

## The Investigation of an Age as a Prognostic Factor of Breast Cancer

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**Purpose:** It has been known that the prognosis of a young woman's breast cancer is poorer than the other woman. However, the effect of age on the prognosis is not well-defined. We performed this study to investigate age as a prognostic factor of breast cancer.

**Methods:** A retrospective study was conducted of 1782 breast cancer patients who underwent operations in Department of Surgery, Seoul National University Hospital between January 1981 and December 2000. The patients were divided into two groups: young age (< 35) and old age (> 35) groups. Tumor stage, histopathological characteristics (such as histology, nuclear grade, histologic grade, hormonal receptor, etc), overall survival and disease free survival rates were compared between the two groups.

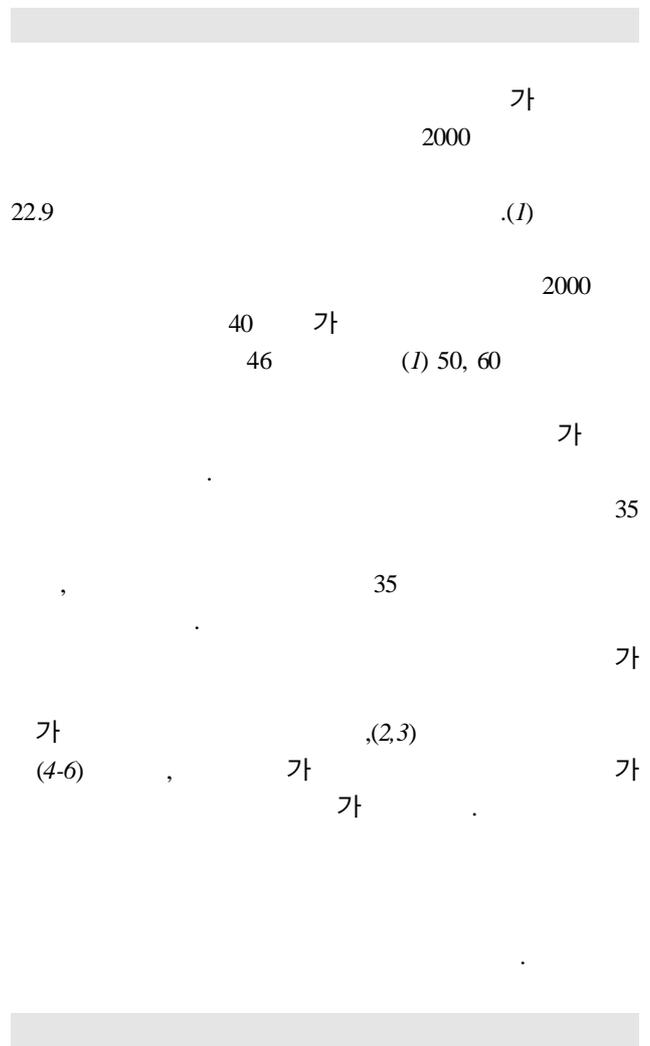
**Results:** The ages ranged from 17 to 88 years. 306 patients (17.3%) were included in the young age group (median age=32 years) and 1,476 (82.7%) in the old age group (median age=47 years). The median follow-up period was 42 and 51 months in young and old age groups, respectively. Histologically, a medullary carcinoma was more common in the young age group (P=0.000), and a papillary carcinoma in the old age group (P<0.05). Statically, the young age group had more advanced TMN stages (P=0.033). From log-rank tests, the young age group had poorer overall survival and disease free survival rates (P<0.05, P=0.0002). However, in multivariate analysis, only N stage was a significant independent prognostic factor (P=0.009).

**Conclusion:** Our study showed that the young aged patients had a poorer survival rate, but age was not an independent prognostic factor. (J Korean Surg Soc 2003;64:20-27)

**Key Words:** Young age, Breast cancer, Prognosis

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1981 1 2000 12

가 1,782  
35  
,  
, UICC-AJCC  
TNM  
, p-53, c-erbB-2, bcl-2  
(extensive intraductal component,  
EIC)

