

CLINICAL AND EPIDEMIOLOGICAL PROFILE OF OBESE PATIENTS FROM A PRE-OPERATIVE OUTPATIENT EVALUATION CLINIC

Perfil clínico e epidemiológico de pacientes obesos de um serviço ambulatorial de avaliação perioperatória

Perfil clínico y epidemiológico de pacientes obesos de un servicio ambulatorio de evaluación perioperatoria

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ABSTRACT: Objective: To describe the clinical and epidemiological profile of obese patients from a pre-operative outpatient evaluation clinic, performed by nurses and anesthesiologists based on cardiac risk assessment and stratification. **Method:** A descriptive, retrospective study, consisting of 292 patients consulted in the pre-operative outpatient evaluation clinic, in which 88 were identified as obese. Demographic, anthropometric (by body mass index - BMI), clinical and cardiac variables were analyzed using the χ^2 test. **Results:** 30% of the patients were obese, of which 91% were female. Regarding the presence of comorbidities, 50% had systemic arterial hypertension (SAH) and 22% had diabetes mellitus (DM). A prevalence of ASA P2 (74%) and high risk for venous thromboembolism (63%) was verified; in relation to cardiac risks according to the ACC (American College of Cardiology / American Heart Association - AHA, modified by Detsky), the majority (74%) was stratified/classified as intermediate risk. **Conclusion:** The significant incidence of comorbidities confirmed the need to use multiprofessional strategies in perioperative care, aimed at the obese population, with the possibility of identifying vulnerabilities and reduce the risks to the individual when undergoing surgical procedures. **Keywords:** Perioperative care. Perioperative nursing. Obesity. Patient care team. Patient safety.

RESUMO: Objetivo: Descrever o perfil clínico e epidemiológico de pacientes obesos de um serviço ambulatorial de avaliação perioperatória, realizado por enfermeiros e anestesiólogos, baseado em estratificações e avaliações do risco cardíaco. **Método:** Estudo descritivo, retrospectivo, composto por dados de 292 pacientes consultados pelo serviço ambulatorial de avaliação perioperatória, em que 88 foram identificados com obesidade. Foram analisadas variáveis demográficas, antropométricas (por índice de massa corporal — IMC), clínicas e cardíacas pelo teste do χ^2 . **Resultados:** Entre os pacientes, 30% eram obesos, dos quais 91% eram do sexo feminino. Em relação à presença de comorbidades, 50% eram portadores de hipertensão arterial sistêmica (HAS) e 22% a tinham associada ao diabetes mellitus (DM). Foi verificada prevalência de ASA P2 (74%) e alto risco para tromboembolismo venoso (63%); em relação aos riscos cardíacos pelo ACP (American College of Cardiology / American Heart Association — ACP, modificado por Detsky), a maioria (74%) foi estratificada como risco intermediário. **Conclusão:** A significativa incidência de comorbidades constatada acusa a necessidade de utilizar estratégias multiprofissionais na assistência perioperatória, voltadas para a população obesa, sendo possível identificar vulnerabilidades e diminuir riscos aos quais o indivíduo está sujeito, ao submeter-se a procedimentos cirúrgicos. **Palavras-chave:** Assistência perioperatória. Enfermagem perioperatória. Obesidade. Equipe multiprofissional. Segurança do paciente.

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RESUMEN: Objetivo: Describir el perfil clínico e epidemiológico de pacientes obesos de un servicio ambulatorio de evaluación perioperatoria, realizado por enfermeros y anestelistas, basado en estratificaciones y evaluaciones del riesgo cardíaco. **Método:** Estudio descriptivo, retrospectivo, compuesto por datos de 292 pacientes consultados por el servicio ambulatorio de evaluación perioperatoria, en que 88 fueron identificados con obesidad. Fueron analizadas variables demográficas, antropométricas (por índice de masa corporal — IMC), clínicas y cardíacas por el test de χ^2 . **Resultados:** Entre los pacientes, un 30% era obeso, del cual un 91% era del sexo femenino. Con relación a la presencia de comorbilidades, un 50% era portador de hipertensión arterial sistémica (HAS) y un 22% la tenía asociada a la diabetes mellitus (DM). Fue verificada prevalencia de ASA P2 (74%) y alto riesgo para tromboembolismo venoso (63%); con relación a los riesgos cardíacos por el ACP (American College of Cardiology / American Heart Association — ACP, modificado por Detsky), la mayoría (74%) fue estratificada como riesgo intermedio. **Conclusión:** La significativa incidencia de comorbilidades constatada acusa la necesidad de utilizar estrategias multiprofesionales en la asistencia perioperatoria, volcadas para la población obesa, siendo posible identificar vulnerabilidades y disminuir riesgos a los cuales el individuo está sujeto, a someterse a procedimientos quirúrgicos.

