

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.

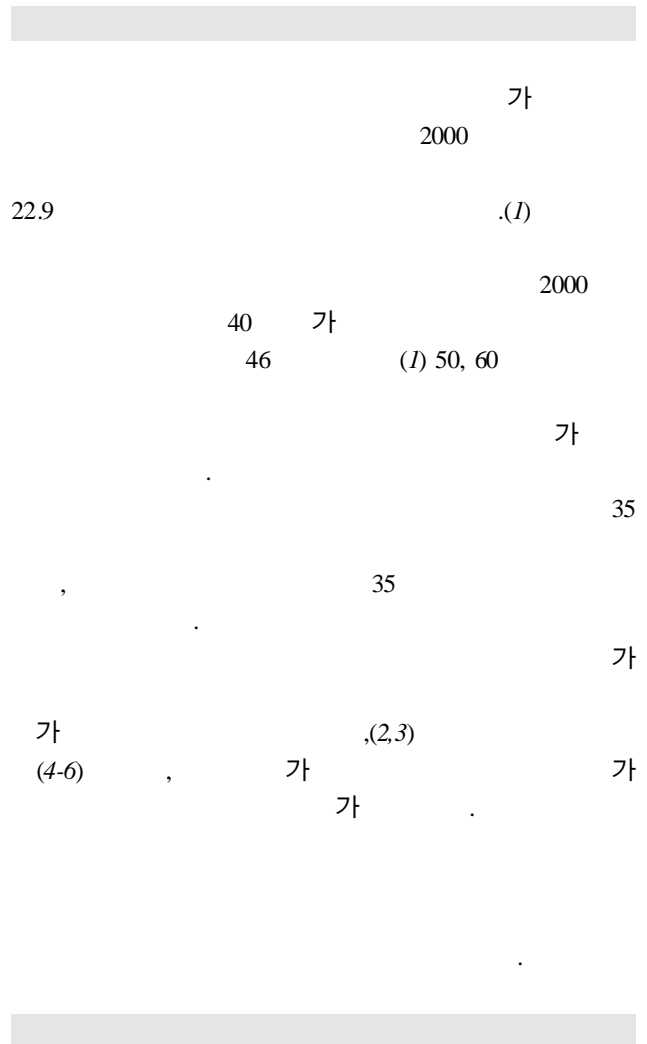
Results: The ages ranged from 17 to 88 years. 306 patients (17.3%) were included in the young age group (median age=32 years) and 1,476 (82.7%) in the old age group (median age=47 years). The median follow-up period was 42 and 51 months in young and old age groups, respectively. Histologically, a medullary 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)

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%

SPSS 10.0 for Windows

Chi-square

student t-test

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 [§] |
| Operation | n=306 | n=1470 | NS |
| MRM* | 241 (78.8) | 1206 (82.0) | |
| QA [†] | 34 (11.1) | 147 (10.0) | |
| SM [‡] | 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; [†]QA = quadrantectomy with axillary lymph node dissection; [‡]SM = simple mastectomy; [§]NS = not significant.

Log-Rank regression
Kaplan-Meier
Cox's regression
P 0.05
1)
1,672
35
(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%)

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) | | |
| [†] 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; [†]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

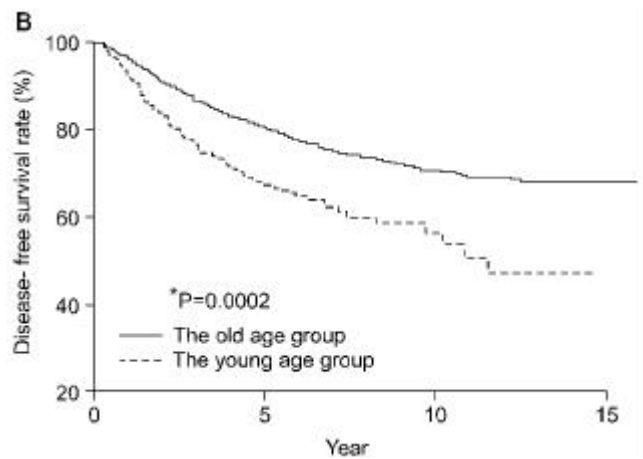
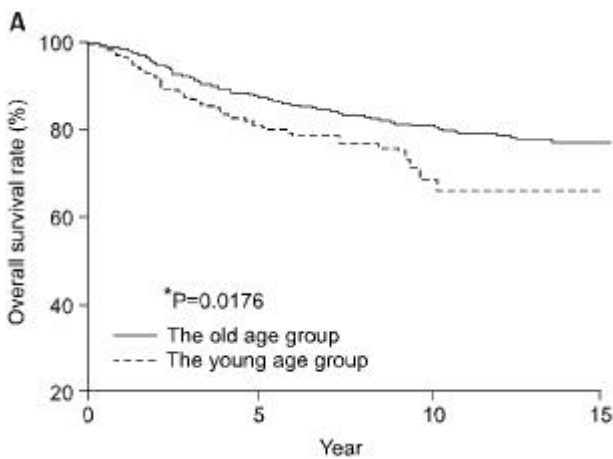


