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Evaluation of breast cancer in women under 50 in a Mastology service in the Federal District, Brazil

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ABSTRACT

Introduction: Breast cancer is a relevant public health issue, and its incidence has increased in patients aged less than 50 years. This population usually receives a late diagnosis, which contributes with the poor prognosis of the condition. **Objective:** To assess the percentage of patients diagnosed with breast cancer before the age of 50 and compare them with the group that was diagnosed after the age of 50. **Results:** The general mean age was 54 years; 75.68% of the patients were younger than 50 years, aged between 40 and 49 years. Among the ones who were younger than 50, 35.14% were in stage T4; 55.41% underwent neoadjuvant chemotherapy; 16.22% presented distant metastasis; and 10.81%, locoregional metastasis. On the other hand, among those aged more than 50, 22.71% were in stage T4; 30.68% underwent neoadjuvant chemotherapy; 11.36% presented distant metastasis; and 6.82%, locoregional metastasis. **Conclusion:** Breast cancer in women aged less than 50 years in a Mastology service in the Federal District has been a matter of concern, for presenting more advanced tumors at the time of diagnosis; screening is still debatable.

KEYWORDS: breast neoplasms; mammography; mass screening; early cancer detection.

INTRODUCTION

Nowadays, breast cancer is a relevant public health problem. It is the most common malignant neoplasm among women in Brazil and in most of the world, after non-melanoma skin cancer. According to the last global statistics from the Global Cancer Observatory (GLOBOCAN), 2.1 million new cases of breast cancer and 627 thousand deaths caused by the disease have been estimated[1]. Breast cancer screening aims at detecting small asymptomatic tumors, thus contributing with the reduction of mortality. The ultrasound is limited to evaluate microcalcifications; therefore, it is not adequate for the screening of the general population[2,3].

Mammography is the only test whose efficiency is proven for the reduction of breast cancer mortality[4,5]. The Ministry of Health recommends screening mammography for women without signs and symptoms of breast cancer, in the age group between 50 and 69 years, every two years[6,7]. This does not consider an important part of the population (women aged from 40 to 49 years), which responds for about 15%-20% of the breast cancer cases[8]. The Brazilian Society of Mastology (SBM) recommends that breast cancer screening of women with usual population risk be performed through an annual mammography, including women aged from 40 to 75 years, aiming at the early diagnosis and the reduction of mortality[1,8]. After the age of 75, screening mammography is recommended for women whose life expectancy is higher than seven years based on other comorbidities[1,9,10].

Women aged more than 50 years are more prone to developing breast cancer; however, among young women, the clinical, pathological and immunohistochemical characteristics are more aggressive, staging is more advanced, tumor diameter is larger and there are more chances of developing metastasis[11-13]. Since breast cancer is considered as infrequent, younger women should be addressed special attention. A study from 2015 that aimed at understanding the experience of younger women diagnosed with breast cancer, who underwent a mastectomy, pointed out that systemic metastases can occur in 55.3% of the cases in these patients; on the other hand, for systemic metastasis in elderly women, the percentage is 39.2%. The same study also showed that the mortality rate among younger women is 5% higher than among the elderly women[14-16].

Based on the exposed, and considering that breast cancer is the most frequent type of cancer among women around the world, with high mortality rates, being a relevant public health issue, the main objective of this study was to assess the percentage of patients assisted in the Mastology service of Hospital Regional

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de Ceilândia, diagnosed with breast cancer before the age of 50. Finally, it intends to provide subsidies so that public policies can be developed to favor a more efficient and earlier diagnosis, including the coverage and screening of younger women beyond specialized treatment, therefore increasing the chances of cure for these patients.

METHOD

This is a retrospective, cross-sectional, descriptive and observational study carried out to assess the percentage of breast cancer in women, aged less than 50 years, assisted at the Mastology service of Hospital Regional da Ceilândia, from January 2015 to April 2020. The data were collected from the charts of the selected patients, inserted in Excel spreadsheets and statistically evaluated by the Statistical Package for the Social Sciences (SPSS), version 25. Significance level was $p \leq 0.05$. Both the Student's t-test and the χ^2 test were used. This analysis was approved by the Research Ethics Committee, CAAE: 35587420.3.0000.8101.

