

Hasan MUTLU¹
Zeki AKÇA²
Abdülşamet ERDEN³
Tuncay ASLAN³
Yasemin BENDERLİ CİHAN⁴
Abdullah BÜYÜKÇELİK⁵

İletişim (Correspondance)

Hasan MUTLU
Acıbadem Kayseri Hospital, Tıbbi Onkoloji KAYSERİ

Tlf: 0352 207 38 44
e-posta: doktorhasanmutlu@gmail.com

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¹ Acıbadem Kayseri Hospital, Tıbbi Onkoloji, KAYSERİ

² Mersin Devlet Hastanesi, Radyasyon Onkolojisi
MERSİN

³ Kayseri Eğitim ve Araştırma Hastanesi İç Hastalıkları
KAYSERİ

⁴ Kayseri Eğitim ve Araştırma Hastanesi, Radyasyon
Onkolojisi KAYSERİ

⁵ Acıbadem Üniversitesi Tıp Fakültesi İç Hastalıkları
Anabilim Dalı İSTANBUL



RESEARCH

GERIATRIC VERSUS NON-GERIATRIC GROUPS IN POSTMENOPAUSAL BREAST CANCER PATIENTS: LYMPHOVASCULAR INVASION IS SIGNIFICANTLY DIFFERENT

ABSTRACT

Introduction: Women 65 years of age or older make up one half of all new breast cancer patients. These patients are called geriatric patients. Their prognosis is better than the younger patients. Generally, they are offered less intensive treatment. In this retrospective analysis we evaluated whether geriatric postmenopausal breast cancer patients are different from non-geriatric patients, regarding prognostic factors and survival rates.

Materials and Method: A total of 291 patients with postmenopausal breast cancer were included. Of these, 108 patients were in the geriatric group while 183 were in the non-geriatric group. The two groups were compared with regard to age, stage, histology, hormone receptor status, grade, lymphovascular invasion and disease free and overall survival.

Results: The lymphovascular invasion rate was much higher in non-geriatric patients compared to geriatric patients (p=0.008). Disease free survival and overall survival were similar.

Conclusion: Geriatric patients have more favorable prognostic factors than non-geriatric patients with postmenopausal breast cancer.

Key Words: Breast Cancer; Postmenopause; Aged; Prognosis.



ARAŞTIRMA

POSTMENOPOZAL MEME KANSERLİ HASTALARDA GERİATRİK VE GERİATRİK OLMAYAN HASTA GURUPLARI: LENFOVASKÜLER İNVAZYON ÖNEMLİ OLARAK FARKLIDIR

Öz

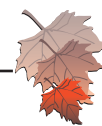
Giriş: Yeni meme kanserli kadınların yarısı 65 yaş ve üzeridir. Geriatrik hasta gurubu olarak adlandırılan (65 yaş ve üzeri) bu gurubun prognozu daha genç hastalara göre daha iyidir. Genel olarak daha az toksik kemoterapi rejimleri önerilmektedir. Bu çalışmada postmenopozal meme kanserli hastalarda geriatrik hasta gurubu ile geriatrik olmayan hasta gurubu prognostik faktörler ve sağkalım açısından karşılaştırılması amaçlanmıştır.

Gereç ve Yöntem: Toplam 291 postmenopozal meme kanserli hastanın hastane kayıtları geriye dönük olarak incelendi. 108 hasta geriatrik, 183 hasta geriatrik olmayan gurupta idi. Yaş, evre, histoloji, reseptör durumu, tümör greydi, lenfovasküler invazyon, hastaliksiz ve genel sağkalım açısından guruplar karşılaştırıldı.

Bulgular: Prognostik faktörler açısından bakıldığında lenfovasküler invazyon oranı geriatrik olmayan hasta grubunda daha fazla idi (p=0.008). Sağkalım süreleri her iki gurupta benzerdi.

Sonuç: Geriatrik meme kanserli hastaların postmenopozal meme kanserli hastalardan daha iyi prognostik faktörlere sahip olduğu düşünülebilir.

Anahtar Sözcükler: Meme Kanseri; Postmenopoz; Yaşlı; Prognoz.



INTRODUCTION

Breast cancer is the most common cancer type in women (1,2). Approximately one half of all new cases of breast cancer occur in women aged 65 years or older (3). In these patients, standard breast cancer treatment modalities such as breast conserving therapy, axillary lymph node dissection, radiotherapy and chemotherapy are offered on a less intensive scale (4-7). Often these patients have no comorbidities. Due to both short life expectancy and toxicities, geriatric breast cancer patients are offered less intensive treatment modalities in adjuvant or metastatic settings. The number of involved axillary lymph nodes (for example the percentage of positive lymph nodes), tumor size, estrogen and progesterone receptor status, human epidermal growth factor 2 (HER-2) status, age, grade and lymphovascular space invasion are the prognostic factors (8-13). Menopausal status is one of the important prognostic factors (14). Patients with breast cancer are divided into three groups with respect to their menopausal status: premenopausal, perimenopausal and postmenopausal. It has been reported that premenopausal patients with breast cancer have a worse prognosis than postmenopausal patients (15). The postmenopausal group consists of patients younger than 65 years and those aged 65 years or older. Patients aged 65 years or older are called geriatric.