Fig. 1. (A) Overall survival rate between young and old age group. (B) Disease-free survival rate between young and old age group.

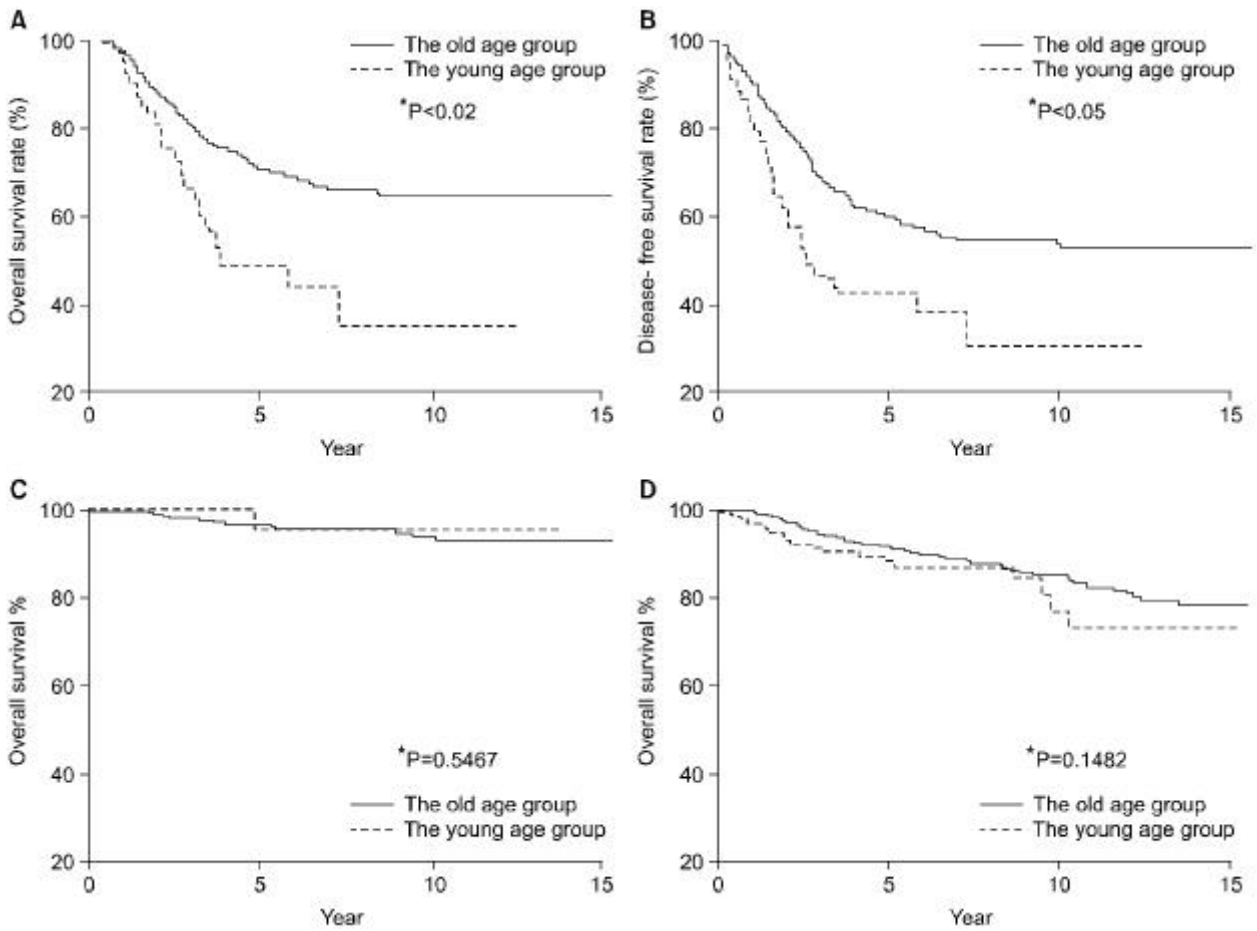


Fig. 2. (A) Overall survival rate of the TNM III stage breast cancer. (B) Disease-free survival rate of the TNM III stage breast cancer. (C) Overall survival rate of the TNM I stage breast cancer. (D) Overall survival rate of the TNM II stage breast cancer.

