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EPIDEMIOLOGICAL AND CLINICAL PROFILE OF MEN WITH BREAST CANCER IN AMAZONAS, BRAZIL

Perfil epidemiológico e clínico de homens com câncer de mama no Amazonas

Antônio Cosme Carvalho Neto[1]*, Gabriel Pacífico Seabra Nunes[2], Hilka Flávia Barra do Espirito Santo Alves Pereira[1]

ABSTRACT

The aim of the present study was to determine the epidemiological and clinical profile of men diagnosed with breast cancer at the Oncology Center Foundation (FCECON) of the state of Amazonas, Brazil. Male breast cancer is a rare disease, accounting for about 0.2% of all cancers, and it is responsible for 0.1% of male cancer deaths. Despite the rarity of the disease, statistics indicate that the incidence of male breast cancer has increased significantly from 0.86 to 1.06 per 100,000 men over the past 26 years. We conducted a retrospective longitudinal descriptive study of the medical records of male patients diagnosed with breast cancer from 2001 to 2013. In this study, there was a greater number of cases with ages over 55 years (83.54%), compared to an average age of 60-70 years reported in the literature. The histological type of the tumors analyzed was predominantly infiltrating ductal carcinoma (76.46%). We observed that tumors in stages IIIA and IIIB made up the majority of cases (58.82% in total), which was due to the patients' late search for medical care. There are no records of previous studies that address breast cancer in men in Amazonas, so we hope that our findings contribute relevant information about breast cancer in the state of Amazonas.

KEYWORDS: breast cancer; men; diagnosis; neoplasms; medical oncology.

RESUMO

A presente pesquisa teve como objetivo conhecer o perfil epidemiológico e clínico de homens diagnosticados com câncer de mama na Fundação Centro de Oncologia (FCECON), do Amazonas. O câncer de mama masculino é uma doença rara, pois se apresenta em baixa frequência, representando 0,2% de todos os cânceres. É responsável por 0,1% das mortes por câncer no sexo masculino. Apesar da raridade da doença, estatísticas indicam que a incidência de câncer de mama masculino aumentou significativamente, de 0,86 a 1,06 por 100 mil homens ao longo dos últimos 26 anos. A proposta de estudo consistiu em uma pesquisa descritiva longitudinal retrospectiva, compor meio da análise de prontuários dos pacientes do sexo masculino diagnosticados com câncer de mama, no período de 2001 a 2013. Os trabalhos na literatura relatam idade média de 60 a 70 anos. Neste estudo, foi apresentado maior número de casos acima de 55 anos (83,54%). O tipo histológico dos tumores analisados foram predominantemente o carcinoma ductal infiltrante (76,46%). Neste trabalho, observou-se que os tumores em estágios IIIA e IIIB perfaziam a grande parte dos casos, 58,82% no total. Isso se deve à procura tardia dos pacientes por atendimento médico. Partindo do fato de que no estado do Amazonas não se encontraram registros de estudos anteriores que abordassem o câncer de mama em homens, como proposto por este trabalho, considera-se que a pesquisa pode somar esforços nessa empreitada. De forma mais específica, espera-se contribuir com informações qualificadas sobre o câncer de mama no estado Amazonas.

PALAVRAS-CHAVE: câncer de mama; homens; diagnóstico; neoplasia; oncologia.

[1]Fundação Centro de Controle de Oncologia – Manaus (AM), Brazil.
[2]Faculdade de Medicina, Universidade Nilton Lins – Manaus (AM), Brazil.
***Corresponding author:** antonioplast2013@gmail.com
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INTRODUCTION

The word *cancer* comes from Latin and means crab, because as the tumor grows into adjacent tissue, it looks like the shape of the crustacean[1]. Breast cancer is a disease caused by an abnormal growth of breast cells[2].

Cancers may arise due to different risk factors, and their role in the etiology of the disease is well established today. Causes are multiple, such as environmental, cultural and socioeconomic factors, and lifestyle or habits, especially smoking and diet, but also of concern are genetic factors and the aging process itself.

Breast cancer is the most common type of cancer among women worldwide and in Brazil, after non-melanoma skin cancer, accounting for about 25% of new cases each year[2]. Male breast cancer is considered a rare disease, representing 0.2% of all cancers, 1% of breast cancers and 0.2% of all malignant tumors in men, and it is responsible for 0.1% of male cancer deaths. The male to female ratio is 1:100, and the disease occurs between 59 and 64 years of age[3].

However, statistics indicate an increased incidence in both developed and developing countries. The incidence of male breast cancer has increased significantly from 0.86 to 1.06 per 100,000 men over the past 26 years[3].

Due to the rarity of this pathology, the etiology of male breast cancer is little known. Among the main risk factors cited in the literature is family history with first-degree relatives 20% of the time. Genetic predisposition is associated with breast cancer, which can increase the risk of developing the disease by 2.5 times. Mutations in the early onset breast cancer 1 (BRCA1) gene are related to some cases, but the link between mutations in the breast cancer 2 (BRCA2) gene and male breast cancer is stronger[3-5].

