ORIGINAL ARTICLE

OCURRENCE OF ARTERIAL HYPERTENSION IN OBESE PATIENTS

ORCURRENCIA DE HIPERTENSIÓN ARTERIAL EN PACIENTES OBESOS

Anna Christina Charbel Costa¹, Maria Lúcia Ivo², Wilson de Barros Cantero³, Jodo Ricardo Filgueiras Tognini⁴, Elenir Rose Jardim Cury Pontes², Marcos Antonio Ferreira Júnior⁵

ABSTRACT

Objective: to identify the occurrence of arterial hypertension in patients with obesity, candidates for the Bariatric Surgery Program at the University Hospital of Universidade Federal de Mato Grosso do Sul (UFMS), assisted in nursing consultations. Method: it is a quantitative, cross-sectional, and retrospective study with analysis of records of patients assisted by the Bariatric Surgery Program of the University Hospital Center (NHU) of UFMS, from 2004 to 2007. For the descriptive analysis of data, one used the software Epi-Info, version 3.5.2. The research was approved by the Ethics Committee, Protocol 872/2008. Results: out of the 252 patients assisted, 80.15% were female and 19.85% were male; the average age was 36.07 ±10.16 years; the average weight, height, and BMI values were, respectively, 136.89 ±91.75 kg, 1.62 ±0.10 m, and 48.12 ±6.69 kg.m⁻²; and the systolic, diastolic, and average pressure values were, respectively, 145.10 ±26.93 mmHg, 98.05 ±21.22 mmHg, and 121.58 ±22.97 mmHg. There was a predominance of the comorbidities hypertension (63.49%), dyspnea (55.56%), and lower limb varices (45.63%). Conclusion: one observed that the most prevalent disease in obesity was arterial hypertension and its frequency varied according to the BMI and the length of obesity. Descriptors: Obesity; Arterial Hypertension; Epidemiology.

RESUMEN

Objetivo: Identificar la ocurrencia de la hipertensión arterial en pacientes con obesidad, candidatos al Programa de Cirugía Bariátrica del Hospital Universitario de la Universidad Federal de Mato Grosso del Sul (UFMS), atendidos en consultas de enfermería. Método: estudio cuantitativo, transversal e retrospectivo con análisis de los registros de los pacientes atendidos por el Programa de Cirugía Bariátrica del Núcleo de Hospital Universitario (NHU) de la UFMS, de 2004 a 2007. Para el análisis descriptivo de los datos se utilizó el programa Epi-Info, versión 3.5.2. La investigación fue aprobada por el Comité de Ética, Protocolo 872/2008. Resultados: de los 252 pacientes atendidos, 80,15% eran mujeres y 19,85% eran hombres; la edad media fue de 36.07 ±10.16 años; los valores medios de peso, estatura y IMC fueron, respectivamente, 136.89 ±91.75 kg, 1.62 ±0.10 m, y 48.12 ±6.69 kg.m⁻²; los valores de presión sistólica, diastólica y media fueron, respectivamente, 145.10 ±26.93 mmHg, 98.05 ±21.22 mmHg, y 121.58 ±22.97 mmHg. Hubo predominio de las comorbididades hipertensión (63.49%), disnea (55.56%) y varices de miembros inferiores (45.63%). Conclusión: se observó que la más prevalente en la obesidad fue la hipertensión arterial y su frecuencia varió de acuerdo con el IMC y el tiempo de obesidad. Descriptores: Obesidad; Hipertensión Arterial; Epidemiología.
INTRODUCTION

Obesity is a complex disease which affects all age groups and social groups, with major social and psychological consequences. The genetic factor is an important determinant in the susceptibility of a person with regard to weight gain, with the weight balance determined by calorie intake versus physical activity. Thus, the epidemic obesity is driven by societal changes and dietary habits, posed by the economic growth, modernization, urbanization, and globalization.\(^1\)\(^2\)

Obesity is included into the group of non-communicable diseases (NCDs) and its prevalence has increased to epidemic proportions, both in the developed and developing countries. Worldwide, more than 1 billion adults are overweight and, out of them, more than 300 million are obese, something which constitutes the main component of chronic and limiting diseases.\(^3\)

In Brazil, about 40% of the population is over its weight, out of these individuals, 10.1% are obese and 28.5% are overweight. The mortality rate is 12 times higher in morbidly obese individuals when compared to people with normal weight and age between 25 and 40 years.\(^4\) Weight gain is regarded as the main risk factor for chronic diseases related to the diet, such as type 2 diabetes mellitus, cardiovascular disease, hypertension, and even certain kinds of cancer. The consequences range from increased prevalence of premature death to major chronic conditions which reduce the quality of life.\(^5\)\(^6\)

Studies show bariatric surgery as a more effective kind of treatment for cases of morbid obesity class III. The surgery purpose consists in improving not only the quality of life, but also increasing the obese person’s lifetime and solving the problems with a physical and psychosocial nature caused by excessive weight.\(^7\) In this context, one aims to identify the occurrence of arterial hypertension in patients with obesity, candidates for the Bariatric Surgery Program of the University Hospital of Universidade Federal de Mato Grosso do Sul (UFMS), assisted during the nursing consultations.