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)

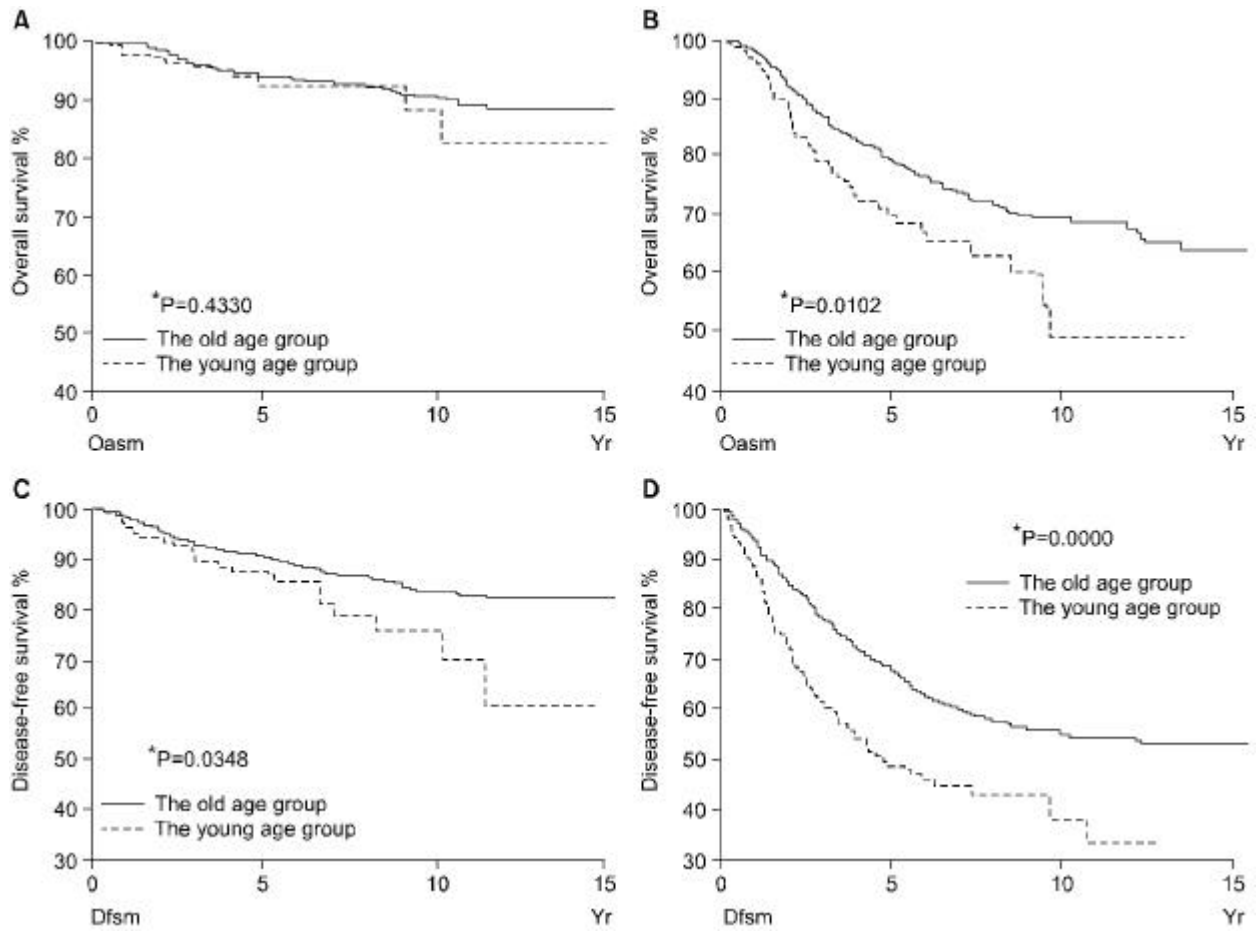
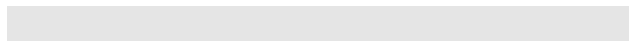


Fig. 3. (A) Overall survival rate between young and old age group in LN (-) breast cancer. (B) Overall survival rate between young and old age group in LN (+) breast cancer. (C) Disease-free survival rate between young and old age group in LN (-) breast cancer. (D) Disease-free survival rate between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



