INTEGRATIVE REVIEW ARTICLE

WAITING TIME OF PATIENTS IN THE QUEUE TO CARRY OUT BARIATRIC SURGERY AND RELATED COMPLICATIONS

TEMPO DE ESPERA DE PACIENTES EM FILA PARA REALIZAÇÃO DE CIRUÍRIA BÁRIA E Complicaciones relacionadas

TIEMPO DE ESPERA DE PACIENTES EN FILA PARA LA REALIZACIÓN DE CIRUGÍA BÁRIA Y Complicaciones relacionadas

Anna Larissa de Castro Rego1, Giovanna Karinny Pereira Cruz2, Diana Paula de Souza Rego Pinto Carvalho3, Isabelle Campos de Azevedo4, Allyne Fortes Vitor5, Marcos Antonio Ferreira Júnior6

ABSTRACT

Objective: to determine the average waiting time of patients in the list for bariatric surgery and the possible complications during this period. Method: integrative review, having as guiding question "what is the average waiting time of patients in the queue to perform bariatric surgery and the possible complications during this period?". It was carried out in the databases SCOPUS, SCIENCE DIRECT, CINAHL, PubMed/MedLine, LILACS and SciELO virtual library. The data were analyzed in comparison with the literature. Results: the five articles had preoperative waiting periods of around 5 years. The main complications during the waiting period were poor quality of life and socioeconomic aspects; death due to aggravation of diseases associated with obesity; abandonment of preoperative treatment due to the lack of availability of vacancies for the multidisciplinary care return visits; frustration and anxiety. Conclusion: according to the analysis of the selected studies, although showing divergent results, most presented around 5 years of wait, since these studies were conducted in Canada. Descritores: Obesity; Waiting Lists; Time-to-Treatment; Morbid Obesity.

RESUMO

Objetivo: determinar o tempo médio de espera de pacientes em fila para realização de cirurgia bariátrica e as possíveis complicações durante esse período. Método: revisão integrativa, tendo como questão << Qual o tempo médio de espera de pacientes em fila para realização da cirurgia bariátrica e as possíveis complicações durante esse período?>>, realizada nas bases de dados SCOPUS, SCIENCE DIRECT, CINAHL, PubMed/MedLine, LILACS e biblioteca virtual SciELO. Os dados foram analisados em confronto com a literatura. Resultados: os cinco artigos apresentaram esperas pré-operatórias em torno de 5 anos. As principais complicações durante o período de espera foram a qualidade de vida e aspectos socioeconômicos prejudicados; óbito devido ao agravamento de doenças associadas à obesidade que acometem o indivíduo; abandono ao tratamento pré-operatório por falta de disponibilidade de vagas para os retornos de atendimentos multidisciplinares; frustração e ansiedade. Conclusão: na análise dos estudos selecionados, apesar de exibir resultados divergentes, a maioria apresentou em torno de 5 anos por serem estudos realizados no Canadá. Descritores: Obesidade; Listas de Espera; Tempo para o Tratamento; Obesidade Morbida.

RESUMEN

Objetivo: determinar el tiempo medio de espera de pacientes en fila para realizar cirugía bariátrica y las posibles complicaciones durante ese periodo. Método: revisión integrativa, teniendo como pregunta << ¿Cuál es el tiempo medio de espera de pacientes en fila para la realización de la cirugía bariátrica y las posibles complicaciones durante ese periodo?>>, realizada en las bases de datos SCOPUS, SCIENCE DIRECT, CINAHL, PubMed/MedLine, LILACS y biblioteca virtual SciELO. Los datos fueron analizados en confronto con la literatura. Resultados: los cinco artículos presentaron esperas pre-operatorias en torno a los 5 años. Las principales complicaciones durante el periodo de espera fueron la calidad de vida y aspectos socioeconómicos perjudicados; óbito debido al agravamiento de enfermedades asociadas a obesidad que afectan al individuo; abandono al tratamiento pre-operatorio por falta de disponibilidad de lugares para los retornos de atendimientos multidisciplinares; frustración y ansiedad. Conclusión: en el análisis de los estudios seleccionados, a pesar de exibir resultados divergentes, la mayoría presentó en torno de 5 años por ser estudos realizados en Canadá. Descritores: Obesidad; Listas de Espera; Tiempo de Tratamiento; Obesidad Morbida.