SPSS 10.0 for Windows  
Chi-square  
student t-test

Log-Rank regression  
Kaplan-Meier  
Cox's  
P 0.05

1)  
1,672  
(17.3%), 35  
48.68 ± 8.87

2)  
(Table 1) 가  
78.8%, 82.0%

UICC-AJCC  
TNM (Table 1).  
T T1 100 (34.1%), T2 143 (48.8%), T3 46 (15.7%), T4 4 (1.4%)  
T1 530 (37.8%), T2 703 (50.2%), T3 122 (8.7%), T4 43 (3.1%)  
T3 가 (P=0.000).  
N N0 154 (51.0%), N1 111 (36.8%), N2 37 (12.3%), N3 0 (0%)  
820 (56.5%), 485 (33.4%), 143 (9.8%), 4 (0.3%)

가 (P=0.220).  
0 8 (2.6%), I 65 (20.4%),  
II 167 (55.5%), III 47 (15.6%), IV 15 (5.0%)  
0 64 (4.4%), I 354 (24.1%), II 766 (52.1%), III 182 (12.4%), IV 131 (4.8%)  
가 (P=0.033).  
(prediagnostic period)  
5.30 ± 9.30  
4.45 ± 12.08 (P=0.859).  
(Table 2), 가  
80%

Table 1. Treatment and stages between age groups

	Cases in young age (< 35) group (%)	Cases in old age (> 35) group (%)	P-value
Prediagnostic period	n=396 5.30 ± 39.30 month	n=2813 4.45 ± 12.08 month	NS <sup>§</sup>
Operation	n=306	n=1470	NS
MRM*	241 (78.8)	1,206 (82.0)	
QA <sup>†</sup>	34 (11.1)	147 (10.0)	
SM <sup>‡</sup>	9 (2.9)	38 (2.6)	
Others	18 (7.2)	79 (5.4)	
T stage	n=293	n=1401	0.003
T1	100 (34.1)	530 (37.8)	
T2	143 (48.8)	703 (50.2)	
T3	46 (15.7)	122 (8.7)	
T4	4 (1.4)	43 (3.1)	
N stage	n=302	n=1452	NS
N0	154 (51.0)	820 (56.5)	
N1	111 (36.2)	485 (33.4)	
N2	37 (12.3)	143 (9.8)	
N3	0 (0.0)	4 (0.3)	
TMN stage	n=302	n=1468	0.033
0	8 (2.6)	64 (4.4)	
I	65 (20.4)	354 (24.1)	
II	167 (55.5)	766 (52.1)	
III	47 (15.6)	182 (12.4)	
IV	15 (5.0)	131 (4.8)	

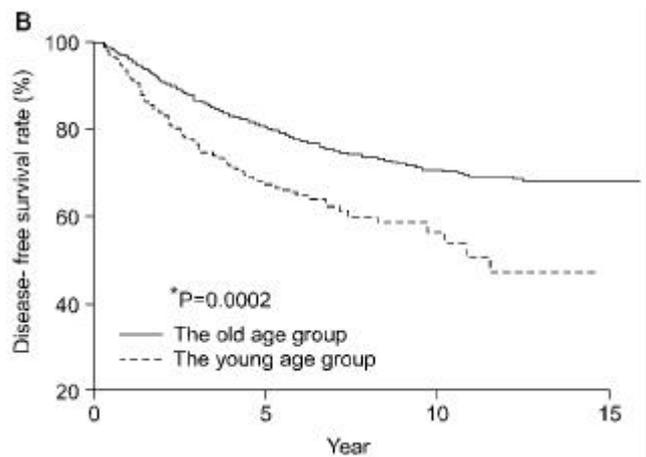
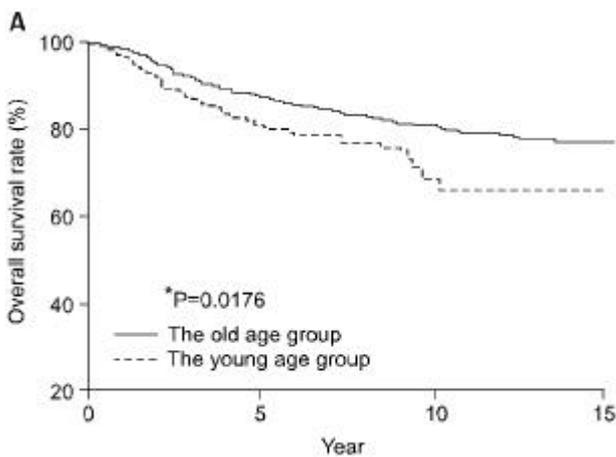
\*MRM = modified radical mastectomy; <sup>†</sup>QA = quadrantectomy with axillary lymph node dissection; <sup>‡</sup>SM = simple mastectomy; <sup>§</sup>NS = not significant.

