females, confirming the majority of women in the profession. Age group corresponded to adults, even though they had a few years after finishing undergraduate course (< 5 years - 29%).

Regarding the undergraduate course, the specific content is not uniformly inserted into the courses, at times it is an isolated subject, at other times it is integrated to Nursing in adult health, or to Surgical Nursing or Medical-Surgical Nursing, limiting the experience and practice in specialized services<sup>(6)</sup>. Specialization is a market need since undergraduation does not meet this gap<sup>(6)</sup>.

A study<sup>(7)</sup> carried out showed that nursing professionals are being required specialization by hospitals in special areas, including Operating Room (OR), since a general undergraduate course does not provide a theoretical and practical bases for a competent work. These authors<sup>(7)</sup> showed that nurses looked for post-graduation courses or specialization courses in OR

for personal enhancement rather than for improving quality of care, that is, there is a concern for their insertion in the job market.

As for the type of hospital where care was provided, private institutions employed most nurses interviewed (42-61%).

As for the time working with bariatric surgery, most nurses from our sample (63%) provide care to these patients for two to four years, that is, as soon as they finished graduation they started working in this specialty.

Although surgical therapy to treat morbid and severe obesity is almost 20 years, being the most effective method to prevent and control its potential comorbidities, OR nurses still face many difficulties regarding nursing care in the perioperative period<sup>(8)</sup>.

In the present study we believe that the small amount of time working at the operating room and with obese patients, without a specialization course, worsens this situation.

#### **Difficulties related with the physical space, furniture and safety equipment**

SOBECC recommendations<sup>(9)</sup>, follow the determinations of the *Agência Nacional de Vigilância Sanitária* (National Health Surveillance Agency), on the minimum requirements for facilities in specialized surgeries, suggest a physical space of 36 m<sup>2</sup>, as well as a support room of 12 m<sup>2</sup>. However, this was not observed in the response given by nurses, since 48 references pointed out for the lack of determined physical space to receive morbidly obese patients.

The same thing occurs to the necessary operating table and its accessories. A standard surgical table stands, on average, 160 kilograms.

The surgical table is pointed out as an essential resource for surgery performance, the electrical models are preferred and they stand up to 455 kilograms with the possibility of moving patients properly<sup>(10)</sup>.

According to the guidelines published by the Association of Operative Registered Nurses (AORN)<sup>(11)</sup>, the maximum weight supported by the bed and the surgical table is between 300 and 500 kilograms, stressing the importance of the preoperative visit to identify the need to add lateral accessories to the existing surgical tables for these patients.

The absence of a specific surgical table for morbidly obese patients, as verified by the present study, has direct interference on patients' safety. The stretcher is another important piece of equipment used to transfer patients. According to AORN<sup>(11)</sup>, a hydraulic elevator with appropriate movements to promote patients' safety and enable their transference after surgery should be used.

However, what we have obtained from nurses' reports was that this equipment was not available and

they use a resource called "a slider", a bendable polyurethane mattress which facilitates patients' transference to the stretcher by sliding them; however, at least six employees are necessary for this.

Although the technological advances that followed the evolution of bariatric surgical procedures made available in the market several different pieces of equipment, their cost is still a complicating factor making their purchase difficult, even by private institutions.

The same thing occurs for the purchase of material used for intubation and safety devices, because in addition to Guedel airway size 5, a laryngoscope with a longer blade, straight and tubular, and a fiberscope should also be available in the sector to help with difficult intubation.

#### **Difficulties related with nursing care provided for morbidly obese patients**

The difficulties above mentioned are connected with material resources previously referred and to the human resources necessary to give comfort and safety to patients and to employees of the nursing team.

Thus, human resources should be considered in a special way, since patients' weight is a great limitation for the team, hindering all nursing care, such as transferring patients from the nursing ward to the OR. Regarding mobilization and positioning, a study<sup>(12)</sup> shows the following risk factors: surgical time and comorbidities such as diabetes, changes in the Body Mass Index (BMI), use of standard mattress in the surgical table. Patients with altered BMI need interventions to prevent the development of pressure ulcers<sup>(13)</sup>.

