

Postoperative Survival of Breast Cancer Patients Aged 85 Years or Older: A Retrospective Study

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Research

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Abstract

Background: Data on the postoperative outcomes of extremely elderly patients with breast cancer are lacking.

Methods: We evaluated a series of 46 breast cancer patients aged 85 years or older (mean age: 87.4 years) who underwent surgical treatment, accumulated over the past 10 years.

Results: The most common comorbidity was hypertension. Sixteen patients (34.8%) did not receive axillary treatment. The mean hospital stay was 12.8 days, and no in-hospital deaths were recorded. The 5-year overall survival rate was 78.2% (95% confidence interval: 63.5–96.3) over a median follow-up of 41 months.

Conclusions: Surgical treatment of breast cancer patients aged 85 years or older is warranted.

1. Background

Japanese society is rapidly aging. In 2013, individuals aged 75 years or older accounted for 12.3% of the Japanese population, and that figure is expected to increase to 26.9% in 2060 [1]. In addition, the incidence of breast cancer is increasing and is the leading cause of neoplasms in Japanese women [2]. Therefore, it is likely that the number of elderly women with breast cancer will increase rapidly, and that more elderly patients will require breast cancer treatment.

Surgery is essential for treating breast cancer, and it can cure many breast cancer patients without the need for other adjuvant therapies [3]. Surgery for early breast cancer has progressed as a result of the significant data generated from many randomized trials [4, 5]. However, most of those trials recruited younger patients. Hence, the surgical benefits of breast cancer treatments for elderly patients are unknown. Although retrospective studies concerning older breast cancer patients have been conducted [6–9], the postoperative outcomes of extremely old patients with breast cancer are poorly understood.

To determine whether breast cancer surgery for extremely old patients is warranted, we examined the postoperative survival outcomes of patients aged 85 years or older in our institute.

2. Methods

We searched the database from our institution for breast cancer patients 85 years or older who received surgical treatment. We reviewed medical charts and obtained the following information: age, sex, chief complaint, comorbidities, preoperative diagnosis, anesthesia, surgical treatment, postoperative complications, hospital stay, adjuvant chemotherapy, adjuvant endocrine therapy, radiation therapy, pathological characteristics, and survival status.

The survival rate was calculated according to the Kaplan–Meier method. Survival analysis was performed using the statistical package R v3.3.1 (R Foundation for Statistical Computing, Vienna, Austria;

3. Results

From 2010 to 2019, 2,801 breast cancer patients underwent surgical treatment at our institute, of whom 46 (1.6%) were 85 years or older. The preoperative characteristics of these 46 patients are summarized in Table 1. The mean age was 87.4 years. The most common symptom at presentation was a breast lump, and the second most common was nipple discharge. The most frequent comorbidities were hypertension, diabetes mellitus, hyperlipidemia, asthma, and spinal stenosis. Chronic obstructive pulmonary disease, scleroderma, chronic heart failure, and dementia were also documented, in one patient each. The mean size of the breast tumors was 2.0 cm. Six patients had enlarged axillary lymph nodes, and one patient had lung metastasis.

Table 1
Preoperative patient characteristics

No. of patients		46	
Mean age (years)		87.4	
Symptoms	Lump	37	80.4%
	Nipple discharge	4	8.7%
	Other	5	10.9%
Comorbidity	Hypertension	20	43.5%
	Diabetes mellitus	9	19.6%
	Hyperlipidemia	8	17.4%
	Asthma	4	8.7%
	Spinal stenosis	2	4.3%
	Other	4	
Mean tumor size (cm)		2.0	
Nodal status	Negative	40	87.0%
	Positive	6	13.0%
Distant metastasis	Negative	45	97.8%
	Positive	1	2.2%

The surgical data are summarized in Table 2. Sixteen patients (34.8%) did not receive axillary treatment. Local anesthesia was used in 12 patients (26.1%). The most common histopathology was invasive ductal carcinoma (37 patients, 80.4%), and the majority of patients had stage I or IIA disease (31 patients,

67.4%). The most frequent immunohistochemical pattern was estrogen positivity and HER2 positivity (34 patients, 73.9%).