Nurse, Federal University of Rio Grande do Norte, Natal (RN), Brazil. E-mail: sala_mri@hotmail.com; 2-4Nurses, PhD students, Graduate Program in Nursing, Federal University of Rio Grande do Norte/PPGENF/UFRN. Natal (RN), Brazil. E-mails: giovannakarinny@gmail.com; diana-rego@hotmail.com; isabelle2011@gmail.com; allynefortes@yahoo.com.br; marcos_nurse@hotmail.com

ISSN: 1981-8963
DOI: 10.5205/reuol.10241-91568-1-RV.11024up201719

11(Suppl. 2):1025-31, Feb, 2017

Waiting time of patients in the queue...
INTRODUCTION

Obesity can be defined as a result of a combination of social, cultural, economic and genetic factors, manifested by an alimentary or nutritional disorder that affects all phases of life.\(^1\)\(^2\) The excessive accumulation of body fat has harmful consequences due to the high risk of secondary diseases, such as type II Diabetes Mellitus, cardiovascular diseases, metabolic syndrome, sleep apnea, acute pancreatitis and joint problems that diminish the expectation and the quality of life and that is aggravated by the increase of the Body Mass Index (BMI).\(^3\)

Like other parameters, BMI is used to classify overweight and obesity in adults and its calculation is achieved by dividing the weight in kilograms by the square of the height in meters (kg/m\(^2\)).\(^4\) A BMI greater than or equal to 30 kg/m\(^2\) is classified as obesity. This classification is divided into Grade I Obesity (30-34.9 kg/m\(^2\)), Grade II Obesity (35-39.9 kg/m\(^2\)) and Grade III Obesity (equal to or greater than 40 kg/m\(^2\)).\(^1\)

Worldwide, from 1980 to 2008, the number of obese people has almost doubled to about 200 million men and almost 300 million women.\(^5\) In Brazil, the proportion of the adult population considered obese in the 27 state capitals increased from 42.7% in 2006 to 51.0% in 2011, with a higher proportion among men.\(^6\)

Among the various measures available and used for weight loss, such as nutritional treatment, medication and physical activity, bariatric surgery stands out as a more effective intervention, since it manages not only to treat and deal with the clinical aspect of some cases, but it is also able to produce substantial long-term loss.\(^6\)\(^7\)

An average of 500 bariatric surgeries per year has been performed in Canada between 1993 and 2003; however, in 2007 alone, this figure reached 1,313 operative procedures, while in Brazil a total of 60,000 surgeries were recorded in 2010.\(^8\)\(^9\) This great number makes the country to be considered the second in the world that most performs bariatric surgeries, as well as the one with the largest number of specialized surgeons.

In Brazil, the Unified Health System (SUS) guarantees, through ordinances No. 424 and 425, of March 19, 2013, the priority care lines of the Health Care Network for People with Chronic Diseases, specific to the patient with overweight and obesity in relation to the right to surgical treatment. These guarantee the pre and post-operative medical exams in the specialties of clinics, endocrinology, cardiology, gastroenterology, nutrition, psychology, pneumology and anesthesiology, in addition to the coverage of plastic surgery after bariatric surgery and four technical modalities of operative intervention, among them, gastropasty with intestinal shunting, gastrectomy with or without duodenal deviation, vertical banded gastroplasty and vertical or sleeve gastrectomy.\(^5\)\(^10\)

In addition to the benefits of weight loss, this surgery improves comorbidities and quality of life.\(^7\)\(^14\) There are still no reports of obesity treatment modalities that promote the same level of therapeutic reach as surgical intervention.\(^11\) In view of this, it is important that there is a comprehensive approach performed by a surgeon, endocrinologist, nurse, nutritionist, psychologist, physiotherapist, among others, in order to understand the different aspects that involve this type of patient.\(^5\)\(^12\)

Despite the significant increase in the number of surgeries performed each year and the number of accredited centers, the waiting period in the queue for bariatric surgery is still uncertain.\(^13\) The published works on waiting time are divergent, since in Canada the queue for surgery lasted a little more than five years,\(^9\) whereas in Brazil the Bariatric Clinic (bariatric surgery center) located in São Paulo has 18 to 24 months of queuing for bariatric surgery.\(^14\)

The waiting period for submission to this type of surgery directly influences the patient’s follow-up performance and favors the emergence of frustration, unemployment and physical stress that can further aggravate their health status.