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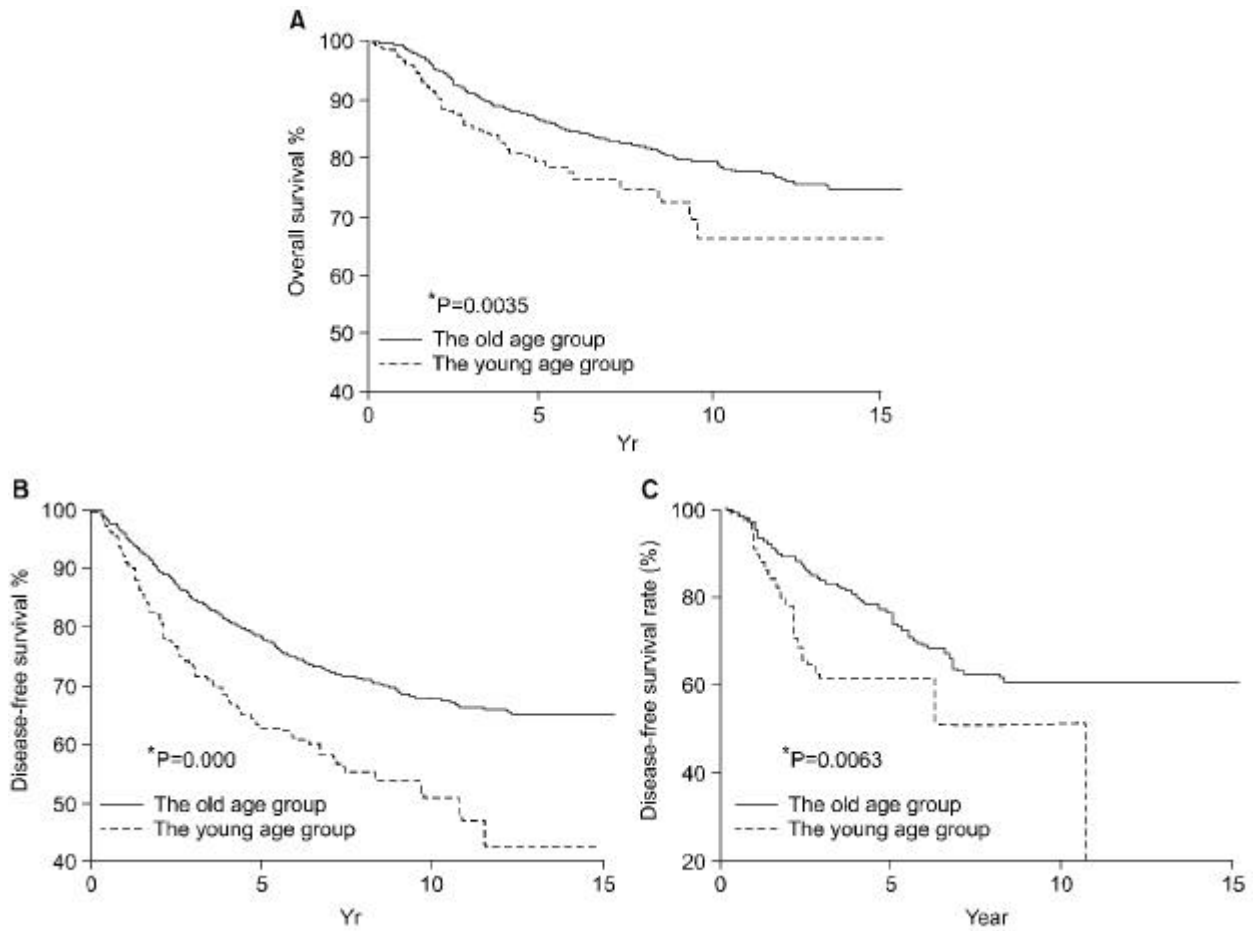


Fig. 4. (A) Overall survival rate between young and old age group in Intraductal ca. (B) Disease-free survival rate between young and old age group in Intraductal ca. (C) Disease-free survival rate between young and old age group in the nuclear grade I.

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

| Variables | P-value | *Exp (B) | 95% CI [†] 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 [‡] | .980 | 1.011 | .426 | 2.401 |
| PR [§] | .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; [†] CI = confidence intervals; [‡] ER = Estrogen receptor; [§] PR = Progesterone receptor; EIC = extensive intraductal component.

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

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

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(5,17) p-53

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