

Breast Cancer Disease Burden in Albania

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Abstract

Introduction: There are data on an increase in cancer cases in Albania in recent decades, this growing trend of cancer in the Albanian population is due to the rapid increase of habits or unhealthy behaviours such as; smoking, excessive alcohol consumption, unhealthy diet, high levels of obesity, and physical inactivity. However, Albanian men and women show one of the lowest values (in terms of age) in the region of Southeast Europe. In Albania still, we do not have official data regarding the number of breast cancer diagnosed patients either their characteristics, or pathological profile.

Our purpose is to conduct retrospective study of number of Breast Cancer patients treated and diagnosed in Albania during 2018.

Material and Methods: We have recorded and recorded all breast cancer data from the registry of the Oncology Service at University Hospital Center “Mother Teresa” and private clinics in Tirana and from the registries of the district hospitals, during 2018.

Results: Total number of breast cancer patients treated and diagnosed in 2018, from them 506 patients were diagnosed and treated with breast cancer of all stages in our hospital. Since the registry of cancer is still not entirely functioning the data represents only our hospital not.

Conclusions: Breast cancer remains a major public health concern worldwide. Trends in the incidence, mortality, and regulated life years of the disabled are varied across regions and countries, suggesting the allocation of appropriate health care resources for breast cancer, which should have the highest level of evaluation.

Keywords: breast cancer, Oncology Service, tumors, pathological profile.

Abbreviations

HER2 - Human Epidermal growth factor receptor 2;
IHC – Immunohistochemistry; SISH - Silver DNA in Situ Hybridization; BC - Breast cancer; Sc – Scoring; FISH - fluorescence in situ hybridization; AR - The androgen receptor; ER - The estrogen receptors; G - Histological grade; HR - The hormone receptors; PR - The progesterone receptors; N- Lymph node involvement; T - Tumour stage

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Introduction:

Cancer is one of the leading causes of death worldwide. [1] In 2008 there were 8 million deaths due to malignant diseases and this figure could reach up to 11 million by 2030. [2] Breast cancer is the most common cancer in women [3], and various factors contribute to its occurrence. [4]

Its incidence, mortality, and survival rate vary between different parts of the world, due to many factors such as population structure, lifestyle, genetic factors, and environment. [5]

Classifying women based on breast cancer risk factors can be effective in improving risk-free methods and designing targeted breast cancer screening programs. [6, 7]

Breast cancer is the most common cancer in women both in the developed and less developed world. It is estimated that worldwide over 508 000 women died in 2011 due to breast cancer (Global Health Estimates, WHO 2013). [8]

Although breast cancer is thought to be a disease of the developed world, almost 50% of breast cancer cases

and 58% of deaths occur in less developed countries (GLOBOCAN 2008). [9]

In the last two decades, the incidence of breast cancer is increasing. As is already known it incidence increase with aging. more commonly occurs in women over 50 years of age. This is the most common malignant neoplasm and the second most often in the lung cancer cause of cancer-associated mortality (16%) in women.[8]

Female sex, older age, family history, genetic mutations, reproductive history and density of breast cancer are non-modifiable breast cancer risk factors. [5]

There is evidence of an increase in the total burden of disease from cancer in Albania in the past few decades including here Breast Cancer too. It has been suggested that the increasing trend in the burden of cancer in the Albanian population is besides non-modifiable risk cancer due to the rapidly increasing rates of unhealthy behaviors including tobacco smoking, harmful alcohol consumption (excessive intake, as well as the deleterious patterns including bingeing), unhealthy dietary habits, high levels of obesity, as well as physical inactivity. [10]

Also, with the improvement of health care more and more women are coming to hospitals even patient older than 80 which not always reach the health system before.

In developing countries, the infrastructure and resources for screening mammography are often unavailable. Breast cancer is usually diagnosed at late stages, and, due to insufficient resources, women with breast cancer may receive inadequate treatment or palliative care.

Development of low- and middle-income country models of services, such as the IHC laboratory presented in this paper, is critical for the infrastructure in resource-limited settings to address the growing cancer burden.

Despite this significant global disease burden, there has been a decline in mortality from breast cancer over the last decades. This is happening to a number of complex factors including public education and important therapeutic advances in treatment based on a better understanding of tumor biology [9].

Breast cancer a group of heterogeneous tumor types with varied morphology, biology and response to therapies [11].

In recent years, profiling of breast carcinomas using immunohistochemistry (IHC) and other advanced biomarker assays has assumed an increasingly important role in breast cancer diagnosis and treatment. IHC analysis for various biomarkers can be used as a tool to aid in the diagnosis of breast cancer and can also provide important prognostic and predictive information related to tumor biology and disease subtypes. [12]

In Albania still, we do not have official data regarding the number of breast cancer diagnosed patients either their characteristics, or pathological profile. [11]

Our purpose is to conduct retrospective study of number of Breast Cancer patients treated and diagnosed in Albania during 2018.