In a qualitative study, 27 patients described that the longer the waiting time, the more unmotivated the patient becomes.\(^15\) Another important factor related to prolonged waiting in queues is the risk of death due to obesity-related comorbidities that often cannot be controlled.\(^9\)

One study found that the largest weight losses during the waiting period occurred at intervals of more than six months; however, the delay between the return visits contributed to a low adherence and to the treatment abandonment of 28.8% of the patients.\(^16\) Therefore, it is necessary to know other factors that influence the waiting time and its implications for the various outcomes in the attempt to achieve results that improve the service and favor a higher resolution and quality in the care of this specific population.

This way, this study aims to determine the average waiting time of patients in the queue...
for bariatric surgery and the possible complications during that period.

### METHOD

This is an integrative (IR) review of the average waiting time of patients in the queue for bariatric surgery, from the indication for surgical treatment until the performance of the procedure, as well as the main causes for its postponement.

The development of this review followed a methodological framework that proposes six stages for its development, namely: 1) elaboration of the guiding question; 2) search or sampling in the literature; 3) categorization; 4) critical analysis of included studies; 5) discussion of the results; and 6) synthesis of the integrative review. In this context, a review protocol was previously prepared to guide the development of this research and the compliance with all suggested steps.17

To begin the study, an IR protocol was developed to guide the search or sampling and all the research development and to maintain the necessary rigor. The identification of the subject, the objective, the elaboration of the guiding question, the selection of the study sample through the search strategy in the databases with the use of controlled and uncontrolled descriptors, the elaboration of the inclusion and exclusion criteria of the study, the categorization of results, the evaluation of the studies included in the review, and finally the synthesis of knowledge were steps that composed the protocol.

The guiding question elaborated to support the development of the research was: what is the average waiting time of patients in the queue for bariatric surgery and the possible complications during this period? In order to select the study sample, researchers conducted a survey of the scientific articles in the electronic databases PUBMED/MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), SCOPUS, SCIENCE DIRECT, Latin American and Caribbean Literature in Sciences (LILACS) and in the virtual library Scientific Electronic Library Online (SciELO), in March 2015, using the MeSH TERMS “bariatric surgery” (1st); “waiting time” (2nd); “waiting list” (3rd); “obesity” (4th); “preoperative period” (5th); and the DeCS descriptors “cirurgia bariátrica” (1st); “tempo para tratamento” (2nd); “lista de espera” (3rd); “obesidade” (4th); and also the term “período pré-operatório” (6th).

The descriptors allowed the elaboration of the crossings (1) in line with the guiding question and the research objective, according to the specificities of each database selected for the search. For SCOPUS, the (1) ALL (bariatric surgery) AND (obesity) AND ALL (waiting list OR waiting time OR preoperative period); for SCIENCE DIRECT, the (2) FULL TEXT (bariatric surgery) AND FULL TEXT (obesity) AND FULL TEXT (waiting list OR waiting time OR preoperative period); for CINAHL, the (3) MH bariatric surgery AND MH obesity AND MH waiting list OR MH waiting time OR MH preoperative period; for PUBMED/MEDLINE, the (4) bariatric surgery [mesh terms] AND obesity [mesh terms] AND (waiting list [mesh terms] OR waiting time [mesh terms] OR preoperative period [mesh terms]); for LILACS, three different crossings were used: (5) cirurgia bariátrica [words] and obesidade [words] and listas de espera [words], (6) cirurgia bariátrica [words] and obesidade [words] and tempo para tratamento [words], (7) cirurgia bariátrica [words] and obesidade [words] and periodo pré-operatório [words]; for SCIELO, the (8) (cirurgia bariátrica) AND (obesidade) AND (tempo para tratamento) OR (listas de espera) OR (período pré-operatório).