The aim of the current study is to investigate the prognostic factors and outcome in geriatric and non-geriatric patients with breast cancer.

MATERIALS AND METHOD

A total of 291 patients from Kayseri Training and Research Hospital were analyzed retrospectively using hospital records. Approval for the study was obtained from the Erciyes University local ethics committee. All patients were postmenopausal and divided into two groups: the geriatric group consisting of patients aged 65 years or older (n=108) and non-geriatric group consisting of those younger than 65 years (n=183). Patients with a follicle-stimulating hormone (FSH) value higher than 116mIU/ml, those aged 45 years or older with amenorrhea of more than 12 months and those with bilateral oophorectomy were considered as postmenopausal. Absence of immunohistochemical staining of estrogen receptor (ER) (Thermo Scientific) and progesterone receptor (PR) (Thermo Scientific) or a nuclear staining of less than 5% were considered as negative. For HER 2 receptor scoring (Thermo Scientific), moderate or strong (>30%) membranous staining

of tumor cells was considered as immunohistochemically strong positive (+++). Weakness (1 (+) staining) or non-staining was accepted as negative. Another staining pattern was immunohistochemically (++) . In patients with (++) HER 2 staining, if fluorescence in situ hybridization (FISH) was performed, the reason was recorded. The histological grade and nuclear grade were identified according to the modified Bloom-Richardson system. Lymphovascular invasion (LVI) was determined as yes / no.

Prognostic factors such as age, stage, histology, estrogen receptor status, progesterone receptor status, HER 2 receptor status, grade and lymphovascular invasion were recorded in the Statistical Package for the Social Sciences version 16.0 (SPSS 16.0) from the medical archives retrospectively. Also the date of diagnosis, recurrence time and date of death were recorded in SPSS 16.0.

To determine the characteristics of patients, descriptive statistics (frequency analysis and crosstabs) were performed. To evaluate the prognostic factors between these groups, a chi-square test was performed. To evaluate disease free survival and overall survival, Kaplan-Meier statistical methods were used. $P < 0.05$ was considered to be statistically significant.

RESULTS

The clinicopathological characteristics of the patients and the differences between the groups are shown in Table 1. The mean ages of the geriatric and non-geriatric groups were 71.5 ± 5.5 and 56.9 ± 5.3 years respectively ($p < 0.001$). There was a significant difference between the groups in terms of LVI ($p = 0.008$). In the non-geriatric group the LVI rate which is an important prognostic factor, was higher than that in the geriatric group (34% vs. 22%). There were no differences in terms of stage, histology, grade, ER, PR, HER 2 status, and perineural invasion (PNI). The median disease free survival (DFS) and overall survival (OS) rates are given in Table 2. There were no differences regarding DFS and OS ($p = 0.862$ and $p = 0.682$, respectively). The DFS curve is shown in Figure 1 and the OS curve is shown in Figure 2.

DISCUSSION

In elderly patients breast cancer is more indolent than their younger counterparts. While skin and bone metastases are more common, the rate of metastasis to vital organs is lower among elderly patients with breast cancer (16). Lower prolif-



Table 1— Clinicopathologic Properties of the Groups

Parameter	Geriatric Group (n=108)	Non-Geriatric Group (n=183)	p
Age (mean)	71.5±5.5	56.9±5.3	0.000
Stage			0.241
Stage 1	6 (5%)	22 (12%)	
Stage 2	41 (8%)	58 (32%)	
Stage 3	29 (27%)	59 (32%)	
Stage 4	1 (1%)	2 (1%)	
Unknown	31 (29%)	42 (23%)	
Histology			0.388
Invasive Ductal Cancer	85 (79%)	136 (74%)	
Non-Invasive Ductal Cancer	17 (16%)	36 (20%)	
Unknown	6 (5%)	11 (6%)	
Grade			0.088
1	12 (11%)	13 (7%)	
2	47 (44%)	63 (34%)	
3	21 (20%)	54 (30%)	
Unknown	27 (25%)	53 (29%)	
Estrogen Receptor Status			0.211
Positive	70 (65%)	107 (59%)	
Negative	32 (30%)	68 (37%)	
Unknown	6 (5%)	8 (4%)	
Progesterone Receptor Status			0.654
Positive	68 (63%)	112 (61%)	
Negative	34 (32%)	63 (34%)	
Unknown	6 (5%)	8 (4%)	
Her 2 Receptor Status			0.379
Positive	20 (19%)	42 (23%)	
Negative	81 (44%)	130 (71%)	
Unknown	7 (7%)	11 (6%)	
Lymphovascular Invasion			0.008
Yes	24 (22%)	63 (34%)	
No	68 (63%)	83 (45%)	
Unknown	16 (15%)	37 (20%)	

