Research Article

Breast Cancer in Women Aged more than 30 Years in Western Algeria. Retrospective Study about 107 Cases

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Abstract

   This study presents the clinical, biological, prognostic and therapeutic characteristics of breast cancer in women old more than 30 in Southwestern Algeria. Retrospective analytical study was performed on series of 107 breast cancer cases, from the El Bayadh, Nâama, Mecheria, Ain Sefra and Saida areas, among 400 patients recruited to the Oncology Department of the Saida Hospital during 2009-2015. Mean age of patients was 41 years. Tumors classified, as stage II, were the most frequent (7.7%). Mammography revealed that stellar opacity was present in 9.7% and nodular opacity in 2.7% of patients. Histological examination showed infiltrating ductal carcinoma was common in 14.5%. Biological analysis recorded 50.4% of the cases with a SBR II tumor grade with a mean serum CA15.3 concentration of 24.13 ± 0.6 (≤ 30 IU/ml), in addition the SBR III grade with a CA15.3 was 71.4 ± 1.03 (> 30 IU/ml) in 46.8%. In therapy, 12.2% had radical surgery, 6.5% had conservative surgery and 1.5% with adjuvant chemotherapy. Breast cancer, in young patients, appeared to be no different from older women in both clinical and progression. Authors are divergent but advocate for more advanced forms and a more unfavorable prognosis than for older women.

Keywords: Breast Cancer; Oncology; Mammography; Carcinoma - CA15-3

Abbreviations

CA15-3: Cancer Antigen 15-3; SBR: Scarff Bloom and Richardson.

Introduction

   Breast cancer is the first cancer in women in all countries. The incidence of breast cancer is increasing worldwide because of the longer life expectancy, an increased urbanization and the adoption of Western lifestyles [1,2]. In Algeria, breast cancer often affects women old more than 50 years. However, women of different age ranges could develop cancer. In rare cases, breast cancer can also affect men. This disease remains the main cause of female death in Algeria and in the world and has been considered a major public health problem. The West Algerian cancer registry provided pre-liminary results during eight years of registration (1999-2006) on cancer morbidity. Over a period of 8 years of registration (1999-2006), 1560 cases of malignant tumors, of all sexes and ages, were retained [3,4]. The standardized incidence of breast cancer in Western Algeria, during 1999-2006, was 31.0 cases per 100000 inhabitants [3,4]. In 2009, breast cancer was still in the first rank with 37.7% of new cases of all cancers in women in Algeria [5]. Distribution of the most common CIM 10 locations in women, during1999-2006, showed the breast cancer was in the 1st rank (28.6%) followed by cancers of the sturgeon (14.3%), gallbladder (7.7%), thyroid (7%), Stomach (6%) and ovary (4.4%) [3,4]. Breast cancer is a multifactorial pathology. Risk factors have been shown to be related to the etiology of this tumor pathology. Genetic susceptibility, exposure to environmental factors, diet and other

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lifestyle factors were behind the genesis of breast cancer, its progression and thus its morbidity in all patients diagnosed at a stage late. The identification of risk factors will facilitate the implementation of effective prevention strategies. In developing countries, clinical signs of breast cancer are difficult to predict with current prognostic factors, and its therapeutic treatment is not as effective as it should be. Breast cancer mortality is decreasing in western countries, due to mass screening, the use of postoperative chemotherapy and/or hormone therapy, and the use of new drugs. In Algeria, the maintenance of population health is associated with variables such as demographic transition, increased life expectancy, environmental and lifestyle changes. The aging of the population is accelerating and as a result, the demands of first aid related to cancer are increasing. In fact, cancer mortality is still high, diagnosis is often delayed, and care is expensive. The prognostic and predictive factors allow clinicians to establish an adequate therapeutic regimen such as tumor size, lymph node status, differentiation grade, metastasis and tumor markers. Tobias., et al. in 1985, developed an immunoradiometric test for the determination of a tumor marker associated with breast cancer, CA15-3 [6]. The limit value of serum CA15-3 level, in healthy subjects, is 30 U/ml [7]. In benign pathologies, serum CA15-3 level is lower than 50 U/ml [8]. A high serum CA15-3 level is associated with the extension stage of the tumor lesion [9]. This study aimed to identify the epidemiological, clinical, therapeutic and prognostic aspects of breast cancer in women old more than 30 years in the southwestern area of a Maghreb country, Algeria, through a retrospective study carried out during 2009-2015.

