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Abstract #1841

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# Efficacy of neoadjuvant carboplatin therapy in triple-negative breast cancer (TNBC)

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## Introduction and Aim of the Study

Guidelines recommend broad use of carboplatin (CBDCA) for neoadjuvant therapy (NACT) of patients with early triple negative breast cancer (TNBC). The aim of this prospective observational study was to assess efficacy and feasibility of CBDCA-containing neoadjuvant therapy in clinical routine.

## Patients and Treatment

Patients who received NACT for early TNBC (n=153) were consecutively enrolled between 2000 and 2021, either treated with dose-dense epirubicin-cyclophosphamide (ddEC) followed by taxanes (n=62); CBDCA-taxane combination followed by ddEC (50), CBDCA-taxane combination, no anthracyclines (n=27), other chemotherapy regimen (n=14) (updated to the abstract).

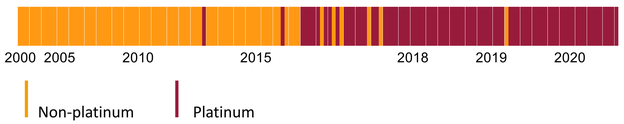



**Fig. 1: Patient inclusion with and without platinum**

**Tab. 1: Selected patients and tumors characteristics**

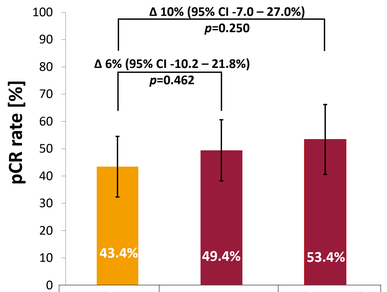
| | Platinum n=77 (100%) | Non-platinum n=78 (100%) |
|---|---|---|
| **Age** | | |
| **< 35 yrs** | 11 (14.3%) | 5 (6.6 %) |
| **35 - 50 yrs** | 20 (26.0%) | 21 (27.6 %) |
| **50 - 75 yrs** | 40 (51.9%) | 44 (57.9 %) |
| **> 75 yrs** | 6 (7.8%) | 6 (7.9 %) |
| **Tumor size at time of diagnosis (cT) *** | | |
| **< 2 cm** | 31 (40.3%) | 10 (13.2 %) |
| **2 - 5 cm** | 40 (51.9%) | 52 (68.4 %) |
| **≥ 2** | 6 (7.8%) | 14 (18.4 %) |
| **Nodal status at time of diagnosis (cN, in part pN)** | | |
| **Negative** | 47 (61.0%) | 39 (51.3 %) |
| **Positive** | 30 (39.0%) | 37 (48.7 %) |
| **Grading *** | | |
| **G1** | 0 (0 %) | 3 (3.9 %) |
| **G2** | 18 (23.4%) | 36 (47.4 %) |
| **G3** | 59 (76.6%) | 36 (47.4 %) |
| **NA** | 0 (0 %) | 1 (1.3 %) |

* significantly different in the two groups

## Primary and Secondary Objectives

Primary objective was the pCR rate (ypT0 N0) in the different treatment groups. Secondary objectives were toxicity, therapy adherence, cancer associated recurrences and clinical outcome (EFS, OS).

## Results (1)




| | non-platinum | intention to treat with platinum | platinum all intended cycles |
|---|---|---|---|
| Number (n) | 76 | 77 | 58 |
| EFS events (n) | 15 | 6 | 2 |

**Fig. 2: pCR rates in treatment groups**

Half of the patients (n=77) were treated with CBDCA, 74% of them received the complete intended cycles, if necessary with primary GCSF-support.

**Tab. 2:Therapy discontinuation**

| Cause for discontinuation of platinum therapy | n |
|---|---|
| Neutropenia, thrombopenia and/or anaemia | 10 |
| Patient´s choice | 3 |
| Progressive disease | 2 |
| Polyneuropathia | 1 |
| General condition | 1 |
| Gastroenteritis | 1 |
| Cardiological treatment | 1 |
| Exanthema | 1 |

**Tab. 3: Clinical response to NACT**

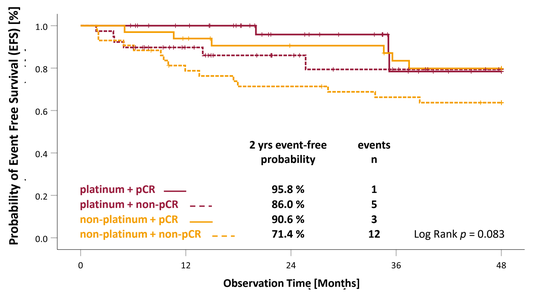
| First event | Platinum (Med. F/U 21.7 m) | Non-platinum (Med. F/U 72.7 m) |
|---|---|---|
| Progressive disease under NACT | 3 | 5 |
| Locoregional recurrence | 1 | 9 |
| Contralateral cancer | 0 | 4 |
| Metastasis | 2 | 13 |
| Secondary cancer | 5* | 1** |
| Death | 0 | 2 |