**Table 2.** Pathologic characteristics and age groups

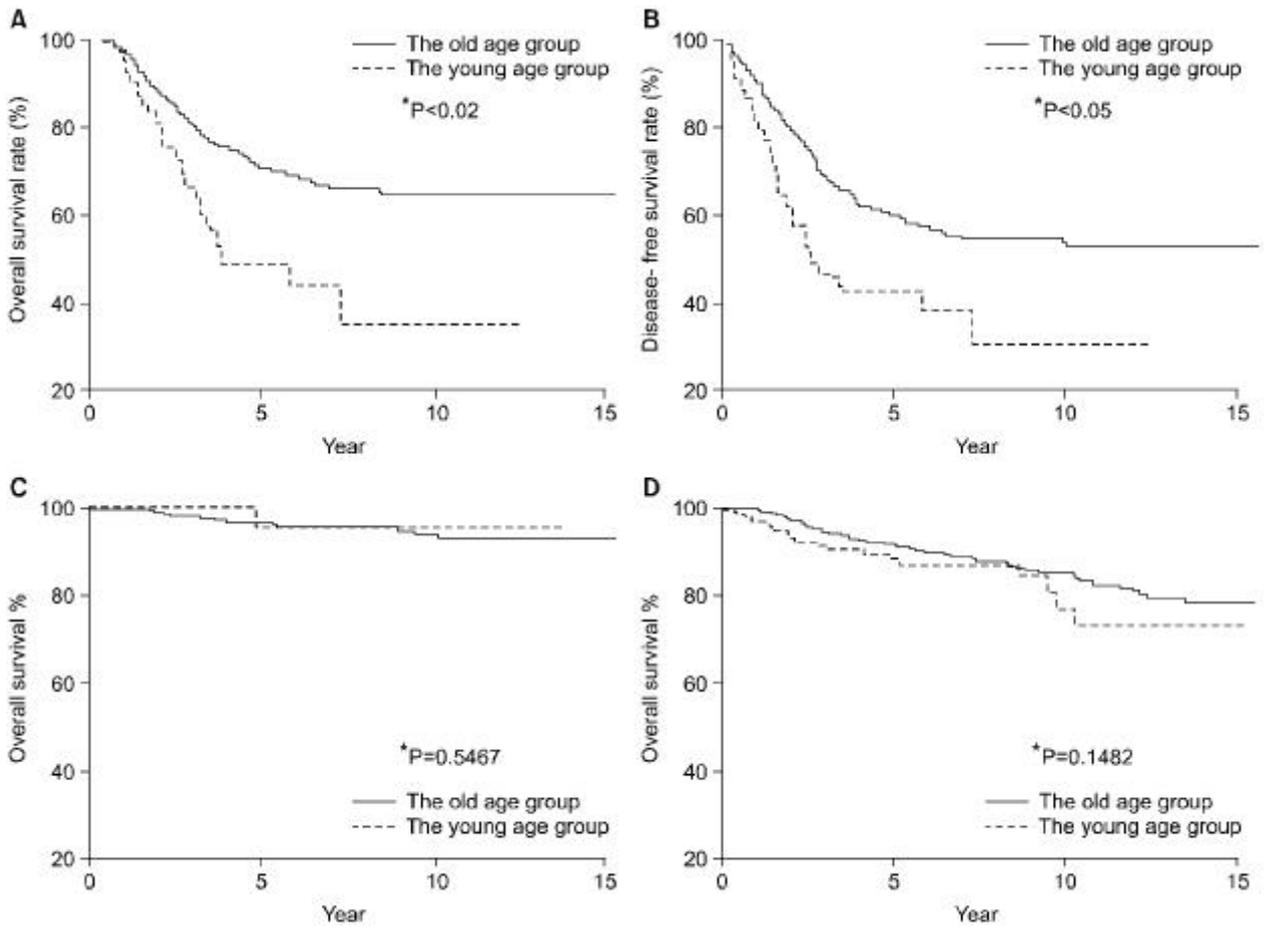
	Cases in young age (< 35) group (%)	Cases in old age (> 35) group (%)	P-value
Nuclear grade	n=127	n=434	*NS
1	64 (50.4)	203 (46.7)	
2	56 (44.1)	204 (47.0)	
3	7 (5.5)	27 (6.2)	
Histologic grade	n=115	n=399	NS
I	9 (7.8)	58 (14.5)	
II	57 (49.6)	169 (42.4)	
III	49 (42.6)	172 (43.1)	
Estrogen receptor (+)	n=136	n=627	NS
+	67 (49.3)	280 (44.7)	
Progesterone receptor (+)	n=52	n=252	NS
+	52 (43.3)	252 (50.3)	
p53 (+)	n=102	n=399	0.025
+	60 (58.8)	185 (46.4)	
c-erbB-2 (+)	n=155	n=1290	NS
+	71 (45.8)	539 (41.8)	
bcl-2 (+)	n=125	n=1072	NS
+	69 (55.2)	634 (59.1)	
<sup>†</sup> EIC (+)	n=275	n=1344	0.000
+	29 (10.5)	39 (2.9)	
Histology	n=306	n=1476	
IDC	249 (81.4)	1,209 (81.9)	NS
DCIS	15 (4.9)	62 (4.2)	NS
Medullary ca.	17 (5.6)	43 (2.9)	0.048
Papillary ca.	1 (0.3)	15 (1.0)	0.014
Others	24 (7.8)	147 (10.0)	NS