Most histological subtypes seen in women are also present in men, except the lobular type, which is very rare. In the literature, there are reports that exposure to electromagnetic fields results in the formation of mammary tumors in animals due to an inhibitory effect on the pineal gland, with a decrease in melatonin. Studies have shown an increased risk in this situation, but has not clearly defined the exposure time required[6,7].

The clinical picture most often begins insidiously, with thickening of mammary glandular tissue, usually in the retroareolar region. There is also skin retraction, presence of solid lump, often bloody papillary discharge and, later, ulcer. The most common symptoms in male breast cancer patients are a subareolar painless nodule, nipple retraction and nipple bleeding[8].

The diagnosis of breast cancer in males occurs later compared to females. In men, it occurs at age 60, whereas in women, it is detected on average 10 years earlier. This delay in diagnosis leads to advanced cases of the disease, due to lack of knowledge of the problem by the patient and often by the doctor[9,10].

For breast cancer in men, the same treatment established for women is recommended: surgical treatment, after the use or not of radiotherapy, chemotherapy and particularly hormone therapy. Breast cancer is essentially similar in the two sexes and their treatment is similar as well, but the survival rate in male patients is lower[11].

The increasing incidence of cancer cases in most parts of the world means that several countries are increasingly looking to adopt effective prevention measures in primary care (related to early diagnosis) to reduce the number of new cases, and also to take measures to control and reduce mortality rates. According to the World Health Organization (WHO), about 40% of cancer deaths can be prevented, which makes prevention strategies an important component of any cancer control plan[11-13].

Another aspect that deserves careful attention concerns the analyses and actions carried out in low- and middle-income countries, since according to GLOBOCAN data through the WHO Cancer Control Program, more than 70% of breast cancer deaths occur in these countries[11].

In Brazil, the National Cancer Institute José Alencar Gomes da Silva (INCA) estimated for the biennium 2018–2019 600,000 new cases of cancer each year. According to this institute, 191.78/100,000 new cases are expected for women. Of these, the most frequent is breast cancer, with 59,700 new cases each year. In the North region, 1,730 new cases of breast cancer are estimated per year[2].

Since there have been no previously reported studies on breast cancer in men in the state of Amazonas, we believe that the present research may make a valuable contribution.

METHOD

A retrospective longitudinal descriptive study was conducted through the analysis of medical records of male patients diagnosed with breast cancer at the Oncology Center Foundation (FCECON), Amazonas, from 2001 to 2013.

The sample size was estimated according to the number of male breast cancer patients treated annually at the outpatient clinic of FCECON hospital, with a total of 17 patients between 2001 and 2013. The survey was census-based, with 100% of medical records of male patients diagnosed with breast cancer registered at the FCECON Medical Care and Emergency Service (SAME).

The inclusion criteria in the study were:

- male patients of any age;
- patients with breast cancer.

Data regarding age, diagnostic method, histological type, immunohistochemical panel, staging, treatment and follow-up time were collected.

The study was submitted for review by the FCECON Research Ethics Committee (CEP), through Plataforma Brasil, and was approved by the Ethics Appreciation Certificate (CAAE), No. 03845918.3.0000.0004.

RESULTS

At FCECON do Amazonas, during the study period (2001–2013), 17 men were diagnosed with breast cancer and treated.

Regarding clinical characteristics, the following variables were considered: age (at the time of diagnosis), history of previous cancer, Breast Imaging-Reporting and Data System (BI-RADS) diagnosis, tumor location, histological type, histological grade and clinical staging.

Regarding age, at the time of diagnosis, the predominant age group was 56–65 years (41.17%, n = 7), followed by >75 years (29.41%, n = 5) (Table 1).

Among the men examined, 100% reported not having a history of previous cancer. Regarding mammographic diagnosis (BI-RADS), 52.94% (n = 9) of mammograms were classified in category IV, followed by 29.41% (n = 5), in category III, as shown in Table 1.

Regarding the location of the tumor, there was a slight predominance of the right breast (52.94%). The predominant histological type was infiltrating ductal carcinoma (76.46%, n = 13), and other histological types found were: ductal carcinoma *in situ* (29.41%), invasive lobular carcinoma (5.88%) and invasive papillary carcinoma (5.88%). The predominant histological grade was moderately differentiated (58.82%, n=10).

Regarding clinical staging, the most frequent stages were IIIA (29.41%) and IIIB (29.41%), followed by IIA (17.64%), while patients clinically diagnosed as stage 0, IA, IIB. and IV were few.

Regarding the characteristics of the treatments, the variables type of surgery and forms of treatment (radiotherapy and hormone therapy) were considered (Table 2). Regarding the type of surgery performed, it was evident that 88.23% (n = 15) of cases underwent radical mastectomy, while in 11.77% (n = 2), the surgical procedure was not performed. Patients were submitted to adjuvant treatment by radiotherapy (58.82%), chemotherapy (47.05%) and hormone therapy (58.82%). Regarding metastasis, there was no metastasis in 88.23% (n = 15) of cases. This occurred only in two cases: bone and lung.