In relation to the inclusion criteria, only texts in the format of scientific articles available for free and in full in the selected databases, in the Portuguese, English and Spanish languages, with no time limit, were selected. The manuscripts were selected regarding the theme at the time of reading for the eligibility criteria.

Researchers excluded the articles that did not address the theme of relevance to the scope of the research; studies that dealt with bariatric surgery, but that did not address the waiting time to perform the surgical procedure; publications such as dissertations, theses, literature reviews, editorials and editor’s notes; and also duplicate articles, which were only counted once.

### RESULTS

After surveying the databases, 4,400 references were initially identified. The selection by title and abstract resulted in 54 studies. Figure 1 shows the bases consulted with the crossings used in the search strategy, the total of retrieved references and the quantity selected after analyzing the title and the abstract of each article.
During the full reading and analysis of the articles, authors excluded references that addressed the queuing time of patients who underwent other surgeries that were not bariatric or that addressed bariatric surgery but did not refer to the queuing time and/or complications during this period. Based on the application of the questions and the inclusion/exclusion criteria, a final sample of five articles was obtained, as follows: four articles in PUBMED/MEDLINE, one article in SCOPUS, no articles in SCIENCE DIRECT, CINAHL, LILACS and SCIELO.

**Presentation of selected articles**

Figure 2 presents the five articles that compose the sample of this study. During the analysis of the texts in full, the similarity between the place of development and the research design was evident.

<table>
<thead>
<tr>
<th>Author/Year/Location</th>
<th>Design</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therrien P; Maecceu F.; Turgeon N; Biron S.; Richard D. Lacasse Y. 2011 / Canada.</td>
<td>Prospective-cohort</td>
<td>To assess the impact of the waiting time for long-term bariatric care by examining the two-year change in clinical, economic, and humanistic outcomes among waiting list patients.</td>
</tr>
<tr>
<td>Gill RS; Majumdar SR; Wang X; Tuepah R; Klaerenbach SW; Birch DW; Karmali S.; Sharma AM; Padwal RS. 2014 / Canada.</td>
<td>Observational / Cross-sectional</td>
<td>To examine the perspectives of patients awaiting surgery to identify the factors they consider to be the key priority indicators for performing bariatric surgery.</td>
</tr>
<tr>
<td>Gushiken CS, Vulcano DSB., Tardivo, AP; Rasera, Jrl; Leite, CVs.; Oliveira, M. RM. 2010 / Brazil.</td>
<td>Observational / Cross-sectional</td>
<td>To characterize outpatient care and analyze the adherence of patients in the waiting list to nutritional monitoring for bariatric surgery in a multidisciplinary health care outpatient clinic.</td>
</tr>
</tbody>
</table>

It is necessary to highlight the fact that most of the studies had the observational type of design, since the research question for this study tried to identify the average queuing time for bariatric surgery and the possible complications for the patient during this waiting time, and therefore required this design.

Most of the studies were conducted in Canada, so it is expected that they indicate similar results in relation to the waiting time...
and do not allow a result that reflects in a universal scope.

- Analysis of waiting time in queue and the main complications

<table>
<thead>
<tr>
<th>Waiting time in queue</th>
<th>Complications during the waiting period</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Approximately five to seven years. Occurrence of death during waiting due to complications of comorbidities associated with obesity.</td>
</tr>
<tr>
<td>B</td>
<td>Five years. Waiting in extended waiting queues can be a source of stress, anxiety, and frustration.</td>
</tr>
<tr>
<td>C</td>
<td>Approximately 34.4 ± 9.4 months. In general, 2-3 years. However, the overall average of waiting time for public services is five years. The present study does not present in its results the possible complications arising during the waiting period.</td>
</tr>
<tr>
<td>D</td>
<td>Waiting time of 4.3 years. The quality of life and the socioeconomic aspects of waiting patients may deteriorate substantially while awaiting treatment.</td>
</tr>
<tr>
<td>E</td>
<td>The present study does not present in its results the average queuing time. Delay between nutritional monitoring return visits contributed to poor adherence to treatment and decreased weight loss.</td>
</tr>
</tbody>
</table>

Figure 3. Waiting time in queue and possible complications during this period. Natal (RN), Brazil, 2015.