\*NS = not significant; <sup>†</sup>EIC = extensive intraductal component.

5.6%, 2.9%  
(P=0.048),  
1.0%  
p-53  
60 (58.8%)  
(P=0.025),  
intraductal component, EIC)  
29 (10.5%) 39 (2.9%)  
, bcl-2  
3)  
1 170 42  
1 195  
51  
(Fig. 1A)  
50 (16.34%) 5 76.8%, 10  
60.9% . 226 (14.49%),  
5 83.7%, 10 71.4%  
(P=0.0176).  
(Fig. 1B)  
89 (29.08%) . 5 62.9%, 10  
49.3% 351 (23.78%), 75.0%, 59.7%  
(P=0.0002).  
TMN  
p53, C-erbB2,  
TNM  
III

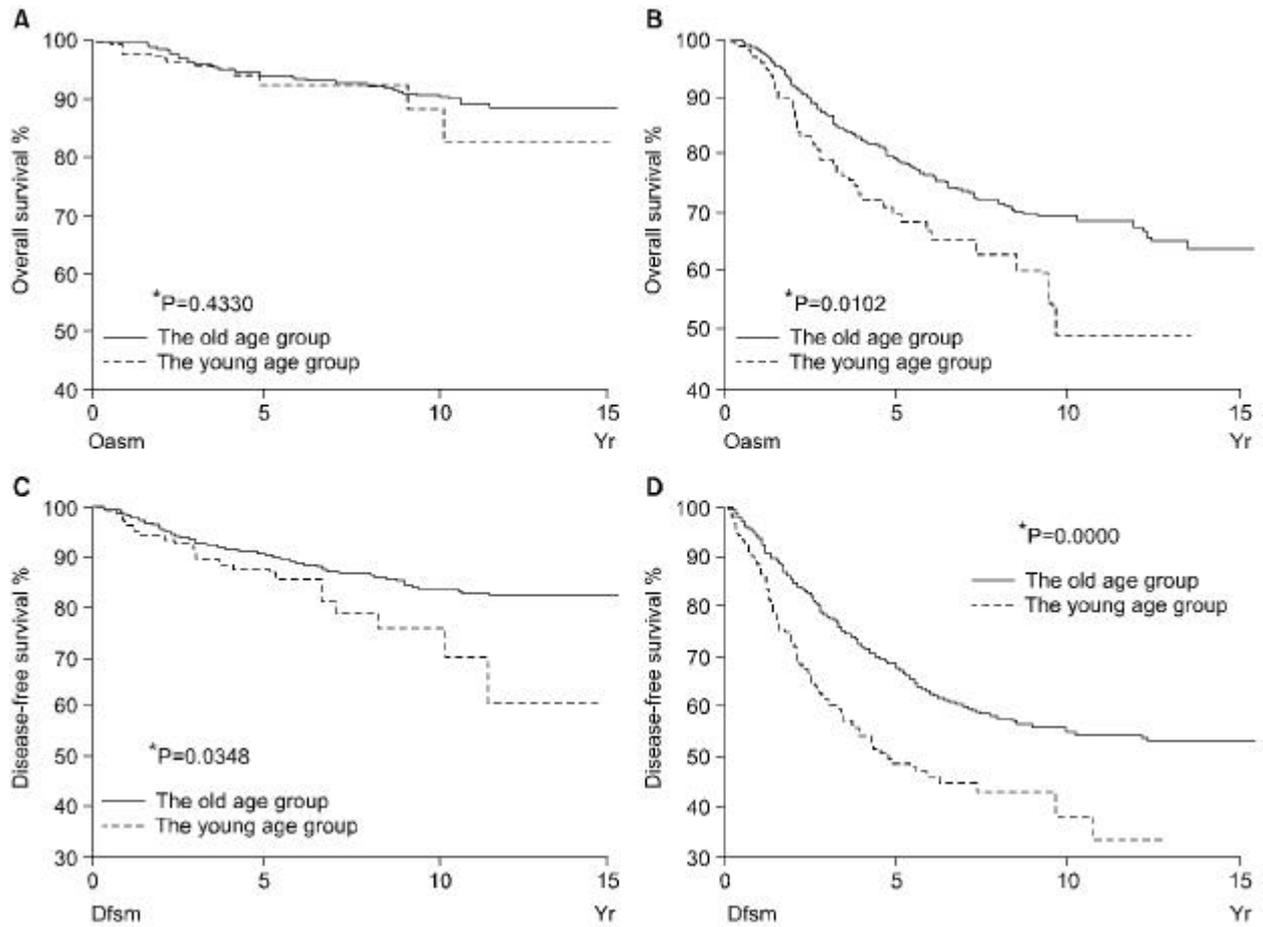


**Fig. 1.** (A) Overall survival rate between young and old age group. (B) Disease-free survival rate between young and old age group.



**Fig. 2.** (A) Overall survival rate of the TNM III stage breast cancer. (B) Disease-free survival rate of the TNM III stage breast cancer. (C) Overall survival rate of the TNM I stage breast cancer. (D) Overall survival rate of the TNM II stage breast cancer.

5 48.3%, 10 27.0% (P > 0.05).  
 68.3%, 59.2% (P < 0.02). III  
 5  
 45.7%, 10 25.4% Black 1 (P=0.0063)(Fig. 4C),  
 57.5%, 50.1% (P 가 .2 3  
 < 0.05)(Fig. 2A, 2B). (P  
 > 0.05)(Fig. 2C, 2D). , p53, C-erbB2, 가 (P > 0.05)  
 (Fig. 3). 가  
 (P=0.433) 가  
 (P=0.0348)(Fig. 3A, 3B), 가  
 (P=0.0102, P=0.000)(Fig. 3C, 3D). Cox's regression (Table 3).  
 가 (P=0.197),  
 N (P=0.009).  
 (P=0.0035, P=0.000)(Fig. 4A, 4B)



**Fig. 3.** (A) Overall survival rate between young and old age group in LN (-) breast cancer. (B) Overall survival rate between young and old age group in LN (+) breast cancer. (C) Disease-free survival rate between young and old age group in LN (-) breast cancer. (D) Disease-free survival rate between young and old age group in LN (+) breast cancer.

(8,10). 가 가

(7)

가 가

가 (4,7,8)