Materials and Methods

All the materials and methods that are used to complete the study should be mentioned.

Study population and data collection

It's a retrospective analytical epidemiological study underwent on 107 cases of breast cancer in women old between 30 - 76 years. This age range is the target for breast cancer screening for this study. Patients were recruited between January 2009 and December 2015 in the Department of Oncology, Saida Hospital, Algeria. Clinical data were collected from the clinical and technical medical records of breast cancer patients. The variants of studies selected were age, personal and family history, consultation time, clinical and para-clinical characteristics of the tumor, biological examination and follow-up of CA 15-3 tumor marker. The pre-therapeutic assessment included an examination, a mammography, an abdominal ultrasound, and a bone scintigraphy. Criteria for patient's inclusion in this study were respected and only patients residing in the southwestern areas of Algeria (as Saida, Naima, El Bayadh, Mecheria and Ain Sefra) and consulted with Department of Oncology, Saida Hospital were selected in whom the pathological examination and mammogram were performed. Data were collected using a questionnaire. Ethical consideration was followed in this study which consisted in informing patients about the objectives of this study and consequently to obtain their consent.

CA15-3 serum-assay

All patients were evaluated by determination of the serum CA15-3 level. Blood samples were collected at the oncology department and taken directly to the laboratory of biological analysis in the same hospital. Approximately 10 ml of blood were collected intravenously in a dry tube. The blood was centrifuged, and serum was frozen at -20°C til to be used in the assay. The sera were frozen for a period not exceeding three months and then thawed for achieving CA15-3 assay knowing that for short periods of freezing and CA15-3 assay is little changed. CA15-3 assays are undergone in mini VIDAS analyzer (Bio-Merieux, France). The used method was the technique of enzyme-linked fluorescent assay (ELFA): it is an enzyme immunoassay ELISA "sandwich" in heterogeneous phase where the molecules of CA15-3 are caught between two monoclonal antibodies of murine nature. Reading results of the CA15-3 assay is done in two stages to a final detection by fluorimetry.

Statistical analysis

The data and results were processed using Excel software Microsoft Office 2007 on Windows 7. Descriptive analyzes were based on conventional parameters such as numbers, frequencies and percentages for quantitative parameters.

Results and Discussion

The Oncology Department, Saida Hospital, recorded 400 cases of cancers of all types and sex over a five-year period from January 2009 to December 2015. This study revealed 107 cases of breast cancer in women old between 30-70 years with a frequency of 26,7%. The mean age was 41.3 years and a range of 41-50 years was mainly represented (42.5%). The epidemiological and socio-demographic characteristics of the patients are summarized in table 1.

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Variables	Patients (n = 107)	Frequency (%) (n/400)
Patients' origin		
Saida	66	16.5
Bayadh	14	3.5
Mecheria	11	2.7
Naima	9	2.2
Ain Sefra	7	1.7
Age rank (years)		
30 - 40	33	8.2
41 - 50	45	11.2
51 - 60	19	4.7
61 - 70	8	2
>70	2	0.5
Marital status		
Married	72	18
Widow	28	7
Unmarried	2	0.5
Divorce	5	1.2
Educational level		
Non-scholar	47	11.7
Primary school	38	9.5
Secondary school	19	4.7
University	3	0.7
Occupation		
Household	71	17.7
Functionary	26	6.5
Shopping	9	2.2
Student	1	0.2
Deliveries		
Nulliparous (0)	4	1
Primipare (1)	8	2
Paucipare (2-4)	21	5.2
Multipare (>4)	65	16.2
Family history of breast cancer		
No	90	22.5
Yes	17	4.2

Table 1: Socio-demographic characteristics of patients with breast cancer.