METHOD

Paper developed from the dissertation Epidemiological profile of obese patients at the Bariatric Surgery Program of a hospital-school in Campo Grande, Mato Grosso do Sul, Brazil, presented to the Graduate Program in Health and Development in the Central-West Region of Dr. Hélio Mandetta School of Medicine of Universidade Federal de Mato Grosso do Sul. Campo Grande-MS, Brazil. 2008.

This is a quantitative, cross-sectional and retrospective, study with analysis of the medical records of patients undergoing evaluation during nursing consultations at the Bariatric Surgery Program of University Hospital Center (NHU) of UFMS. The collected data refer to the evaluations carried out between October 2004 and February 2007 at the Outpatient Bariatric Surgery Ward. In this evaluation the nurse conducted the interview and physical examination aimed at the assessment with regard to the surgery criteria.

The population under study comprises all patients who are candidates for the Bariatric Surgery Program of NHU/UFMS. Of them, only 252 patients were included in this study, as they complied with the criteria set for inclusion and exclusion. All of them were evaluated with regard to the occurrence of comorbidities defined in the medical records. Hypertension was defined as an inclusion criterion due to the presence of arterial systolic blood pressure > 140 mmHg or arterial diastolic blood pressure > 95 mmHg or the already established use of antihypertensive medications. One excluded the medical records who didn’t have sufficient data to characterize arterial hypertension as a diagnosed comorbidity.

Data were collected through a specific printed form, prepared for this purpose. Data entry was performed using the software Microsoft Excel, for descriptive and inferential analysis. For the descriptive data analysis one used the software Epi-Info, version 3.5.2.

The research was approved by the Ethics Committee of UFMS, under the Protocol 872/2008.

RESULTS

One evaluated 252 patients aged between 17 and 66 years, with a mean age of 36.07 ±10.16 years (mean ± standard deviation). Regarding gender, 202 (80.15%) were female and 50 (19.84%) were male. Out of those who reported ethnicity, 212 (86.53%) were white, 8 (3.26%) were mulattos, 13 (5.31%) were dusky, and 12 (4.90%) were blacks.

Regarding the patients’ clinical data, in general, one obtained the mean values related, respectively, to weight, height, and BMI of 136.89 ±91.79 kg, 1.62 ±0.10 m, and 48.12 ±6.69 kg.m\(^2\).
Concerning blood pressure, the values observed, respectively, for systolic, diastolic, and mean pressure were 145.10 ± 26.93 mmHg, 98.05 ± 21.22 mmHg, and 121.58 ± 22.97 mmHg.

Table 1 portrays the most frequent diseases, with a prevalence of comorbidities: 160 cases of hypertension (63.49%); 140 cases of dyspnea (55.56%); 115 cases of varices lower limb varices (45.63%); and 92 cases of depression (36.51%).

Table 2. Number and percentage of patients according to comorbidities and BMI – NHU/UFMS, 2004-2007 (n = 252).

By examining Figure 1, it’s possible to observe a significant relation between the presence of hypertension and the patients’ BMI (x² test, p = 0.04), as well as between the presence of hypertension and the patients’ length of obesity (x² test, p < 0.001).
Table 3 shows the prevalence of the most frequent comorbidities in this study and their relation to the patients’ length of obesity. One sees that the other comorbidities, except hypertension and menstrual disorders, showed no significant relation between them and the patients’ length of obesity (p > 0.05).

Table 3. Number and percentage of patients according to comorbidities and length of obesity – NHU/UFMS, 2004-2007 (n = 252).

<table>
<thead>
<tr>
<th>Comorbidity</th>
<th>Presence</th>
<th>Number of patients (%) according to the length of obesity</th>
<th>P value¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>------------------------------</td>
<td>----------</td>
<td>-----------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Yes</td>
<td>48 (47.05%)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>------------------------------</td>
<td>No</td>
<td>54 (52.94%)</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>Yes</td>
<td>32 (31.37%)</td>
<td>0.206</td>
</tr>
<tr>
<td>------------------------------</td>
<td>No</td>
<td>70 (68.62%)</td>
<td></td>
</tr>
<tr>
<td>Lower limb varices</td>
<td>Yes</td>
<td>44 (43.13%)</td>
<td>0.598</td>
</tr>
<tr>
<td>------------------------------</td>
<td>No</td>
<td>71 (69.67%)</td>
<td></td>
</tr>
<tr>
<td>Hirsutism²</td>
<td>Yes</td>
<td>30 (37.04%)</td>
<td>0.819</td>
</tr>
<tr>
<td>------------------------------</td>
<td>No</td>
<td>51 (62.96%)</td>
<td></td>
</tr>
<tr>
<td>Exertional dyspnea</td>
<td>Yes</td>
<td>61 (59.80%)</td>
<td>0.322</td>
</tr>
<tr>
<td>------------------------------</td>
<td>No</td>
<td>41 (40.19%)</td>
<td></td>
</tr>
<tr>
<td>Menstrual disorders²</td>
<td>Yes</td>
<td>30 (37.04%)</td>
<td>0.047</td>
</tr>
<tr>
<td>------------------------------</td>
<td>No</td>
<td>51 (62.96%)</td>
<td></td>
</tr>
</tbody>
</table>

¹ P value in the x² test; Ns = non-significant relation; Sig = significant relation. (2) One assigns to these comorbidities only female patients (n = 202).