Table 2
Surgical characteristics

Without axillary surgery	Tumor excision	2	4.3%
	Bp	12	26.1%
	Bt	2	4.3%
		16	34.8%
With axillary surgery	Bp + Ax	1	2.2%
	Bp + SN	4	8.7%
	Bp + SN + Ax	1	2.2%
	Bt + Ax	11	23.9%
	Bt + SN	13	28.3%
		30	65.2%
Anesthesia	Local	12	26.1%
	General	34	73.9%
Histopathology	Ductal carcinoma in situ	6	13.0%
	Invasive ductal carcinoma	37	80.4%
	Lobular carcinoma	3	6.5%
Stage	0	5	10.9%
	I	18	39.1%
	IIA	13	28.3%
	IIB	3	6.5%
	IIIA	1	2.2%
	IIIB	3	6.5%
	IIIC	2	4.3%
	IV	1	2.2%
Immunohistochemical pattern	ER(+)HER2(-)	34	73.9%
	ER(+)HER2(+)	4	8.7%
*: All postoperative complications were wound infections.			
Bp: partial mastectomy; Bt: mastectomy; SN: sentinel node biopsy; ER, estrogen receptor			
HER2: human epidermal growth factor receptor 2			

Without axillary surgery	Tumor excision	2	4.3%
	Bp	12	26.1%
	Bt	2	4.3%
	ER(-)HER2(+)	4	8.7%
	ER(-)HER2(-)	4	8.7%
Postoperative course	Hospital death	0	0%
	Postoperative complications*	7	15.2%
	Mean hospital stay (days)	12.8	
*: All postoperative complications were wound infections.			
Bp: partial mastectomy; Bt: mastectomy; SN: sentinel node biopsy; ER, estrogen receptor			
HER2: human epidermal growth factor receptor 2			

The mean hospital stay was 12.8 days, and no in-hospital deaths were recorded. Postoperative complications, all of which were wound infections, were recorded in seven patients (15.2%). Endocrine therapy, chemotherapy, and radiation therapy were given to 32 (69.6%), 2 (4.3%), and 5 (10.9%) patients, respectively.

The survival curve of these 46 patients is shown in Fig. 1. The median follow-up was 41 months. The 5-year overall survival rate was 78.2% (95% confidence interval 63.5–96.3).

4. Discussion

In our study, the 5-year overall survival rate of 46 breast cancer patients aged 85 years or older was 78.2%, suggesting that breast cancer surgery for extremely old patients is warranted. To our knowledge, this is the first report of the long-term survival of elderly patients aged 85 years or older.

Our study population included breast cancer patients with a wide range of TNM stages. Despite this wide range of stages, the 5-year overall survival rate was 78.2%, which is similar to the 5-year survival rate of patients with T2N0M0 breast cancer [10]. Therefore, we believe that the 5-year survival rate of our study group was acceptable.

We believe that surgical treatment for elderly patients with breast cancer is extremely safe if their preoperative conditions are evaluated properly. In our series, there were no hospital deaths. Although some patients had wound infections, no severe postoperative complications were recorded. Results from other single-institute studies concerning postoperative mortality are favorable [7, 9], and a large cohort study based on a national database also showed an acceptable rate of postoperative mortality [8].

The evaluation of surgical safety is essential in elderly breast cancer patients, and the level of safety depends on the balance between surgical invasiveness and the patient's tolerance. Surgical treatment for breast cancer is less invasive than other general surgeries and thus is safely performed in many patients. On the other hand, tolerability depends on co-morbidity [11, 12], frailty [13] and physical activity statuses [11], and these three factors are closely associated with one another [14].

Considering the low tolerance of elderly patients, some essential treatment procedures including axillary surgery, radiation treatment, and adjuvant chemotherapy were avoided [6, 8]. Several small studies investigated avoiding axillary dissection in clinically node-negative patients with small breast cancers and reported that the absence of axillary dissection does not affect overall survival [15–17]. However, 5.8–9% of patients experienced axillary recurrence. We believe that concomitant axillary surgery is preferable for two reasons. One, axillary surgery is not very invasive, and sentinel lymph node biopsy is appropriate in clinically node-negative cases [18]. The second reason is that comorbid diseases may weaken the general condition of elderly patients during the interval between the initial surgery and potential axillary recurrence. This interval is reported to range from 7 to 157 months [16]; longer intervals can reduce the opportunity for a second surgery.

Radiation therapy after partial mastectomy tends to be avoided in elderly patients with breast cancer [6], because they are required to visit the hospital every day for several weeks. Although radiation therapy after a partial mastectomy does not seem to affect overall survival [19], no radiation elevates the risk of local recurrence [20–22]. Although mastectomy is related to a higher risk of postoperative hemorrhage than is partial mastectomy [23], mastectomy is preferred for patients who want to avoid radiation therapy.

Adjuvant chemotherapy improves the survival outcome of patients with early breast cancer; however, maintenance of the relative dose intensity is difficult in elderly patients [24–27]. Furthermore, treatment-related mortality increases with age [24]. We believe that adjuvant chemotherapy is not appropriate for patients aged 85 years or older.

Our study has some limitations. This was a retrospective study of breast cancer patients who underwent surgical treatment, thus introducing selection bias. However, because such patients must have a good enough general condition to tolerate surgery, we believe that this bias does not alter our conclusion.

Conclusion

Breast cancer patients aged 85 years or older who received surgical treatment had acceptable survival outcomes. Therefore, surgery for extremely old patients with breast cancer is warranted.

