

The Impact of Prognostic Factors on MBC and FBC Survival - Are They Similar?

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Introduction

Male breast cancer (MBC) makes up less than 1% of all cancers in men, and less than 1% of all breast cancers in the United States. Some investigators reported MBC has poor survival than FBC, other authors claimed equal prognosis for both sexes. The present study is to investigate any prognostic factors that may influence the survival of MBC and FBC.

Patients and Methods

Adult male and female patients with the diagnosis of invasive mammary carcinoma of the breast referred to LRCP the past 40 years were reviewed.

The patients were staged using the Seventh American Joint Committee on Cancer (AJCC) criteria for breast cancer. Patients with stage M1 (M1) disease were excluded.

All patients received surgery of either lumpectomy and axillary dissection for breast preservation, or of simple mastectomy and axillary dissection or modified radical mastectomy (MRM) for non-breast preservation management. Adjuvant radiation therapy was given in postoperative setting for high risk patients with close/positive resection margins, positive nodes. Radiation dose ranged from 40Gy in 15 fractions to 50Gy in 25 fractions to the breast or chest wall with or without supraclavicular axillary and internal mammary regions. A boost dose of 10Gy in 5 fractions with electrons was generally given to patients with margins involvement. The radiation treatment energy was cobalt-60 or 4-MV linear accelerator. Radiation treatment was given after completion of chemotherapy.

Chemotherapy and tamoxifen were given in the adjuvant setting for high-risk patients with nodal involvement. The chemotherapy comprised CMF (cyclophosphamide, methotrexate, and 5-fluorouracil) or CEF (cyclophosphamide, epirubicin and 5-fluorouracil) and tamoxifen was offered for estrogen receptor-positive patients.

The primary endpoints for our review were overall survival (OS) and cancer specific survival (CSS). The secondary endpoints were disease-free survival (DFS) and distant failure.

Results

From Jan 1963-Dec 2006, a total of 1388 breast cancer patient charts were reviewed. There were 75 male breast cancer (MBC) and 1313 female breast cancer (FBC). They were treated at similar period of time. MBC were from 1979-2006 and FBC were from 1963-1992.

The median age of the cohort was 63 years (23-90 years), for male median age was 65 years, ranged (35-83 years) and for female was 60 years, ranged (23-90 years).

The median follow up time was 90 months ranged from 0.39-339 months.

The 5-year and 10-year CSS rate for node positive patients were 79.3% and 56.2% for MBC, and 71.6% and 56.0% for FBC, respectively, for node negative patients were 94.7% and 53.8% for MBC, and 91.8% and 84.7% for FBC respectively.

Patient characteristics were shown in Table 1. MBC was significant in older age (p=0.02) at diagnosis, has more (p=0.004) low and intermediate grade tumor.

MBC tumor has higher portion ER positive (83% VS 57%) and often (p=0.001) treated with hormonal therapy only, and less often (p=0.001) received chemotherapy based treatment compared to FBC. Of the prognostic factors analyzed, nodal status has significant Cox regression interaction in overall survival (OS) (p=0.0013) Table 2 and cancer specific survival (CSS) (p=0.04). Further analysis of nodal positive subgroup in male and female breast cancer showed all cause mortality rate was higher in MBC (10 years 66.9% for MBC VS 52% for FBC), MBC with positive node were older in age (p<0.001) and poorer distance disease recurrence free survival (log rank p<0.001) compared to counterpart of FBC (Figure 1).

The 5-year and 10 years OS rates for node positive patients were 75% and 33.1% for MBC and 66.6% and 48.1% for FBC, respectively.

Table 1

Patient Characteristics	MBC N=75	FBC N=1313	p value
Age	<60 years 22	685	0.02 ^a
	>60 years 53	628	
Tumor size	T1 27	693	0.1 ^b
	T2 37	400	
	T3 2	73	
	T4 9	67	
Tumor grade	Low 28	268	0.004 ^{a,b}
	Intermediate 24	429	
	High 13	448	
	Unknown 10	168	
Nodal status	Negative 37	582	0.2 ^a
	Positive 38	731	
Resection margin	>2mm 49	1116	0.1 ^b
	≤2mm 11	105	
	Unknown 15	93	
Hormonal therapy	No 38	1093	0.001 ^a
	Yes 39	220	
Chemotherapy +/- Hormonal	No 63	713	0.001 ^a
	Yes 12	600	
Radiation Therapy	No 29	381	0.1 ^a
	Yes 46	922	

^a - Statistical Significant

^a - Chi square test

^b - t paired test

Conclusion

Of the prognostic factors examined nodal status has significant interaction in OS and CSS in MBC and FBC.

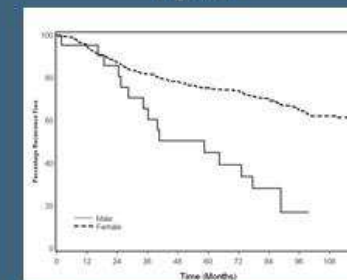
The effect of nodal status in survival may be secondary from comorbidities in node-positive MBC who were less eligible to receive aggressive chemotherapy compared to their counterpart of FBC. High risk node - positive MBC should consider systemic therapy to improve patient outcome.

Table 2

Prognostic Factors		OS P Value	DFS P Value
Age (years)	<60 vs >60	0.317	0.88
Tumor Size	T1 vs T2 vs T3 & 4	0.179	0.388
Tumor Grade	Low vs intermediate vs high	0.986	0.377
Nodal Status	Negative vs positive	0.0013	0.865
Resection Margin	Unknown & ≤ 2mm vs >2mm	0.601	0.969
Hormonal Therapy	No vs Yes	0.377	0.824
Chemotherapy +/- Hormonal	No vs Yes	0.172	0.717
Radiation Therapy	No vs Yes	0.926	0.986

P-Cox regression for the radiation test
* - statistically significant

Figure 1



P < 0.001 Log rank

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