Patients were natives of different areas from Naama, El Bayadh and Saida provinces coming to consult with gynecologists and oncologists. Once a breast tumor suspected, patients would be referred to the oncology department of Saida Hospital to benefit from medical care. It was found Saida area had more patients with breast cancer (16.5%), and this could be explained by the high Saida's population. It was recorded 18% of patients were married and 11.7% out of school. Patients, without occupations or households, were the largest group (17.7%) in the study population. The multipare status was predominant (16.2%) whereas 1% of patients were nulliparous (no childbirth). The mean age of first pregnancy was 22 years.in this study, it was found that 4.2% had a family history of breast cancer.

Clinical and anatomo-pathological characteristics are indicated in table 2. Clinical examinations showed a high nodule rate in 10.5% of study population. The study of the medical records and the reports of the pathologist in the Pathology Department, Sidi-Bel-Abbes University Hospital Center (UHC) revealed a mean tumor size of 3.7 cm (1 to 10 cm). Tumors classified as SBR-II (Scarff Bloom and Richardson) were the most frequent (7.7%). The majority of patients (14.7%) had a mammary ultrasound. It showed suspicious images in adenofibroma cases (10.7%) and images without malignancy in heterogeneous nodule cases (4%). The consultation period was four months. The predominant revealing sign was the fortuitous discovery of a mammary nodule. Only 16.5% of patients underwent a mammography examination with 9.7% with stellar opacity. Pathologic examination revealed the preponderance of a malignant histological type, ie, ductal carcinoma infiltrating (14.5%) whereas 7% of the patients' medical records did not contain any pathological data. In therapy, 81 patients underwen surgery. It was curative for 74 cases whose 12.2% with the radical surgery (ie; mastectomy with axillary clearing) and 6.5% of a conservative surgery (ie; tumorectomy with axillary clearing). It was palliative for six advanced tumor cases. For them, the surgery was performed after neoadjuvant chemotherapy. In table 3, results showed the difference was highly significant between the mean serum-levels of CA15-3 (p < 0,001). The CA15-3 mean value, in the predominant SBR-II breast cancer, was 23.5 ± 0.2 U/mL.

The median age of breast cancer, in this study, is 41 years for young women with 30% of patients were old less than 40. Data are consistent with the literature that mentioned the lowest age of breast cancer was 14 years [10]. The 41-50 age group is the most represented and consisted with the results of Agali Wele, in 1998

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Variables	Patients (n = 107)	Frequency (%) (n/400)
Clinical signs		
Nodule	42	10.5
Breast edema	16	4
Breast pain	9	2.2
Erythema	3	0.7
Premenstrual syndrome	3	0.7
Ulceration	3	0.5
Axillary adenopathy	1	0.2
Tumor stage (SBR)		
Stage I	22	5.5
Stage II	31	7.7
Stage III	7	1.7
Ultrasound		
Fibroadenoma	43	10.7
Heterogenous nodule (blurred contours)	16	4
No	11	2.7
Mammography		
Stellar opacity	39	9.7
Nodular opacities (left breast)	11	2.7
Thick area (early carcinoma)	16	4
Histology		
Infiltrating ductal carcinoma	58	14.5
No	28	7
Surgery		
Radical (Mastectomy with axillary clearing)	49	12.2
Conservative (Lumpectomy with axillary dissection)	26	6.5
Surgery (after neodjuvant chemotherapy)	6	1.5

Table 2: Clinical and anatomo-pathological characteristics.

Tumor grade SBR	Stage-I	Stage-II	Stage-III
CA15-3 (IU/mL)	10.07 ± 0.8	24.13 ± 0.6	71 ± 1.03
Cases (n)	3	54	34
Frequency (%)	2.8	50.4	46.8
Total	91 (85%)		

Table 3: Serum CA15-3 levels according to the tumor grade SBR.