RESULTS

Our study included 162 patients who met the inclusion criteria, of which 45.70% were younger than 50 years. The general mean age was 54 ± 13.11; the mean of patients younger than 50 years was 42.6 ± 5, and the mean of patients aged 50 years or more was 63.3 ± 9.5.

Of the included patients, 9.80% had family history of breast or ovarian cancer; 84.57% had normal menarche (8-16 years of age); 75.93% were multiparous. For 32.10%, the diagnosed histological type was luminal-B invasive ductal carcinoma (IDC); for 22.22%, it was luminal-A IDC; and for 14.20%, it was triple negative IDC. In 34.57% of the patients, the initial tumor size was T2 (> 2 and ≤ 5 cm); in 28.40%, it was T4; and in 20,99%, it was T3 (> 5 cm). Axillary impairment at physical examination was observed in 38.27% of the patients. For 59.26% of them, a core needle biopsy was performed. Axillary dissection was performed in 50% of them. Neoadjuvant chemotherapy (CT) was performed in 41.98% of the patients, and 37.65% underwent adjuvant CT; 11.11% obtained complete post-neoadjuvant CT response, and 37.65% had partial response. Distant metastasis was observed in 13.58% of the patients, and locoregional metastasis, in 8.64%.

By correlating the patients aged less than 50 years and those aged 50 years or older, we observed that 8.11% of the former had family history of breast/ovarian cancer; 83.7% had normal menarche (8-16 years of age); and 70.27% were multiparous. Of the patients aged 50 years or older, 11.36% had family history of breast/ovarian cancer; 85.23% had normal menarche (8-16 years of age); and 75.93% were multiparous (Table 1).

Patients aged less than 50 years were prevalent in the age group between 40 and 49 years (75.68%). The histological type luminal-B IDC was diagnosed in 33.68% of the patients; luminal-A IDC, in 20.27%; and triple negative IDC, in 16.22%. The initial tumor size was T4 for 35.14% of them; T2, for 27.03% of them; and T3, for 27.03% of them. Of the patients aged more than 50 years, 30.68% were diagnosed with histological type luminal-B IDC; 23.86%, with luminal-A IDC; and 12.50%, with triple negative IDC. The initial tumor size was T2 in 40.91% of them; T4, in 22.73%; and T1, in 20.45% (Table 2).

Table 1. Epidemiological characteristics of women assisted for breast cancer treatment from January, 2015, to April, 2020.

Variables	Group				Total		p-value
	< 50 years		≥ 50 years				
	N	%	N	%	N	%	
Family history of breast/ovarian cancer							
Yes (breast/ovarian)	6	8.11	10	11.36	16	9.88	0.364
No	67	90.54	78	88.64	145	89.51	
Not informed	1	1.35	0	0.00	1	0.62	
Menarcche							
Not informed	11	14.86	10	11.36	21	12.96	0.132
Normal (8–16 years of age)	62	83.78	75	85.23	137	84.57	
Early (< 8 years of age)	1	1.35	0	0.00	1	0.62	
Late (> 16 years of age)	0	0.00	3	3.41	3	1.85	
Parity							
Nulliparous	11	14.86	6	6.82	17	10.49	0.067
Primiparous	10	13.51	6	6.82	16	9.88	
Multiparous	52	70.27	71	80.68	123	75.93	
Not informed	1	1.35	5	5.68	6	3.70	

Of the patients aged less than 50 years, 41.89% presented with axillary impairment at physical examination. Sentinel lymph node biopsy was performed in 60.23% of them, and 44.32% underwent axillary dissection (Table 3).