35

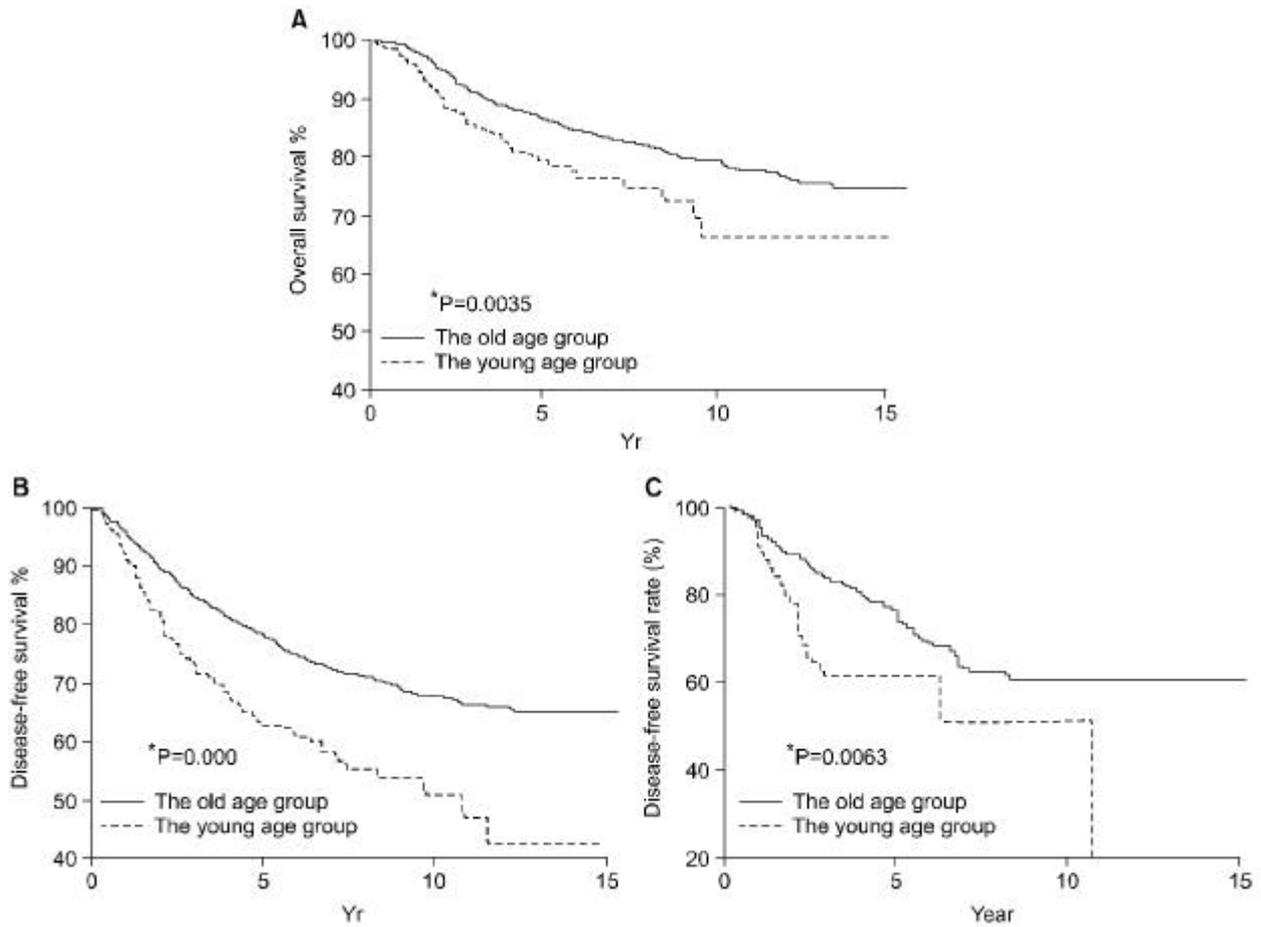
35

가

30 (9) 가 (11).

가 가

가



**Fig. 4.** (A) Overall survival rate between young and old age group in Intraductal ca. (B) Disease-free survival rate between young and old age group in Intraductal ca. (C) Disease-free survival rate between young and old age group in the nuclear grade I.

**Table 3.** The multivariate analysis of factors influencing survivals between young and old age breast cancer patient

Variables	P-value	*Exp (B)	95% CI <sup>†</sup> for Exp(B)	
			Lower	Upper
T stage	.198	1.356	.852	2.158
N stage	.009	2.048	1.200	3.495
Nuclear grade	.141	.533	.231	1.232
Histologic grade	.939	.969	.440	2.137
ER <sup>‡</sup>	.980	1.011	.426	2.401
PR <sup>§</sup>	.354	1.528	.624	3.742
P53	.648	.838	.392	1.792
C_ERBB2	.479	1.314	.616	2.804
EIC	.780	1.198	.338	4.249
AGE	.197	.566	.239	1.344

\*Exp (B) = Odds ratio; <sup>†</sup> CI = confidence intervals; <sup>‡</sup> ER = Estrogen receptor; <sup>§</sup> PR = Progesterone receptor; EIC = extensive intraductal component.

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(8), 1998 Elkhuzen (2)  
T  
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2000 (7) 35  
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가  
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NSABP  
B-13(12) B-14(13)  
, 1998

NSABP P1

(14)

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35

35

가

TNM III

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T3

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가

가

TNM III, IV p53  
(extensive intraductal component, EIC)

가

, Bergman-Jungstrom (19) CYP17  
(single nucleotide polymorphism)

, TNM III

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35

TNM

III

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1991 Thomas

(16) 35

TNM II

TNM

III

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stage

, p-53

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(3).

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(16)

(5,17)

(17)

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(5,17) p-53

(18)

가

(17)

TNM

Black

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