Considering the morbidly obese as a complex patient, we recommend that all bony prominences and more susceptible regions are protected with static devices such as gel or foam mattress or mattress coverage made of gel or dry visco-elastic polymer, air mattress or air-filled gel/foam cushions, or even dynamic devices such as the mattress with a micro pulse system.

According to AORN<sup>(11)</sup>, nurses caring for obese patients in the intraoperative period should make available to patients sequential compression devices, such as compression boots with appropriate motor units.

The uses of pneumatic intermittent compression equipment associated with thromboprophylaxis with subcutaneous thrombolytic therapy have contributed to the decrease in deep vein thrombosis since there is great risk for this complication in the postoperative period<sup>(10)</sup>.

After the procedures for admission in the operating room and anesthesia, patients should receive anti-embolism stockings and, on top of the stockings, sequential compression devices with a pneumatic controller supplying the region with intermittent pulses of compressed air that sequentially inflates the many chambers of the device starting in the ankles and finishing

in the tights, therefore increasing blood flow in the inferior limbs<sup>(14)</sup>.

When this equipment is lacking, elastic stockings are used in all patients, or even a silicon Esmarch bandage.

In this study, even though most hospitals were private institutions, the health plan does not cover the value of elastic stockings. Thus, nursing care in the intraoperative period to prevent DVT is essential, that is, bandages must be placed, after anesthesia, on the thigh with wide adhesive tape to avoid tourniquet, this care will be taken until patients are out of the surgery table.

Most difficulties mentioned by nurses are experienced by morbidly obese patients, making them very uncomfortable since admission, when they have to be undressed and receive the gowns to be sent to the operating room.

It is stated that obese patients face important prejudice and discrimination in industrialized countries<sup>(15)</sup>. This may be observed in several every day situations such as television programs, magazines and jokes. These facts may also occur in the health care, where 80% of patients in bariatric surgery report they received a disrespectful treatment from the multiprofessional team because of their weight.

Nurses should guide the procedures that will be performed during the preparation to surgery, especially those that will depend on patients' cooperation as a strategy to give them the necessary emotional support they will need to deal with this situation.

A study<sup>(16)</sup> was carried out to find out nurses' perspective on the need to give emotional support to surgical patients, and the easy and difficult sides of providing this support. According to the study, nurses feel the need to give emotional support to surgical patients through facial expression, posture, gestures, their eyes, silence, cry and physiological changes. The author identified the act of talking to patients, touching them and listening to them as ways used by nurses to give patients emotional support. The easy side of providing care was related to empathy and religious background.

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As for the difficult side, they refer to lack of time, personnel, rapport and an appropriate instrument for perioperative assessment.

This study<sup>(16)</sup> shows that psychological intervention with the patients is still difficult for nurses and their assessment is based on common sense.

Even with the several studies carried out in this issue, apparently there are not enough theoretical bases for nurses to acknowledge and intervene in patients' needs. Their behavior will always be associated with their emotional characteristics on the facts experienced so far, that is, the coping mechanisms nurses use in view of dangerous situations. In this sense, nurses still do not have instruments to give support or to intervene<sup>(17)</sup>.

When the level of satisfaction towards psychosocial needs of information, safety and self-esteem was assessed, we have considered that information should be adjusted to the needs of each patient, and they can or cannot be effective, since human beings perceive reality through the filters in their personality, through their previous personal experience and current problems<sup>(18)</sup>.

This author suggests that guidelines to patients may be useful to control emotions; however, this cannot be taken as a rule. Nursing management aiming at decreasing anxiety is connected with a proper emotional assessment which is, in turn, closely connected with understanding human subjectivity.

## CONCLUSION

Problems nurses face to provide specific care to morbidly obese patients in the intraoperative period of bariatric surgery are those related to: physical space, furniture, equipment, accessories, material for intubation, and to the specific nursing care of morbidly obese patients that ensure comfort and physical and emotional safety, that is, when the nursing staff lacks specific knowledge, this may lead to surgical and anesthesia risks and lack of psychological intervention.

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