Palabras clave: Atención perioperatoria. Enfermería perioperatoria. Obesidad. Grupo de atención al paciente. Seguridad del paciente.

INTRODUCTION

According to information from the World Health Organization (WHO), more than 200 million surgeries were performed in 2008. It is also estimated that there were around seven million complications and about two million deaths, with half being preventable deaths. Thus, safe actions are necessary to protect the patient during surgical procedures under anesthesia, since these can result in permanent damage^{1,2}.

An increase in the number of non-cardiac surgical procedures is expected in the coming years due to the progressive aging of the population. Such evidence highlights the need to absorb a growing demand for perioperative assessments for procedures, sometimes associated with significant morbidity and mortality³.

The Brazilian population is mostly overweight (52%). Regarding the surgical population, it is estimated that 30% will present some degree of obesity⁴.

Once the surgical intervention is indicated, it is important to estimate the surgical risk, which is related to specific patient and surgery characteristics, with the aim to establish specific modifications relevant to the patient's clinical condition⁵.

Obese patients are more prone to risks associated with preventable adverse events; are at increased risk for hypoxemia, pulmonary atelectasis, hypoventilation, increased dependence on mechanical ventilation, obstructive sleep apnea syndrome (OSAS), aspiration of gastric contents; cardiovascular events due to comorbidities; hypertension, diabetes mellitus (DM), dyslipidemia and atherosclerosis. The risk of perioperative thromboembolic events is also more prevalent in obese patients than in non-obese patients⁴.

According to the WHO, it is possible to classify the severity of obesity in patients in three grades: Grade I (overweight), which corresponds to the body mass index (BMI) value between 30 and 34.9 kg / m²; Grade II (obese), when the BMI value is between 35 and 39.9 kg / m²; and Grade III (morbidly obese), if the BMI exceeds 40 kg / m²⁶.

The pre-operative evaluation in the outpatient setting, which includes pre-anesthetic consultation, promotes the identification of risks associated with the anesthetic-surgical act, increases the chance of a satisfactory surgical result, and is effective in reducing pre-operative anxiety⁷.

The Pre-operative Outpatient Clinic of the Regional Hospital de Gama (APA-HRG) is a service aimed at the pre-operative evaluation of patients of a general hospital. The patients are cared for by a multiprofessional group, composed of anesthesiologists and a nursing team, which, based on evidence-based practices, provides individualized pre-operative care to the patients, seeks better surgical results and reduces the average length of hospitalization prior to elective surgery and the number of suspended surgeries⁸.

During the pre-operative outpatient consultation, the nurse identifies obese patients by calculating BMI and performing anthropometry measurements⁸. The physical examination also includes the verification of vital signs, cardiopulmonary auscultation and identification of a difficult airway (DA) predictors. The medical team evaluates the risk stratification for OSAS using the STOP-BANG score, as well as the functional capacity questionnaire (MET) and the risk flow chart for venous thrombosis (VTE) by means of the Safety-Zone algorithm.

The anesthesiologist and the nursing team identify the cardiac risks using stratifications that measure the

risk of developing cardiac complications in the perioperative period, which allows the team to make decisions and seek the best prevention and treatment strategies, including adjustments in the management of the underlying disease³. Thus, the stratifications by the American Society of Anesthesiologists (ASA) and the Lee (Cardiac Risk Index Revised Lee - IRCR), ACC (American College of Cardiology / American Heart Association - AHA) by Detsky), New York Heart Association (NYHA) are applied by the anesthesiologist as well as the Cardiac Risk for Non-Cardiac Procedures^{3,9}.

The initial evaluation allows the pre-operative nurse to identify the risks for the surgical patient during the preoperative period and facilitates the nursing diagnoses process, and makes the implementation of the Perioperative Nursing Care Systematization (PNCS) possible.

OBJECTIVE

To describe the clinical and epidemiological profile of obese patients at a pre-operative outpatient evaluation clinic in the Federal District.

METHOD

A descriptive, retrospective study, in which data collection from consultations was carried out between June 2014 and June 2016, at the APA-HRG of a general hospital in the Federal District.

According to the protocol of the service, high risk patients are those who are 65 years of age or under 65 years of age with a history of morbidity (allergies, systemic diseases, use of medications on an ongoing basis), and / or physical limitation, and / or cognitive limitation, and / or previous history of problems while under anesthesia during a surgical procedure.