According to reference A, the average pre-surgical waiting time is characterized as the time interval between the confirmation of the surgery in the doctor’s office until the initial moment of the surgery. According to the analysis of the selected studies, although showing divergent results, most presented around 5 years of wait, since these studies were conducted in Canada.

**DISCUSSION**

The main complications during the waiting period were regarding quality of life and impaired socioeconomic aspects (D); death due to aggravation of diseases associated with obesity (A); abandonment of preoperative treatment due to the lack of availability of vacancies for the multidisciplinary care return visits that remained linked for more than one year (E); and frustration and anxiety (B). 11,16,18,19

The suffering of patients waiting for bariatric surgery resulted primarily from the many years of struggle for weight loss in the face of a lack of control of the eating pattern that led to uncontrollable weight gain, since eating was seen as a form of escape, and an abusive relationship was established. 20

In a cross-sectional study of qualitative analysis that aimed to describe patients’ perception during this waiting time, in addition to anxiety and frustration, patients felt irritation by the lack of information about their position on the waiting list and, consequently, expressed uncertainty about doing future plans. This study categorized patients’ perceptions into three groups: Socioeconomic inequality, in which many patients experienced only public funding because private options were beyond what most patients could afford; Regional inequality, in which wealthier Canadians are better able to access surgery and sustain the cost of traveling to other states; and Inequality related to waiting lists and established priorities. 15

Study C reinforces the inequality of prioritization when interviewees assume that there is no preference in the queue for extremes of age and socioeconomic status and that they are not well informed about the strategies for this priority. 21 They expressed opposition to payments to make the procedure more agile for others or themselves. Another study confirms that the participants recognized the need to prioritize queued patients for bariatric surgery as a way to deal with the growing demand for this type of treatment for obesity. 15

Only study A expressed the specific causes for postponement in the performance of bariatric surgery, among them there were the lack of resources, the unavailability of surgery rooms, the restriction of beds for postoperative recovery in the hospital units and the increased demand of patients waiting for the surgical procedure were mentioned.

As a way of assisting services and reducing queuing time, the studies proposed to identify priorities and establish action plans to increase treatment coverage to patients from different regions with a fair access to these services (A); the need of public health managers to critically assess gaps in care delivery and increased funding (D); provision of a minimum period of six months and regular meetings for the expected reduction in body weight and educational process prior to surgery (E); and inclusion and participation of patients in support groups, constant follow-up.
with nutritionist to help weight loss and prevent gain during the waiting period before surgery. However, it is necessary to guarantee changes to an equitable, accessible, and tolerable care for the patients, with the commitment of health managers to solve the growing dissatisfaction and unacceptable waiting times.

**CONCLUSION**

According to the analysis of the selected studies, although showing divergent results, most presented around 5 years of wait, since these studies were conducted in Canada.

Bariatric surgery is the best treatment available for morbidly obese patients who have failed in other measures for weight loss. It produces direct and indirect impact on the improvement of quality of life in the postoperative period, as reduction of comorbidities and the possibility of employment to those who were incapable of performing certain activities. Perceived inequality was considered a barrier for participants seeking this treatment to achieve their goal.

It is necessary to identify deficit areas, finance an adequate care structure in order to cover the demand, reduce prolonged waiting times and possible complications during this wait. Strategies to increase follow-up of patients awaiting surgery and greater frequency of return visits are essential for successful surgery. More research should be conducted in other countries to obtain more results, facilitate the characterization of the average queuing time and develop a better care system for patients undergoing bariatric surgery.

**REFERENCES**


11. Bjostrom L. Review of the key results from the Swedish Obese Subjects (SOS) trial - a