DISCUSSION

Out of the 252 patients assisted due to obesity, the mean age was 36.07 years, the mean BMI was 48.12 kg/m², with a predominance of females: 202 (80.1%). Obesity causes pathological changes in the body which lead to an increase in size or production of hypertrophic fat cells associated to clinical complications, such as type II diabetes mellitus, cholelithiasis, coronary cardiovascular diseases (CCVDs), hypertension, stroke, hyperlipidemia, hepatic steatosis, sleep apnea, joint osteoarthritis, gout, and some types of cancer (lung, endometrial, and colon). It can also cause hypercholesterolemia, pregnancy complications, menstrual irregularity, hirsutism, urinary incontinence, increased risk in surgical interventions, and psychological disorders, such as Binge eating disorder (BED) – compulsive food intake and depression.⁹,¹⁰

Medical treatment is the first option for obesity treatment. It usually includes the use of anorectic or disabsorptive agents, in addition to psychological, physiotherapeutic, and dietary treatments, and physical exercise, with satisfactory results in cases where there’s patient adherence to treatment, predominantly in mild to moderate obesity forms (overweight and obesity).²

Most medicines used for obesity involves pharmacologically sympathomimetic agents associated to amphetamines. Both of them suppress appetite, stimulate the satiety center located at the hypothalamus, and show as a major side effect increased blood pressure, besides intestinal constipation, dry mouth, headache, insomnia, vertigo, and jitters.⁹,¹¹ By addressing the most frequent comorbidities, one found out, in descending order, the prevalence of hypertension, dyspnea, varices, and depression. Similar data were found in other studies which pointed out...
hypertension as the most frequent comorbidity. 2,13

A study carried out in the city of Porto Alegre concluded that obesity was responsible for an increase of about 70% in the risk of incident arterial hypertension. 4,14 Another survey conducted in the outpatient ward of Universidade Federal de Sao Paulo, within the period from 1998 to 1999 with 499 patients, showed that the prevalence of arterial hypertension in patients with class III obesity was 67.1%. 15 Similar results were found in Bahia, with a hypertension prevalence of 66.7% among 316 patients diagnosed with class III obesity. 16 Other study conducted between 1999 and 2000 in the United States showed that the prevalence of hypertension rose 3.7%, assigning 2.0% of this increase to BMI. 17

A study carried out with 1,025 patients at the University Hospital of the Medical College of Virginia (USA) found, among other comorbidities, 51% of hypertension and 15% of type 2 diabetes mellitus. An interesting finding was that among patients with diabetes mellitus, 75% were hypertensive. 18 In this study, one found a significant relation between the presence of hypertension and the patients’ BMI, as well as between the presence of hypertension and the length of obesity. The longer obesity is, the more severe it is, and the patient is more likely to develop hypertension.

Hypertension in obese individuals should be regarded as the most common manifestation of hypertensive disease. In the Framingham study, there’s the suggestion that hypertension is directly attributable to overweight and obesity in about 75% of hypertensive men and 65% of hypertensive women. 19 Among the diseases related to obesity, arterial hypertension is the most common of comorbidities. Hypertension and high BMI are closely associated in people aged less than 55 years and about 80% of people with type 2 diabetes mellitus are obese. 9

CONCLUSION

Out of the 252 patients assisted due to obesity, the mean age was 36.07 years, with an average BMI of 48.12 kg/m², with a predominance of females and white colored people. Obesity is a complex disease, aggravated by comorbidities or related diseases which can reach various segments of the body and increase the severity of this epidemic. 20

Hypertension is the most frequent disease in class III obesity, followed by other conditions such as exertional dyspnea, lower limb varices, and depression. The frequency of hypertension varies according to the BMI and the length of obesity, that is, the higher the length of obesity, the bigger the occurrence of hypertension.

Thus, health professionals, especially nurses who participate in evaluations by the bariatric surgery programs, should be aware of these comorbidities, as well as the high frequencies of hypertensive patients within the group of such a specific segment, which requires specific care procedures for achieving success in this treatment modality.

REFERENCES


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Corresponding Address
Marcos Antonio Ferreira Júnior
Universidade Federal do Rio Grande do Norte – Departamento de Enfermagem
Av. Senador Salgado Filho, s/n – Campus Lagoa Nova
CEP: 59072-970 – Natal (RN), Brazil