# ORIGINAL RESEARCH

# The relationship between age and mortality and morbidity of patients diagnosed with breast cancer: a retrospective clinical study

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## Abstract

**Objective:** Breast cancer, the most common malignancy among women, is a universally challenging health problem. It is a known fact that the incidence of breast cancer increases with age. In addition, mortality and morbidity increase with age. For now, it does not seem possible to reduce the incidence of breast cancer but it is possible to limit deaths caused by it. Patients are encouraged to get early diagnosis and age-appropriate screening tests. Because regular screening and early diagnosis are very important in improving breast cancer outcomes. Factors such as age, hormonal status and genetics are associated with the incidence of breast cancer. In this study, we aimed to contribute to the literature by examining age-related mortality and morbidity of breast cancer.

**Method:** This study was carried out at a University Hospital. The sample consisted of 214 women between 01.09.2018/01.09.2022 diagnosed with breast cancer, aged 30 to 80 years.

**Results:** The mean age of women was 51.9 ± 7.6 years, with 52.8% being <50 years. Breast-conserving surgery was performed on 56.5% of the total participants (n=121). In our series, deaths due to breast cancer are less than 1% under the age of 50 and over 3% in those over the age of 50.

**Conclusion:** Education campaigns should focus on increasing breast cancer awareness among young women, highlighting the importance of early detection and regular screenings. Each patient should receive a tailored treatment plan that considers their age, tumor characteristics, fertility preservation preferences, and long-term health goals.

**Keywords:** Breast Cancer, Survival, Incidence, Surgery

## INTRODUCTION

Breast cancer is the most common type of cancer among women worldwide. The incidence of breast cancer increases with age and is highest among women aged 50 years and older. The mortality and morbidity rates for breast cancer also increase with age, with the highest rates observed among women over 70 years old (1).

According to the Centers for Disease Control (CDC), breast cancer is the second leading cause of cancer death among women overall in the United States, and the leading cause of cancer death among Hispanic women (2). The age-adjusted death rate for female breast cancer in the United States during 2019 was 19.5 per 100,000 women (2).

As for morbidity, breast cancer survivors may face long-term side effects such as lymphedema, fatigue, and cognitive changes, as well as an increased risk of developing other health problems such as osteoporosis and heart disease (3). Depression, stress

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caused by the disease, and sexual dysfunction are important problems caused by the disease and the treatment process. These problems are more common at young ages.

Early detection through regular screening tests such as mammograms and clinical breast exams is key to improving outcomes for breast cancer. Women are encouraged to talk to their healthcare providers about their individual risk factors and the appropriate screening tests within their age group (3).

The aim of this study is to examine the relationship between mortality and morbidity of breast cancer and age and to compare our experiences with the literature.

## METHOD

This study was carried out at Hatay Mustafa Kemal University Faculty of Medicine Hospital. The sample consisted of 214 women between 01.09.2018/01.09.2022 diagnosed with breast cancer, aged 30 to 80 years. They were divided into two groups with a cut-off age of 50, which is the average age of menopause in the rest of the World (5). Similarly, this age limit is widely used in the literature studying variables related to quality of life. The patients' age, gender, diagnosis, onset time of symptoms, laboratory tests and diagnostic imaging studies, post-operative complications, relapse and mortality will be examined and compared.

The women selected for the study also met the inclusion criteria: 1) having a diagnosis of cancer, 2) having had surgery as part of the treatment, 3) receiving chemotherapy (CTX) or radiotherapy (RT). The main exclusion criteria were being pregnant at the time of diagnosis and having undergone breast reconstruction.

Statistical Analysis Data will be transferred to Microsoft Excel for group allocation and SPSS software (IBM Corp 24.0) will be used for statistical analysis. One-way analysis of variance was used to compare continuous variables between groups; $\chi^2$ test and Fisher exact test will be used to analyze categorical variables. Statistical significance of 0.05 ($\alpha$) was determined for the analysis. Post hoc test (Tukey test or Bonferroni test) will be performed statistically to compare significant differences between groups.

