Pathological Complete Response and Surgical Outcome, in a Brazilian Cohort

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Abstract

Breast cancer (BC) treatment is multimodal, based on surgery, chemotherapy (CT), hormone therapy, and radiotherapy, and is constantly developing. Historically, the indication for neoadjuvant chemotherapy (NACT) was related only to making inoperable tumors operable.

Objectives and Methods: To evaluate Brazilian patients undergoing NACT, analyzing the CT performed, pathological complete response rate (pCR) and surgical outcomes, the latter particularly in the HER2 positive (+) and Triple Negative (TN) population. Retrospective study.

Results: A total of 1618 female patients were included. The pCR occurred in 38.3% of cases. Today, 80.1% were alive without disease, 20.6% showed progression and 11.4% died of BC.

Conclusion: The reproduction of NACT regimens carried out in pivotal studies in the general population achieves comparable results in terms of pCR and contributes to promoting more BCS (breast conservative surgery), especially in the TN/HER2 + group.

Introduction

NACT is a treatment strategy for locally advanced tumors and even for operable tumors in situations that can determine prognosis, modify adjuvant treatment and reduce surgical intensity. The achievement of pCR after NACT in HER2+/TN tumors has reached rates between 40-60%, being directly related to the prognosis of these tumors.

Methods and Materials

Retrospective study. Patients with non-metastatic invasive BC treated with NACT and surgery diagnosed between 2007-2023 were evaluated.

The collected data were entered into a database built in the institutional REDCap® (Research Electronic Data Capture) system, allowing the sharing of information between institutional research groups according to data protection and security rules.
Ethical approval nº3772/24.

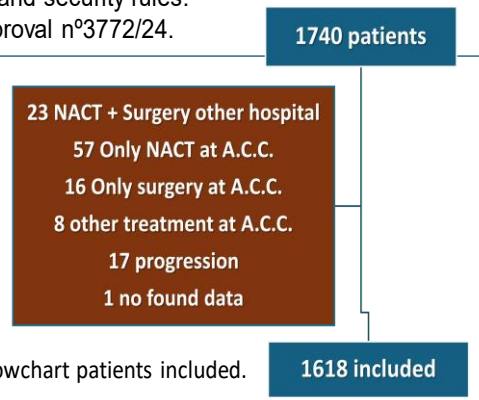


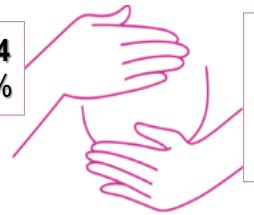
Figure 1. Flowchart patients included.

Results

A total of 1,618 female patients were included, median age at diagnosis 46. The most frequent tumor subtype was luminal B (38.4%), followed by Her2 + (29.5%, including luminal) and TN (27.4%).

Locally advanced tumors

T3-T4
53.5%



67.2% cN+:
cN1 45.2%
cN2 16.1%
cN3 5.9%

Breast surgeries:
33.9% conservative (BCS)
61.4% mastectomies
4.7% nipple-sparing.



Axillary surgeries:
38.0% sentinel lymph node biopsies (SLNB)
67.1% lymphadenectomies (LA)

Table 1. Pathologic response by sub-group.

Treatment/subtypes	n	pCR	RCB 1	RCB 2	RCB 3
cT / pertuzumab + trastuzumab	236	63.6%	13.1%	22.9%	8.9%
cT / trastuzumab	175	53.1%	11.4%	22.9%	12.6%
NACT alone (to TN)	322	50.6%	8.7%	26.7%	14.0%
NACT/pembrolizumab (to TN)	86	58.1%	15.1%	22.1%	4.7%
Luminal A	48	4.2%	6.3%	47.9%	41.7%
Luminal B	584	16.6%	9.2%	45.2%	28.9%

The pCR occurred in 38.3% of cases, but was higher depending on the treatment modality **(table 1)**. The high-volume disease also influenced the pCR:

pCR p<0.05
N1 16.4%
N3 1.6%

BCS p<0.05
TN group 11.7% / Luminal 0.4%

BCS p<0.05
HER2+ / DTT* 23.6%
HER2+ / Trastuzumab 12.2%

*double target therapy (DTT)

SLNB p<0.05
HER2+ / Trastuzumab 14.7%
HER2+ / DTT* 27.6%





Of the total patients:
11.4% died of BC
20.6% showed progression
80.1% were alive without disease

Discussion

Achieving a pCR is one of the objectives of NACT, especially for TN/HER2 + tumors with an impact on survival **(1)** and on the definition of adjuvancy. Another objective is to promote BCS; in our series, it was also higher in the TN group than Luminal group. Mattar et al. **(2)** evaluated brazilian patients treated with NACT and showed an overall pCR rate of 22.7%, lower than in this study (38.3%), probably due to the disparity in access between public and private treatments in Brazil. Our pCR rate was higher than in other studies published in LatinAmerica, ranging from 24.1% to 28.1% **(5,6)**. Anti-HER2 DTT started 2015; we observed in our series an increase in pCR of 11%, and after the approval of pembrolizumab, an absolute increase of 8% in pCR of TN, a fact that contributes to the higher number of BCS.

Conclusions

The reproduction of NACT regimens carried out in pivotal studies in the general population achieves comparable results in terms of pCR and contributes to promoting more BCS, especially in TN/HER2 + group.

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