[11]. In this study, breast cancer was observed mainly between 30-70 years with a peak between 41-50. It is exceptional before 30 years and after 70 [11]. The analysis of risk factors showed insignificant differences between patients. Studies incriminate genetic factors and genital events in young women more than in older with a family history. The prevalence of breast cancer is linked to the mutation of the BRCA1 gene and a high incidence of early menarche and nulliparity [12]. Parity is a factor associated with the risk of breast cancer. Authors emphasized the protective role of breastfeeding in the genesis of breast cancer. In North Africa, women breastfeed for more than two years but this did not affect the incidence of breast cancer, which is still the first cancer. This study does not make this possible because of a non-representative sample. A late pregnancy is a sign of high risk of breast cancer [13]. The Algerian woman marries early and aspires to multiparity. These parameters contribute in the increasing of the breast cancer incidence in the study population. Clinical criteria are unusual in women old less than 40 years in our series. These results approximate other studies, except for tumor size, the frequency of tumor masses was high in some series [14]. Diagnosis, clinical examination or mammography, is more difficult in young women. Mammography was less sensitive and normal in 90% of the cases in the series of Johnstone., *et al.* in 2001. Mammography was more sensitive in our series for women old less than 40 years. This finding, associated to a high mammary density, was reported in other studies [15]. Comparing two groups of women, one old less than 40 and other old more than 40, Foxcroft., et al. in 2004, concluded mammography was less sensitive, less specific and unreliable for the diagnosis of multifocal tumors in young women [14]. Despite the lack of mammography, this test was the only satisfactory examination to visualize small foci of micro calcifications. The discovery of a tumor mass, by the patient, is a usual reason for consultation [11]. In this study, it's was reported 53 cases consulted in stages II and III whereas Mounkora, in 1985, showed 90% of breast cancer patients consulted in advanced Stage III and IV [16]. Ultrasound remains a complementary means to mammography whereas the new breast imaging modalities have not yet proved their effectiveness. The value of screening modalities has not been established for women old less than 30 years. For information, 2% of the tumors are discovered radiologically through an examination for another cause [17]. Studies suggested ultrasound was more sensitive than mammography in young women [18]. This finding joins the results of this study. CA15-3 is a serum tumor marker used in breast cancer screening and not specific to cancer. Its blood concentration increases in various physiological or pathological cases. Variations in CA15-3 levels depend on different factors. Whereas factors as

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age, sex, smoking, lactation and cycle time have no effect on serum CA15-3 levels. On the other hand, pregnancy may be accompanied by an increase in CA15-3 up to 80 U/ml. It is influenced by the mass of mammary gland leading to high mucin secretion [19]. In benign breast pathologies, serum CA15-3 level is not more than 50 U/ml [8]. Serum CA15-3 assay is not a preliminary and mandatory step in the early detection of breast cancer but may be used to monitor the biological evolution during the cancer therapy. It contributes to the management of patients in stages II or III [20]. At the first diagnosis, CA15-3 sensitivity is less than 25% in non-metastatic breast cancers. The high serum CA15-3 level is correlated with the lesion extension stage [21]. Studies have correlated serum CA15-3 level with the TNM (Tumor, Node and Metastasis) or SBR tumor classification, both are determined from an extensional assessment based on thoracic radiology, hepatic ultrasound and bone scintigraphy. This study, in conjunction with other studies, suggests a positive correlation between CA15-3 and SBR. The patients, with grade III, had a high serum CA15-3 level (ie 71.4 ± 1.03 U/ml). CA15-3, greater than 30 U/ml, is associated with the advanced SBR grade [19-21]. Algerian women, with advanced breast cancer, often consult late. Serum CA15-3 levels, regularly measured in women at risk, may predict the onset of breast cancer [21]. Clinical and biological examinations of breast cancer contribute to the morbidity and mortality rates in the high-risk female population.

Conclusion

The last years of cancer registration show a marked and epidemic trend for breast cancer in women, and low survival due to problems of accessibility to care. These data attest to the scourge and indicate the priorities for care and prevention. Breast cancer is a location that could be prevented by actions based on the fight against risk factors and the settlement of strategies for screening, early detection and treatment, while taking into account Algerian realities.

Acknowledgements

Conflict of Interest

The authors declare that they do not have any conflict of interest.

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