Physical and electronic medical records of obese patients, over 18 years of age, requiring elective surgical treatment, referred to general surgery clinics and subspecialties, gynecology and orthopedics, were included in the study. Patient medical records for patients over 18 years of age and with a BMI <30 kg / m² were excluded from the study. For the data collection, a form was used that gathered the main information contained in the questionnaire of the preoperative consultations of the service. Sociodemographic and

anthropometric variables were studied in order to create the database including: sex, age, BMI, surgical specialty, associated diseases, DA predictor, smoking and alcoholism; clinical stratifications: ASA physical status classification, MET functional classification, OSAS risk classification, and VTE risk classification; and cardiac risk assessments: Lee, ACP, NYHA and Cardiac Risk Classification for Non-Cardiac Procedures^{3,9}.

Safety Zone is an algorithm that uses clinical data from past and present history to stratify the risk of developing VTE in clinical and surgical patients¹¹.

According to the III Guideline of The Perioperative Evaluation of the Brazilian Cardiology Society, the ACP algorithm, ACC / AHA, American College of Cardiology / American Heart Association, and IRCR are the most indicated for the identification of perioperative cardiac risks⁴.

These variables were analyzed using the 2008 Development Core Team statistical software, version 3.3 for Windows[®], and were presented in a descriptive way in absolute and percentage frequencies.

The research work was approved by the Research Ethics Committee of the Foundation for Teaching and Research in Health Sciences (FEPECS) under CAAE n° 60740916.8.0000.5553, and was carried out in accordance with the requirements of Resolution 466, of December 12, 2012, of the National Health Council.

RESULTS

It was verified that, between July 1, 2014 and June 30, 2016, 292 consultations were carried out in the APA-HRG. Among these, 88 were with obese patients who would undergo some surgical procedure requiring anesthesia.

The largest amount of medical records of obese patients (71/91%) belonged to the female gender. In relation to age, the majority were older than 60 years (34/43.5%). In relation to the lifestyle habits, a great part confirmed being non-smokers (63/71,5%). The patients were mainly referred by the Gynecological Clinic (38/43.6%). The findings are presented in detail in Table 1.

Upon studying the mentioned clinical variables, most of the participants were classified as ASA P2, according to the clinical state proposed by ASA. Regarding the Duke index (MET), around 5.9% had poor functional capacity (1-4 METS), while 41.6% had moderate MET (4-10 METS). Regarding the risk of VTE, most of them presented a high risk for a

thromboembolic event; and 47.8% presented a high risk for OSAS (Table 2).

In relation to comorbidities, a higher prevalence of medical records for patients with systemic arterial hypertension (SAH) was obtained and a reduced number of records for patients with DM, as detailed in Table 2.

Regarding the results of the cardiac risk stratification presented in Table 3, the sample was mostly (52.3%) classified as Lee I. The NYHA obtained functional class I (82.2%) as the prevalent stratification, as described in Table 3.

DISCUSSION

From the population selected, a sample of 30% obese patients was obtained, consistent with estimates of the Brazilian Cardiology Society for surgical patients nationwide⁴.

Table 1. Socio-demographic data and profile of the obese population treated at the Pre-operative Outpatient Evaluation Clinic of the Regional Hospital de Gama (APA-HRG). Brasília (DF), 2016.

Variables	n	%
Age group (years)		
<20	00	0.0
20-40	12	15.3
41-60	32	41.0
>60	34	43.5
Sex		
Female	71	91.0
Male	07	8.9
Clinic		
Gynecology	38	43.6
Orthopedic	28	32.1
General	17	19.5
Mastology	02	2.2
Vascular	01	1.1
Others	01	1.1
Smoker		
Yes	09	10.2
No	63	71.5
Ex-smoker	16	18.8
Difficult airway predictor		
Yes	36	46.1
No	42	53.8

Table 2. Clinical data of obese patients treated at the Pre-operative Outpatient Evaluation Clinic of the Regional Hospital of Range (APA-HRG). Brasília (DF), 2016.

Variables	n	%
ASA		
P1	09	10.3
P2	65	74.7
P3	13	14.9
MET		
Excelent	44	52,3
Moderate	35	41,6
Poor	05	5,9
OSAS		
Yes	33	47.8
No	36	52.1
VTE		
High	55	63.9
Moderate	18	20.9
Low	13	15.1
SAH	44	50.5
SAJ+DM	20	22.9
DM	03	3.4
No SAH or DM	20	22.9

ASA: American Society of Anesthesiologists; MET: Functional Classification; OSAS: obstructive sleep apnea syndrome; VTE: venous thromboembolism; SAH: systemic arterial hypertension; DM: diabetes mellitus.