Of the patients aged less than 50 years, 55.41% underwent neoadjuvant CT, and 35.14% underwent adjuvant CT. There was partial post-neoadjuvant CT response in 47.30% of them, and complete response in 14.86%. Of the patients aged 50 years or older, 30.68% underwent neoadjuvant CT, and 37.65% were submitted to adjuvant CT. There was partial post-neoadjuvant CT response in 37.64% of them, and complete response in 11.11% (Table 4).

Distant metastasis was observed in 16.22%, and locoregional metastasis, in 10.81% of the patients aged less than 50 years. Of those aged 50 years or more, 11.36% presented with distant metastasis, and 6.82%, with locoregional metastasis (Table 5).

DISCUSSION

Family history of breast or ovarian cancer was observed in 3.7% of the patients aged less than 50 years. In relation to those aged more than 50 years, these presented 8.05% more nulliparity and 3.72% more triple negative IDC results; also, 12.41% more initial tumor sizes T4, and 11.12% more initial sizes T3. Younger patients are diagnosed with initial tumor size above T3, which contributes with a poor prognosis. There was axillary impairment (at physical examination) in 6.7% more patients than among those aged more than 50; however, the percentage of 6.76% more axillary dissection procedures was observed among patients aged less than 50. The frequency of neoadjuvant CT was higher than 24.72% among patients aged less than 50 years, who also presented 17.75% more partial post-neoadjuvant CT response and 6.91% more complete response.

In a study carried out by Franzoi et al.[17], the authors identified that 17% of the patients with breast cancer were aged less

Table 2. Clinial and pathological characteristics of patients assisted at Hospital Regional da Ceilândia from January 2015 to April 2020.

Variables	Group				Total		p-value
	< 50 years		≥ 50 years				
	N	%	N	%	N	%	
Age group (years old)							
< 30	1	1.35	0	0.00	1	0.62	0,002
30–39	17	22.97	0	0.00	17	10.49	
40–49	56	75.68	0	0.00	56	34.57	
≥ 50	0	0.00	88	100.00	88	54.32	
Histological type							
HER-2 luminal B IDC	5	6.76	5	5.68	10	6.17	0,656
HER-2 OVEREXPRESSION IDC	4	5.41	10	11.36	14	8.64	
Luminal-A IDC	15	20.27	21	23.86	36	22.22	
Luminal-B IDC	25	33.78	27	30.68	52	32.10	
Luminal HER-2 IDC	4	5.41	4	4.55	8	4.94	
Triple negative IDC	12	16.22	11	12.50	23	14.20	
CDIS HER 2 SUPEREXPRESSO	1	1.35	0	0.00	1	0.62	
Luminal-A ISDC	1	1.35	0	0.00	1	0.62	
Luminal-B ISDC	1	1.35	2	2.27	3	1.85	
Luminal A ILC	1	1.35	2	2.27	3	1.85	
Luminal B ILC	1	1.35	4	4.55	5	3.09	
Triple negative ILC	1	1.35	0	0.00	1	0.62	
Others	3	4.05	2	2.27	5	3.09	
Initial tumor size							
T1 ≤ 2 cm	8	10.81	18	20.45	26	16.05	0,026
T2 > 2 and ≤ 5 cm	20	27.03	36	40.91	56	34.57	
T3 > 5 cm	20	27.03	14	15.91	34	20.99	
T4	26	35.14	20	22.73	46	28.40	

T: size. ISDC: In situ ductal carcinoma; IDC: invasive ductal carcinoma; ILC: infiltrating lobular carcinoma.

than 50 years. In our study, the frequency of patients aged less than 50 years with breast cancer was lower; however, the findings of the authors corroborate ours regarding the fact that younger patients are more symptomatic at diagnosis, often presenting stage III, T3/T4, grade 3, HER-2 positive, luminal-B and triple negative cancer subtypes.

In a study carried out by Laila et al.[18] including 349 women aged between 24 and 90 years, the authors observed that 8.3%

Table 3. Axillary status of women with breast cancer from January 2015 to April 2020.