Table 3 shows the immunohistochemical profile, in which Ki-67 was expressed in 76.47% (n = 13) of cases. Luminal A was the most significant, with 41.17% (n = 7), followed by luminal B, with 32.29% (n = 06).

Regarding the expression of markers by immunohistochemical profile, both estrogen receptor and progesterone receptor were expressed in 64.70% of the cases. HER2 was overexpressed by 5.88%, while 64.70% of cases were not expressed, as shown in Table 3.

Follow-up time was also evaluated as shown in Table 4. A period of 12 to 24 months was most common, with 23.52% (n = 4) of patients, followed by periods of up to 12 months and 36–48 months, both 17.64% (n = 3) of cases.

DISCUSSION

Regarding the location of the tumor, a small difference was identified between the right (52.94%) and the left (47.056%) breast. Such numbers are close to those found in the literature.

The histological type of the analyzed tumors was infiltrating ductal, (76.46%), in agreement with reports of male breast cancers being mostly the ductal type.

Table 1. Clinical and diagnostic characteristics of cases of breast cancer in men.

Variables	N	%
Age at diagnosis (years)		
35–45	1	5.89
46–55	2	11.77
56–65	7	41.18
66–75	2	11.77
>75	5	29.39
History of previous cancer		
Yes	0	00.00
No	17	100
Diagnostic mammography (BI-RADS)		
I	1	5.89
III	5	29.41
IV	9	52.94
V	2	5.89
Tumor location		
Right breast	9	52.94
Left breast	8	47.06
Histological type		
Ductal carcinoma *in situ*	2	11.77
Infiltrating ductal carcinoma	13	76.45
Invasive lobular carcinoma	1	5.89
Invasive papillary carcinoma	1	5.89
Histological grade		
Undifferentiated	5	29.41
Moderately differentiated	10	58.82
Well differentiated	2	11.77
Clinical staging		
0	1	5.89
IA	1	5.89
IIA	3	17.64
IIB	1	5.89
IIIA	5	29.41
IIIB	5	29.41
IV	1	5.89

Table 2. Treatment characteristics in cases of breast cancer in men

Variables	N	%
Surgical treatment		
Radical mastectomy	15	88.23
None	2	11.77
Radiotherapy		
Yes	10	58.82
No	7	41.18
Chemotherapy		
Yes	8	47.05
No	9	52.95
Hormone therapy		
Yes	10	58.82
No	7	41.18
Location of metastases		
Bone	1	5.89
Lung	1	5.89
No metastasis	15	88.22

Table 3. Immunohistochemical profile of cases of breast cancer in men.

Variables	N	%
Ki-67		
Positive	13	76.47
Not tested	4	23.53
Luminal		
Luminal A	7	41.18
Luminal B	6	35.29
Not indicated	4	23.53
Estrogen		
Positive	11	64.70
Negative	2	11.77
Not indicated	4	23.53
Progesterone		
Positive	11	64.72
Negative	3	17.64
Not indicated	3	17.64
HER2		
Positive	1	5.89
Negative	11	64.70
Triple-negative	1	5.89
Not indicated	4	23.53

Table 4. Follow-up time of patients.

Variable (months)	N	%
Up to 12	3	17.64
12–24	4	23.52
24–36	2	11.77
36–48	3	17.64
48–60	2	11.77
60–72	1	5.89
>72	2	11.77

In this study, it was observed that tumors in stages IIIA and IIIB made up the majority of cases, 58.82% in total. This is due to the late search of patients for medical attention. Only 5.88% of the patients had a stage 0 tumor, carcinoma in situ, which was due to the few diagnoses made in the early stage of the tumor. Advanced tumors appeared in two cases (11.76%), stage V with pulmonary and bone metastases.

Immunohistochemistry revealed that luminal A tumors represented the largest number (41.17%), and luminal B (32.29%). Overexpressed HER2 receptor tumors occurred in only one case (5.88%). The status of estrogen and progesterone receptors was reported in 11 cases (64.70%). Only one case was reported as triple negative (5.88%).

The main treatment described in all studies was surgery, and modified radical mastectomy appeared as the most common procedure. In this study, patients underwent surgery in 88.23% (n = 15) of cases. In two cases (11.77%), no surgery was performed. In one of those cases in which surgery was not performed, the cancer was already at an advanced stage and there were lung and bone metastases. These are data similar to those of American studies, showing the similarity to our situation. Post-surgery radiotherapy was performed in only 58.82% of cases. The reasons for no radiotherapy were not noted in the medical records.

In 47.05% of cases, the patients received systemic treatment with adjuvant chemotherapy, and 58.82% were treated with tamoxifen, since they showed hormone-positive receptors[1,10,11].

CONCLUSIONS

The clinical, epidemiological and therapeutic aspects analyzed in a tertiary public health institution established a better understanding of the behavior of this disease in men during the study period.

Because it is a rare disease, prospective research on breast cancer in men will contribute to a better understanding of its biological behavior to improve the prognosis in these patients in the future.

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