Table 3. Cardiac stratification performed in obese patients by the Perioperative Outpatient Evaluation Clinic of the Hospital Regional de Gama (APA-HRG). Brasília (DF), 2016.

Variables	n	%
LEE		
I	45	52.3
II	35	40.6
III	05	5.8
IV	01	1.1
ACC		
High	02	0.9
Low	18	7.6
Intermediate	57	24.5
NYHA		
I	51	82.2
II	08	12.9
III	02	3.2

LEE: Lee's Revised Cardiac Index; ACC: American College of Cardiology / American Heart Association - AHA, modified by Detsky; NYHA: New York Heart Association.

The results related to sex highlighted a greater number of obese women in the sample, which contrasts with the data from the Surveillance of Risk and Protective Factors for Chronic Diseases (VIGITEL), which shows that obesity is mostly found in the male Brazilian population¹². The contrast is justified by the greater number of referrals that the clinic obtained from the Gynecological Clinic for preoperative consultation¹³.

Nevertheless, the most prevalent age group for obesity was over 60 years, which corroborates the data found by VIGITEL, in which the proportion of obese women, in relation to men, increases after 64 years¹².

Another study presented a similar result when it identified 28.9% of obese patients in its epidemiological profile of a preoperative outpatient clinic. Of these, the prevalence was also found in women, and the frequency of obesity was increased in the age group from 45 to 54 years for men and from 55 to 64 years for women¹⁴.

The risk of morbidity and mortality in the obese individual is directly related to weight gain, since body enlargement is associated with non-transmissible diseases, such as SAH, DM left ventricular hypertrophy (LVH), cardiorespiratory capacity dysfunction, arrhythmias, myocardial ischemia, acute myocardial infarction (MI), asthma, OSAS, pulmonary thromboembolism (PTE) and pulmonary hypertension^{15,16}.

Obese patients are 2.9 times more likely to develop DM and SAH than patients with BMI within normal parameters. As a result, more than half of the sample has a SAH diagnosis, but few individuals have developed both comorbidities¹⁷.

Regarding clinical stratification, the ASA classification had a higher frequency of ASA P2, which is characterized by moderate systemic disease, without functional limitation and is justified by the prevalence of SAH and DM among patients. A meta-analysis showed that a gain of 1 kg of body mass is associated with an increase of 1.2 to 1.6 mmHg in systolic pressure and from 1.0 to 1.3 mmHg in diastolic pressure¹⁷. The DA predictor, which is one of the parameters used to predict difficulties in laryngoscopy during anesthesia induction, may occur due to increased circumference of the neck in the obese patient and due to the increase in Mallampati classification which is the classification of the difficulty in visualizing the oropharynx¹⁸.

Regarding these indicators, a relevant number is found in the sample of individuals with complicated airway predictors.

The direct association between obesity and difficult laryngoscopy is still contradictory in the literature. In one study, 100 patients with BMI > 30 kg / m², who presented cervical width increase and a Mallampati score ≥ 3 , did not obtain direct laryngoscopy except one; i.e., only 1% of those obese had difficult intubation¹⁸.

The application of the MET scale to evaluate functional capacity in individuals with high BMI showed that more than half obtained excellent functional capacity, performing activities and daily tasks without complaints. It is evidenced that 41.6% have moderate functional capacity due to reporting complaints or limitations regarding the performance these activities¹⁹.

BMI is associated with OSAS, which can lead to hypoxia, impairing the postoperative period. The pathophysiology of OSAS is defined by respiratory pauses with micro arousals, which characterize the apnea event. The prevalence of OSAS in obese individuals reaches 40% in overweight individuals (BMI > 25 kg / m²) and can reach 90% in patients with BMI > 40 kg / m²²⁰.

In the study in question, by means of the STOP-BANG score, there were stratified patients with a high risk for OSAS. Sleep apnea may present complications to the patient's clinical status, for example, increased partial pressure of carbon dioxide in arterial blood, causing oxyhemoglobin desaturation due to lack of alveolar ventilation²⁰.

OSAS may be an aggravating factor among other adverse respiratory events in the obese patient. The increase in BMI leads to the narrowing of the pharynx, causing upper airway structure impairment and decreased lung volume, due to the low expansion of the thoracic cavity. This condition is worsened since the adipose tissue secretes adipokines, which are related to the decrease of the neuromuscular control²¹.