## RESULTS

The mean age of women was $51.9 \pm 7.6$ years, with 52.8% being <50 years. Breast-conserving surgery was performed on 56.5% of the total participants (n=121) (Figure 1).

Demographic data regarding age groups of the patients were presented on Figure 2. Compared with all other age groups, patients <40 years (n = 42) and 40 to 49 years (n = 71) were more likely to be diagnosed with breast cancer with ductal histology, grade 3, and lymphovascular invasion positive. These younger patients (<40 and 40–49 years)

were less likely to have positive estrogen receptor (ER) and progesterone receptor (PR) expression and were more likely to have HER2-positive or triple-negative disease. Patients under 40 years of age and between 40 and 49 years of age were more likely to have more advanced TNM stage at diagnosis; node positivity and T3 tumor rates were higher.

In contrast, patients aged ≥50 years (n = 93) generally had more clinical-pathological features than nearby middle-aged cohorts, all with a higher likelihood of lobular histology, lower grade, and a lower negative rate of lymphovascular invasion. They were more likely to have ER and PR receptors and less likely to have HER2-positive or triple-negative disease. They were overall more likely to have node-negative disease and to have T1 or T2 tumors, although there was a slight increase in the occurrence of de novo metastatic disease observed in patients aged ≥50 years compared with younger age groups.



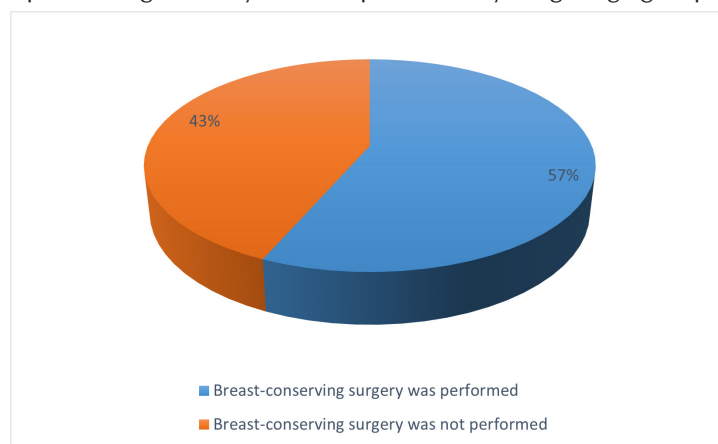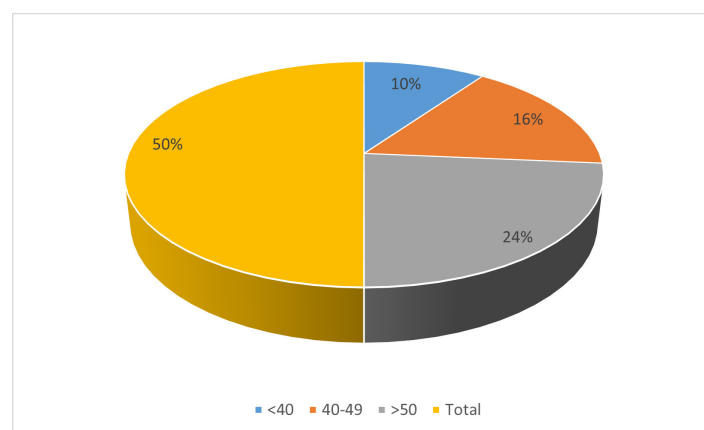**Figure 1.** Ratio of the surgical methods in terms of conserving breast.



**Figure 2.** Age groups of the cases

Significant differences were shown in the systemic effects of treatment (hair loss, etc.) (p = 0.002). Patients over the age of 50 are less affected by anxiety; Those under the age of 50 reported less surgery-related symptomatology (p=0.043)

In our series, deaths due to breast cancer are less than 1% under the age of 50 and over 3% in those over the age of 50.