Methodology: Analyze and record 2018 breast cancer data from the registry of the Oncology Service at University Hospital Center “Mother Teresa” and private clinics in Tirana and from the registries of the district hospitals.

During this year still, our work has faced many challenges from the lack of immunohistochemistry panel to delayed CT scans and bone scans and also medicinal restrictions. In our project we have collected data from our clinical charts.

We also are aware that are still missing data from other oncology unit across country from private practice or abroad. Still, in our paper we tried to present our data as they are.

Results:

Total number of breast cancer patients treated and diagnosed in 2018

During 2018, we have recorded 506 patients were diagnosed and treated with breast cancer of all stages in our hospital. Since the registry of cancer is still not untirely functioning the data represents only our hospital not including patients in the private practice. We have this distribution of data in according the age; a) 25-29 years old with 4 (0.8%); 30 -35 years old with 20 (3.95%); 36 -40 years old with 33 (6.5%); 41 -45 years old with 47 (9.3%); 46 -50 years old with 68 (13.4%); 51 -55 years old with 77 (15.2%); 56 -60 years old with 57 (11.3%); 61 -65 years old with 69 (13.6%); 66 -70 years old with 57 (11.4%); 71 -75 years old with 39 (7.7%); > 75 years old with 36 (7.1%) of the patients in our study. (Tab. 1), As shown in Table 1, the most affected age group was 51-55 years old with 77 (15.2%); followed by the age group 61-65 years old with 69 (13.6%); and with the age group 46-50 years old with 68 (13.4%) of the patients.

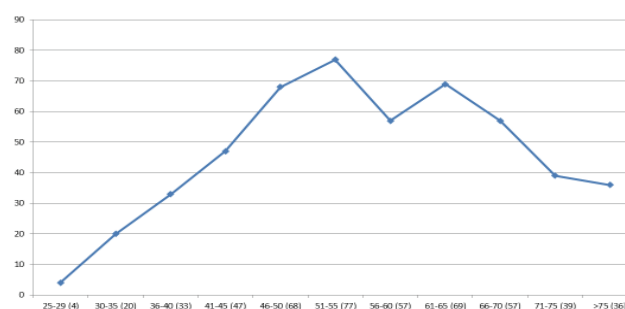


Table 1 Age distribution in breast cancer patients.

In our study we have separated the patients into two groups the first group with 124 (24.5%) of patients that have not performed IHC analyse, and the second group that have done IHC with 382 (75.5%) of patients, from 506 patients in total.

So, the first group of the patients have received their treatment based only in their stage of disease not based on prognostic or predictive factors. (Tab. 2)

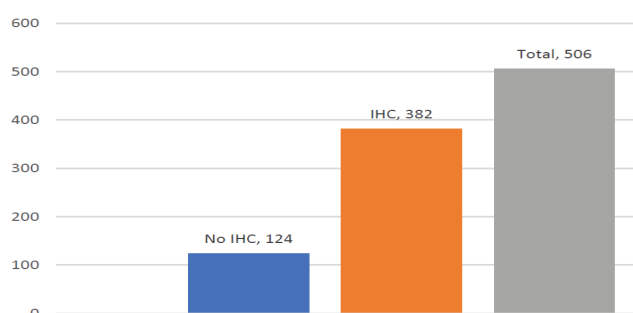


Table 2 Distribution of immunohistochemistry in breast cancer patients.

We have evaluated tumour characteristics such as number of HER2 patients, HR positive, triple negative patients and also the stage distributions and their immunohistochemical features.

Total number of HER2+ patients treated and diagnosed during 2018.

During this year 70 (18.3%) patients has resulted HER 2 positive breast cancer from 382 patients tested for HER2. (Tab. 3)

Total number of HER2 Score 2+ patients and confirmation of HER2 Score + via SISH were 30(42.8%) patients, but only 5 (33.3%) of them have perform FISH or SISH test, and only 3(10%) of them have received anti Her2 treatment.

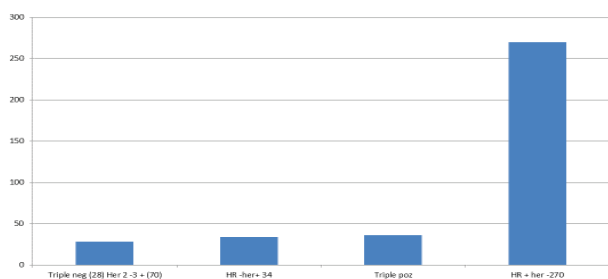


Table 3 - Distribution according to IHC profile in breast cancer patients.