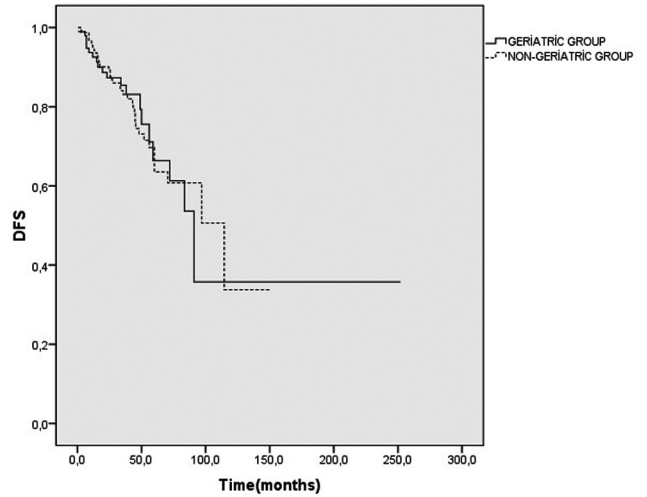


Figure 1— Disease Free Survival (DFS) curve.

Table 2— DFS and OS Results (NR:Not Reached)

	Disease Free Survival (months)	Overall Survival (months)
	Median	Median
Geriatric G.	91.0±9.3	122.0±26.6
Non-Geriatric G.	114.5±25.1	NR
P-value	0.862	0.682

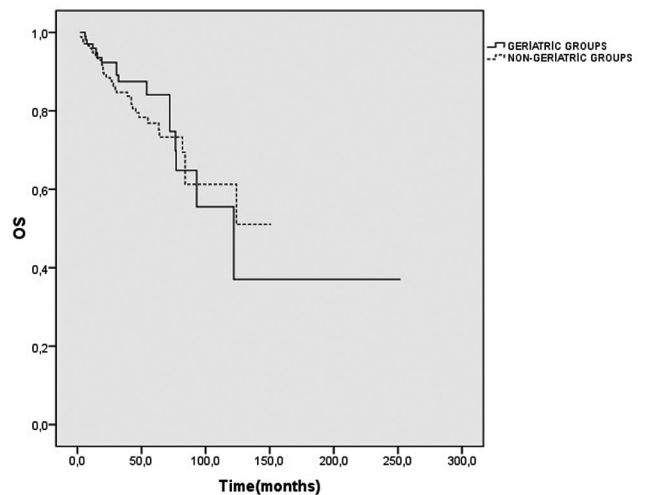
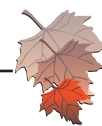


Figure 2— Overall Survival (OS) curve.

erative indices and normal p53 expression have been previously defined (17). It was reported that breast cancer in elderly patients showed higher expression of ER and PR and lower expression of HER-2 (5,18). However in our study the receptor status and grade were similar in both groups; this may be due to the fact that both groups were postmenopausal. Nevertheless, geriatric patients may be evaluated as a different subgroup in cancer treatment due to age, comorbidity and life expectancy. Age is an important prognostic factor in breast cancer; it has previously been shown that younger patients have a poorer prognosis.



For treatment of postmenopausal breast cancer, generally less intensive modalities are offered to geriatric patients. Our study supports this approach because LVI rate was significantly lower in the geriatric patient subgroup. It was previously demonstrated that LVI is a poor prognostic factor in patients with both lymph node-negative and positive breast cancer (11,19-21).

There were no significant differences in the two groups regarding DFS and OS. In spite of the small population size, our study showed that by offering standard adjuvant or palliative treatment to geriatric patients, better survival rates may be achieved. When treating geriatric patients, functional status, comorbidity, mental status, emotional conditions, nutritional status, polypharmacy and geriatric syndromes must be evaluated. Geriatric patients with breast cancer have a better prognosis and standard treatment schedules may cause life-threatening toxicities.

In this study we evaluated whether geriatric patients with breast cancer were different from non-geriatric patients. We found that the LVI rate was significantly lower in the geriatric group. This finding may support offering less intensive treatment to geriatric patients with breast cancer.

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