

The histopathologic profile of pregnancy associated breast cancer;
a particularly aggressive breast cancer subtype.
Analysis of the nationwide Dutch Pathology Registry (PALGA)



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Introduction

- Breast cancer is the most common type of cancer diagnosed in pregnant women.
- Pregnancy associated breast cancer (PABC) accounts for 3.8% of all breast cancers.
- Whether these cancers arise before or during pregnancy, and whether they are stimulated by the high hormonal environment of pregnancy, is currently unknown.

Objectives

- Assessing the histopathologic profile of PABC patients versus age-matched non-pregnant breast cancer patients.

Methods

- Pregnant women with breast cancer during (or \leq six months after pregnancy) diagnosed between 1988-2019 in the nationwide Dutch Pathology Registry (PALGA).
- Age-matched PALGA control cohort of unselected patients (\leq 45 years), diagnosed between 2013- 2016.
- Histopathologic features of both cohorts were compared.

Results

	PABC patients (n= 741)	Non-PABC patients (n= 741)	p-value
Median Age (years)	34.0 (19-45)	34.0 (19-45)	n.a.
Histologic subtype <ul style="list-style-type: none">DuctalLobularOther	707 (95.4%) 22 (3.0%) 12 (1.6%)	670 (90.4%) 31 (4.3%) 40 (5.4%)	0.000
Histologic grade <ul style="list-style-type: none">Grade IGrade IIGrade IIIUnknown	11 (1.5%) 124 (16.9%) 595 (80.3%) 11 (1.5%)	92 (12.4%) 232 (31.3%) 293 (39.5%) 124 (16.7%)	0.000
ER-receptor status <ul style="list-style-type: none">NegativePositiveUnknown	393 (53.0%) 288 (38.9%) 60 (8.1%)	210 (28.3%) 505 (68.2%) 26 (3.5%)	0.000
PR-receptor status <ul style="list-style-type: none">NegativePositiveUnknown	415 (56.0%) 251 (33.9%) 75 (10.1%)	277 (37.4%) 437 (59.0%) 27 (3.6%)	0.000
HER2-receptor status <ul style="list-style-type: none">NegativePositiveUnknown	483 (65.2%) 149 (20.0%) 109 (14.7%)	560 (75.6%) 141 (10.0%) 40 (5.4%)	0.000
Surrogate intrinsic subtypes <ul style="list-style-type: none">Triple positive (ER+, PR+, HER2+)Triple negative (ER-, PR-, HER2-)ER/PR-driven (ER+ and/or PR+, Her2+/-)	63 (8.5%) 284 (38.3%) 318 (47.0%)	89 (12.0%) 163 (22.0%) 511 (71.5%)	0.026 0.000 0.000

Gestational age	PABC-patients (n=741)
First trimester	179 (24.2%)
Second trimester	111 (15.0%)
Third trimester	260 (35.1%)
Postpartum*	94 (12.7%)
Lactating	83 (11.2%)
Unknown	14 (1.9%)
*Up to six months after delivery	

- There were no differences in grade or hormone-receptor status between the various stages of pregnant and post-partum PABC patients

Conclusions

- More aggressive histopathologic profile in PABC patients compared to age-matched non-pregnant breast cancer patients.
- RNA-and DNA sequencing of breast tumors will be conducted to unravel the genetic background and find opportunities for prevention of breast cancer during pregnancy and optimal treatment.

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