Total number of triple negative patients treated and diagnosed during 2018

There were detected 28 (7.3%) patients with triple negative profile. The cut off for ER and PGR was 10%. Still, our protocol allows hormonal treatment in hormone receptor more than 1%. (Tab. 3)

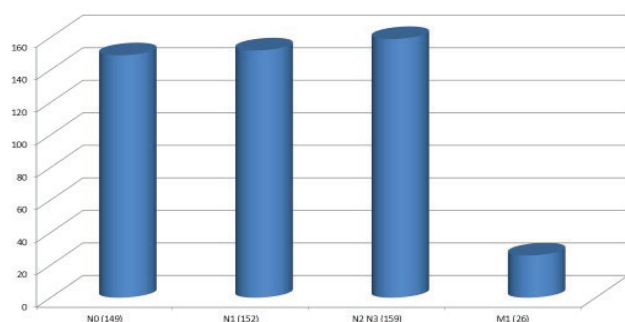


Table 4-Distribution according to stage and axillary involvement

I our study there were this data in according the nodus stage in axillary area; with N0 with 149 (29.44%); with N1 with 152 (30.03%); with N2 & N3 with 149 (31.42%); and 26 (5.1%) of the patients in stage IV (M1) of the disease. (Tab. 4)

I our study we had these distributions of data in connection with metastatic status of our patients we have this analysis revealed 172 (34%) patients with Her Score 3+; 172 (34%) patients with Hr + Her 2 -; 15(3%) of patients with Triple negative, and unknown 136 (27%) of the patients. (Tab. 5)

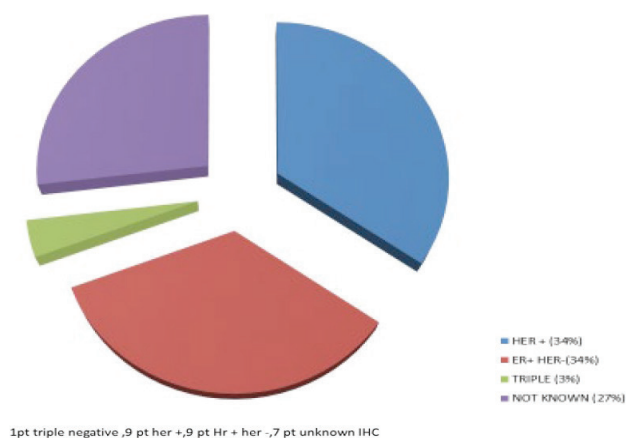


Table 5 - Distribution according IHC profiling in metastatic patients

These data are clearly inverted from 10-15 years ago when stage IV was seen in nearly ¼ of patients.

There are in total 301(59.5%) patient's node positive respectively 152 (30.03%) patients with N1 disease and 159 (31.42%) patients with N2, N3 disease.

Still the number of neoadjuvant treatments remain low, presenting a real challenge for the next years.

The benefit of neoadjuvant treatment in clinically node positive patient is well known. Still remain the need for performing the immunohistochemistry testing before multidisciplinary team consultation.

Total number of patients HER2 + with BC at high risk of recurrence (N+ or HR-) -2018, in our study 34(48.57%) from 70 (13.83%) patients were with hormonal receptor negative

Total number of patients nodes 0/1-3/3+ were 149 (29.45%) with node negative, and with 152 (30.03%) of patients with N1, and 159 (38.53%) of patients with N2, N3.

In total number of patients HR+ Her negative, 270 (53.4%) of patients are hormone receptor positive and Her 2 negatives, and the number of HR - are 34(6.7%) of patients with HR - Her 2 positive, and 28 (5.5%) of patients with triple negative. (Tab. 6)

From the subgroup analysis 24 (4.7%) of patients were T4d (inflammatory breast carcinoma) 3 (0.6%) of them Her 2 positive, 1 (0.2%) of patients with triple negative, 6 (1.2%) of patients with HR + Her -, and 14 (2.77%) of patients without IHC. (Tab. 6)