## DISCUSSION

Treating breast cancer at a young age can present a specific set of challenges and potential complications.

Younger women may have a lower awareness of breast cancer and its symptoms, leading to delayed diagnosis. This can result in more advanced stages of cancer at the time of detection, making treatment more difficult (4).

Breast cancer in younger women tends to be more aggressive, with faster-growing tumors and a higher likelihood of spreading to nearby lymph nodes. This aggressive nature can make treatment more challenging (6).

Due to the potential desire for fertility preservation or pregnancy in the future, younger women may prefer less aggressive treatment options. This can limit the available treatment strategies and make achieving optimal outcomes more complex (8).

Younger women often have a higher tolerance for chemotherapy and radiation, but they may also experience more severe side effects due to their overall health and a longer expected lifespan. These side effects can impact the quality of life and increase the risk of complications (7).

Addressing these challenges is crucial to minimize mortality rates in young breast cancer patients.

Treating breast cancer in older women can also present unique challenges and potential complications.

Older women often have a higher burden of other health conditions, such as heart disease, diabetes, or arthritis. These conditions can complicate treatment decisions and increase the risk of side effects from cancer therapies (8).

Age-related decline in physical abilities and overall functional status can impact the tolerance and response to treatments. Older women may experience more difficulties in recovering from surgical procedures or managing the side effects of chemotherapy or radiation (7).

Older women are often underrepresented in clinical trials, which can limit the availability of evidence-based treatment options tailored to their needs. This may result in suboptimal treatment decisions and outcomes (8).

Older women may take multiple medications for various health conditions. The interactions between cancer treatments and these medications can lead to complications or adverse effects, including reduced treatment efficacy (4).

Addressing these challenges is critical to minimize complications and mortality rates in older breast cancer patients.

A thorough assessment of an older patient's overall health, functional status, cognitive abilities, and social support can help tailor treatment plans to their specific needs and minimize potential complications (6).

Treatment decisions should be based on the patient's health status, tumor characteristics, and overall goals and preferences. Less aggressive treatment options may be considered if the risks outweigh the benefits (6).

Close monitoring and proactive management of treatment-related side effects, including adjusting medication doses or schedules, can help older patients tolerate and adhere to their treatment plans.

## CONCLUSION

Education campaigns should focus on increasing breast cancer awareness among young women, highlighting the importance of early detection and regular screenings.

Each patient should receive a tailored treatment plan that considers their age, tumor characteristics, fertility preservation preferences, and long-term health goals.

Providing comprehensive supportive care services, such as counseling, fertility preservation options, and survivorship programs, can help manage the physical, emotional, and psychological challenges faced by young women with breast cancer.

Continued research is essential to better understand breast cancer in young women and develop effective treatment strategies. Clinical trials specifically targeting this population can provide valuable insights.

It is important for young women diagnosed with breast cancer to work closely with their healthcare team to develop a comprehensive treatment plan that addresses their specific needs and concerns. Regular follow-up and adherence to recommended surveillance guidelines can also contribute to improving outcomes and reducing mortality rates.

Involving geriatric specialists, oncologists, surgeons, pharmacists, and other healthcare professionals in the patient's care can provide a comprehensive and coordinated approach to treatment and support.

Increasing awareness among older women about the importance of breast cancer screening, early detection, and maintaining overall health can contribute to timely diagnosis and better treatment outcomes.

Continued research is needed to better understand the unique biology of breast cancer in older women and develop effective treatment strategies targeted to this population.

Older women diagnosed with breast cancer should have open and informed discussions with their healthcare team to develop treatment plans that consider their specific needs, preferences, and goals. Regular communication, monitoring, and follow-up with their healthcare providers are essential to optimize outcomes and minimize complications.

## ACKNOWLEDGEMENT

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