Variables	Group				Total		p-value
	< 50 years		≥ 50 years				
	N	%	N	%	N	%	
Axillary impairment (at physical examination)							
Yes	31	41.89	31	35.23	62	38.27	0.385
No	43	58.11	57	64.77	100	61.73	
Sentinel lymph node biopsy							
Yes	30	40.54	53	60.23	83	51.23	0.060
No	43	58.11	33	37.50	76	46.91	
Not informed	1	1.35	2	2.27	3	1.85	
Axillary dissection							
Yes	42	56.76	39	44.32	81	50.00	0.274
No	31	41.89	48	54.55	79	48.77	
Not informed	1	1.35	1	1.14	2	1.23	

Table 4. Systemic treatment of women with breast cancer from Janaury 2015 to April 2020.

Variables	Group				Total		p-value
	< 50 years		≥50 years				
	N	%	N	%	N	%	
Neoadjuvant CT							
Yes	41	55.41	27	30.68	68	41.98	0.002
No	33	44.59	61	69.32	94	58.02	
Adjuvant CT							
Yes	26	35.14	35	39.77	61	37.65	0.544
No	48	64.86	53	60.23	101	62.35	
Post-neo CT response							
Complete	11	14.86	7	7.95	18	11.11	0.013
Partial	35	47.30	26	29.55	61	37.65	
Did not undergo it	28	37.84	54	61.36	82	50.62	
Total	0	0.00	1	1.14	1	0.62	

Neo CT: neoadjuvant chemotherapy; CT: chemotherapy.

Table 5. Characterization of the presence of metastasis in women with breast cancer from January 2015 to April 2020.

Variables	Group				Total		p-value
	< 50 years		≥ 50 years				
	N	%	N	%	N	%	
Metastasis							
Yes/distant	12	16.22	10	11.36	22	13.58	0.106
Yes/locoregional	8	10.81	6	6.82	14	8.64	
No	54	72.97	72	81.82	126	77.78	

were aged less than 40 years, and most were diagnosed at early stages; invasive ductal carcinoma was the most common type regarding immunohistochemical characteristics. Most cancers were smaller than 2 cm. In our study, the findings were different: patients aged less than 40 years represented 11.1% of the sample, and less than 50 years, 45.7%. The prevalence of tumor sizes was between 2 and 5 cm, however, in patients aged less than 50 years, they were larger than 5 cm. The prevalent histological type, regardless of age, was luminal-B IDC.

Pereira et al.[19] observed that the age group of 35 to 40 years was the most affected one. In our study, it was 40 to 49 years of age. In an analysis carried out by Magalhães et al.[20], distant metastasis was observed in 3.1% of the sample, and locoregional metastasis, in 0.6%, corroborating the findings of our study, in which distant metastasis was found in 13.58% of the patients, and rates of 4.8% more chances of this type of metastasis in patients aged less than 50, and 4% among patients with locoregional metastasis.

CONCLUSION

Considering the presented study, we can conclude that breast cancer in women aged less than 50 years in a Mastology service of the Federal District has been a reason of concern among these patients, since they present with more advanced tumors at diagnosis, more need for neoadjuvant CT and higher occurrence of metastasis, which reinforces the hypothesis that the reduction in late diagnosis may increase the chances of cure. The highest prevalence among those aged less than 50 years was in the age group of 40 to 49 years, which brings up more discussions about the need for screening.

The review of the official current recommendations of the Ministry of Health for the beginning of breast cancer screening should be a base for public health policies, in order to recruit young women and generate higher rates of diagnosis, better care for the patient and the possibility of an earlier treatment for the disease.

It is important to mention that the lack of access of the population to health also leads to a later diagnosis, and this fact illustrates the urgency for improvements in public health, from the approach of the patient in primary care, providing access to information, until the proper referral to a tertiary service in search for better health indicators.

AUTHORS' CONTRIBUTIONS

A.C.L.V.: Concept, Visualization, Writing – original draft.
L.V.: Project administration, Supervision, Writing – review & editing.
S.P.R.: Data curation, Formal Analysis, Software, Supervision.
S.M.: Investigation, Methodology.

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