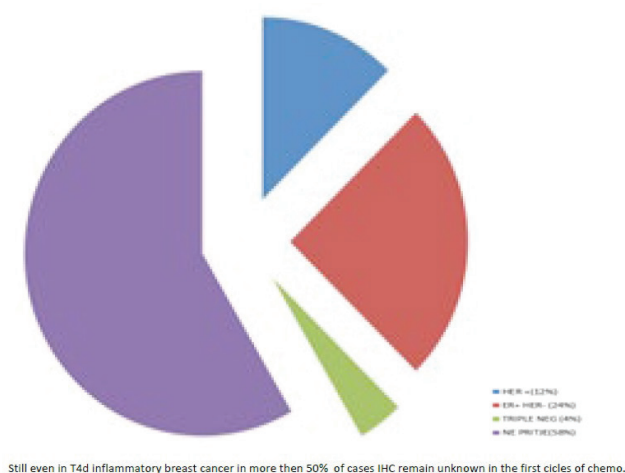


Table 6 - IHC profiling in 24 patients with clinically inflammatory disease cT4d (neoadjuvant treatment)

Discussion

Breast cancer is the most common cancer in women, and various factors contribute to its occurrence. Breast cancer is leading cancer in women accounting for 25% of all cases worldwide and leading cause of death due to carcinoma in women. It is more common in developed countries. [11, 12]

In our study the most affected age group was 51-55 years old with 77 (15.2%); followed by the age group 61-65 years old with 69 (13.6%); and with the age group 46-50 years old with 68 (13.4%) of the patients.

As reported by Shaik et al., [13] women within the age group 30-50 are 3.704 more likely to have breast cancer, as found in our case (age group 35-50 years). In close comparison with our findings, age factor and the point of change at diagnosis has been reported at 50 years by Abdollabi et al., [14]. However, no study has been made with age at menarche in mind, although this is a high-risk factor in case of breast cancer.

According to the literature, we have a correlation between the molecular types of the disease and clinical practice, it is mainly based on the semi-quantitative assessment of the expression of estrogen receptor (ER), progesterone receptor (PR), HER2 visualized by IHC.

According to currently accepted standards, the reproducibility of IHC tests is non-optimal, the compatibility between methods and laboratories is below the expectations for good clinical practice [15, 16].

In our study we have separated the patients into two groups the first group with 124 (24.5%) of patients that have not performed IHC analyse, and the second group that have done IHC with 382 (75.5%) of patients, from 506 patients in total. We have evaluated tumour characteristics such as number of HER2 patients, HR positive, triple negative patients and also the stage distributions and their immunohistochemical features.

The latest study identifies a strong association between different molecular subtypes and lymph node status, with

82.3% positive lymph node involvement in HER2-positive cases. Although, there have been numerous studies that failed to detect such a link [17, 18], there were other studies that identified a high degree of association between lymph node metastases with HER2-positive tumors and a lower frequency with basal tumors [19, 20]. This contradiction may be due to the fact that there are studies showing that the tumor subtype may be internal and therefore only freely related to the status of the lymph nodes.

In our study there were this data in according the nodus stage in axillary area; with N0 with 149 (29.44%); with N1 with 152 (30.03%); with N2 & N3 with 149 (31.42%); and 26 (5.1%) of the patients in stage IV (M1) of the disease

In a study of 434 patients with luminal tumors A (77%) and 117 patients with triple negative tumors (76.9%), only 41.2% of HER2-positive tumors ($p = 0.026$) exhibited an in-situ component.[20]

In another study, 45 cases of luminal tumors ($n = 124$) showed an in-situ component [21].

In our study we had these distributions of data in connection with metastatic status of our patients we have this analysis revealed 172 (34%) patients with Her Score 3+; 172 (34%) patients with Hr + Her 2 -; 15(3%) of patients with Triple negative, and unknown 136 (27%) of the patients.

However, the therapeutic choice, and several favourable subsets of CUPs, warrants further histopathological characterization, which is often performed with immunohistochemistry (IHC) and, more recently, using molecular analyses [22, 23].

In our study from the subgroup analysis 24 (4.7%) of patients were T4d (inflammatory breast carcinoma) 3 (0.6%) of them Her 2 positive, 1 (0.2%) of patients with triple negative, 6 (1.2%) of patients with HR + Her -, and 14 (2.77%) of patients without IHC. (Tab. 6)

Regarding the adjuvant treatment modifications for the HER2 variation, several publications recommend adding anti-HER2 treatment in cases of HER2 gain. On the other hand, in the cases of loss of HER2, the suggestion would be to continue with anti-HER2 agents considering the concept of tumour heterogeneity, but more evidence is required in this respect [24].

Conclusion

In the low-income countries, the burden of breast cancer is still challenging the health system. a big percentage of patients are still diagnosed in late stages. The knowing of prognostic and predictive markers is mandatory to our patients.

Declarations:

Competing interests

The authors declare that they have no competing interests.

Ethical Considerations:

Informed written consent from the patient included in this study was taken.

Consent for publication:

All authors read and approved the final manuscript.

Availability of data and material:

The data that support the findings of this study are available on request from the corresponding author.

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