Declarations

Ethics approval and consent to participate

This study was approved by our institutional ethics board (RK-200908-11). This study was performed in accordance with the principles of the Declaration of Helsinki.

Consent for publication

Under the regulation of our institutional ethics board, informed consent was obtained in the form of opt-out system on the web-site. Those who declined were excluded.

Availability of data and materials

The datasets used and/or analyzed in the current study are available from the corresponding author upon reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

KE, SF, KH, SM, and YH collected the data and contributed to drafting the manuscript.

KE and KT drafted the manuscript.

All authors read and approved the final manuscript.

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Figures

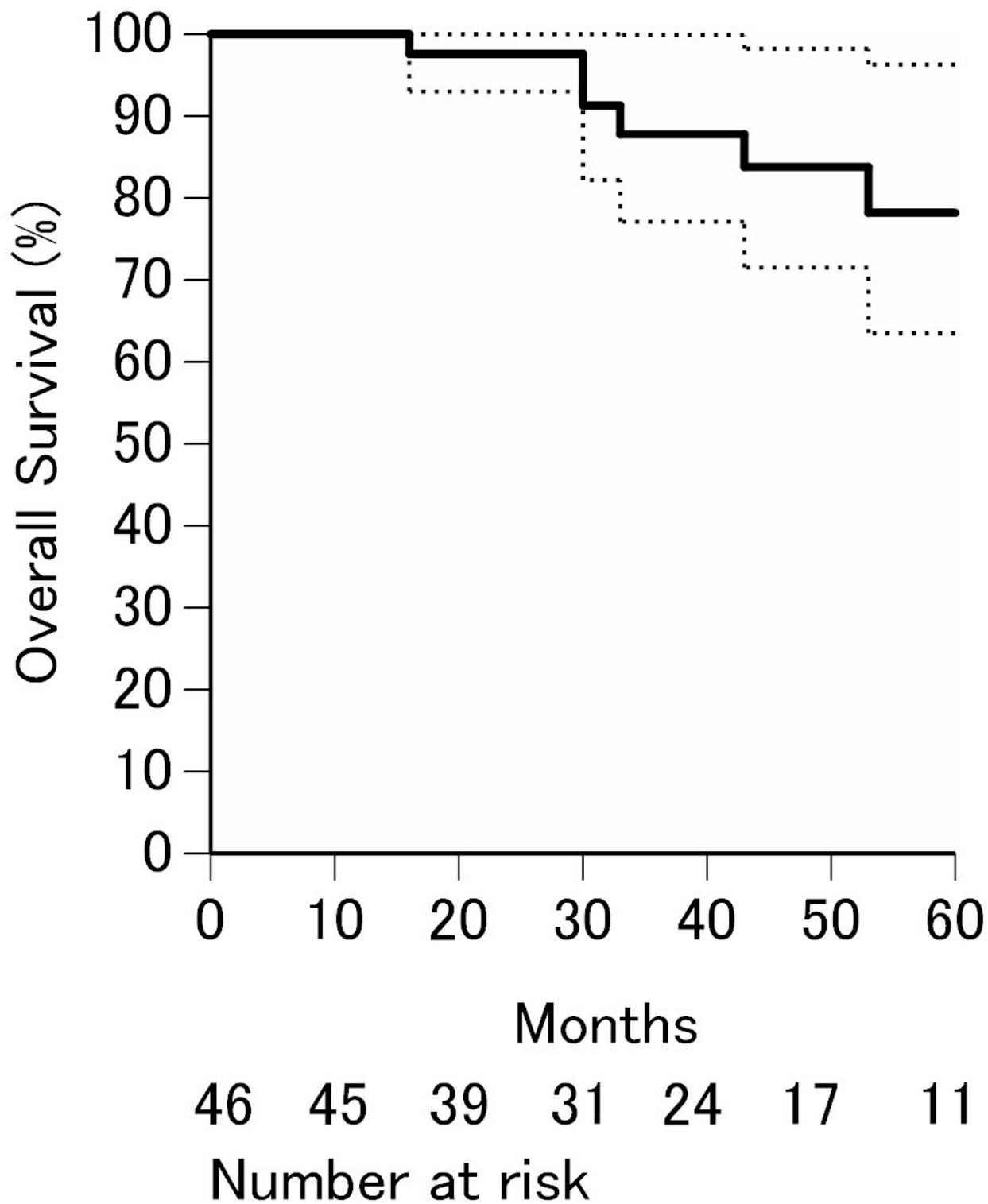


Figure 1

Postoperative survival curve for the 46 breast cancer patients aged 85 years or older. The estimated 5-year survival rate was 78.2% (95% CI 96.3–63.5) over a median follow-up of 41 months. The solid line denotes the calculated survival rate, and the dotted lines indicate the 95% confidence interval.