In addition to OSAS, the risk of atelectasis and hypoventilation syndrome are present, often due to decreased vital and functional residual capacity, as well as forced expiratory volume²⁰.

Hypoventilation syndrome in the obese patient is defined by hypercapnia in wakefulness (carbon dioxide arterial pressure ≥ 45 mmHg), accompanied by hypoxia. The prevalence of hypoventilation syndrome in patients already diagnosed with OSAS is 11% and 8% among individuals undergoing bariatric surgery. Patients with hypoventilation syndrome have an expected increase in HCO₂ levels, which can also be used as a tool to form a possible nursing diagnoses²².

The postoperative complications that have more composite outcomes due to death in the obese are VTE and PE, which have higher risks in these patients and are recurrent in postoperative bariatric surgeries, but can be minimized⁴.

One of the more complete prospective method studies and longitudinal evaluation with obese patients submitted to bariatric surgery verified a mortality rate of 0.3% in 30 days, the outcome being death, deep vein thrombosis (DVT) and PE²³. In the sample of this study, most of the individuals were stratified by the Safety Zone as high risk patients for the development of PE / VTE and 20.9% were stratified as having moderate risk.

The risk of developing a thromboembolic event can be minimized. The application of the algorithm, in addition to performing the subject's risk classification, suggests adequate thromboprophylaxis treatment according to the patient's stratification. The risk and prophylaxis of PE / VTE have been underutilized by surgical clinics, decreasing perioperative safety and putting obese patient at risk, who has a greater chance of thromboembolic events⁴.

Meanwhile, the risk of an adverse perioperative cardiac event is related to the degree of obesity, associated comorbidities and type of surgery performed. The ACC uses clinical evaluation, electrocardiographic, presence of MI or previous acute pulmonary edema as part of its classification process. The Lee algorithm proposes four classes of risk for patients according to variables related to high-risk surgeries: MI, congestive heart failure (CHF), history of cerebrovascular disease, serum creatinine > 2.0 mg / dL, and diabetes insulin-dependent diabetes. Thus, the intermediate ACC, followed by low ACC, was classified in the majority of the obese patients entered in the Lee I classification, in which none of the variables were presented; "However, in the second highest classification-Lee II-, patients presented one of the variables described⁹.

The NYHA stratification is a widely used scale, indicated by the Brazilian Cardiology Society to identify subjects with CHF and coronary insufficiency, the stages and follow their progression. The scale can also be used for pre-operative evaluation, minimizing the risks of the disease and impairment in the intra and postoperative periods. The majority of the patients studied did not present a symptom of the disease, being classified as NYHA I, and only 12% were categorized as NYHA II, suggesting some symptom of the diseases⁴.

The identification of the clinical risks for the obese patient guides the care of the nurse. Therefore, the Nursing Process is based on individualized care, evaluating all phases of the perioperative period during the nursing consultation^{24,25}.

As PNCS is indispensable in surgical patient care, the preoperative visit or preoperative outpatient care become protagonists in the beginning of care planning. In order to follow the nursing planning, it is necessary to state the previously identified risks and diagnoses. In view of this, it is important that the perioperative risks of the obese patient, identified in this study are taken into consideration when choosing the nursing diagnosis¹⁰.

A significant limitation of the study was the difficulty in accessing physical records, due to the transition from physical to electronic records that occurred at the institution during the data collection period.

CONCLUSION

Among the population studied, it was observed that 30% had BMI > 30 kg / m². Among these, 91% were women, more than 50% had SAH and 22% had SAH associated with DM. Significant numbers were obtained from the clinical stratifications, such as the increase in ASA P2, which showed that most individuals have some diagnosed comorbidity, even if already treated. A high risk for VTE in most patients was found, which allows the team to suggest more adequate prophylaxis. It was possible to predict postoperative apnea events in 40% of subjects, considering that they presented a high risk for OSAS.

The multidisciplinary work in the pre-operative context facilitates the identification of vulnerabilities in obese patients and the risks to which the disease predisposes them, making the reduction of these risks possible through prophylactic behaviors that can be taken, providing safer intra and post operations periods.

Emphasis is placed on the importance of nurses in pre-operative outpatient planning, as they perform an essential role with the team and the patient, as well as the convenience of knowing the patient outside the Surgical Center, which facilitates PNCS implementation, care planning, and clarifies doubts as well as carrying out the necessary guidelines for the patient and their family.

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