* AML, CRC, lung cancer, melanoma, pancreatic cancer

** Skin sarcoma

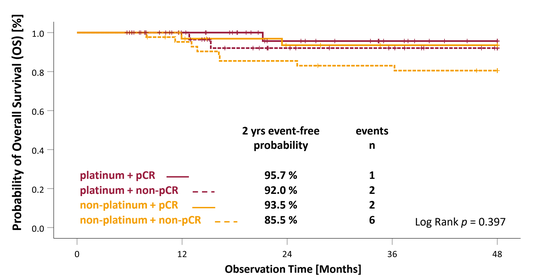
## Results (2)

A




| No. at risk | 153 (100%) | 120 (78.3%) | 90 (58.8%) | 68 (44.4%) | 54 (35.3%) |
|---|---|---|---|---|---|
| platinum + pCR | 38 | 33 | 20 | 9 | 4 |
| platinum + non-pCR | 39 | 25 | 15 | 10 | 4 |
| non-platinum + pCR | 33 | 30 | 26 | 23 | 22 |
| non-platinum + non-pCR | 43 | 32 | 29 | 26 | 24 |

B




| No. at Risk | 153 (100%) | 131 (85.6%) | 97 (63.4%) | 79 (51.6%) | 66 (43.1%) |
|---|---|---|---|---|---|
| platinum + pCR | 38 | 31 | 19 | 10 | 5 |
| platinum + non-pCR | 39 | 30 | 16 | 11 | 5 |
| non-platinum + pCR | 33 | 31 | 27 | 25 | 25 |
| non-platinum + non-pCR | 43 | 39 | 35 | 33 | 31 |

**Fig. 3: Survival estimates for EFS (A) and OS (B)**

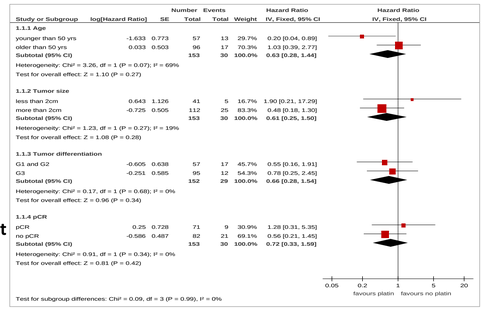



**Fig. 4: Forest plot for the effect of NACT on EFS**

## Results (3)

**Tab. 4: Multivariate analysis of EFS, iDFS, and OS**

| | | Univariate analysis | | | Multivariate analysis | | |
|---|---|---|---|---|---|---|---|
| | | HR | 95% CI | *p*-value | HR | 95% CI | *p*-value |
| **Event Free Survival (30 events)** | | | | | | | |
| **Age** | ≤ 50 yrs vs > 50 yrs | 1.340 | 0.650-2.761 | 0.427 | | | |
| **Tumor size** | ≥ 2 cm vs < 2cm | 1.858 | 0.710-4.858 | 0.207 | | | |
| **Nodal status** | pos vs neg | 1.586 | 0.770-3.267 | 0.211 | | | |
| **Grading** | G1 + G2 vs G3 | **2.007** | **0.956-4.211** | **0.066** | 1.566 | 0.718-3.417 | 0.260 |
| **pCR** | non-pCR vs pCR | **2.311** | **1.058-5.049** | **0.036** | 1.941 | 0.866-4.352 | 0.107 |
| **Therapy** | Platinum vs non-platinum | 0.556 | 0.252-1.225 | 0.145 | 0.680 | 0.300-1.541 | 0.355 |
| **Invasive Disease Free Survival (26 events)** | | | | | | | |
| **Age** | ≤ 50 yrs vs > 50 yrs | 1.535 | 0.709-3.321 | 0.277 | | | |
| **Tumor size** | ≥ 2 cm vs < 2cm | 1.492 | 0.562-3.963 | 0.422 | | | |
| **Nodal status** | pos vs neg | **2.402** | **1.070-5.391** | **0.034** | **2.183** | **0.963-4.950** | **0.061** |
| **Grading** | G1 + G2 vs G3 | **2.040** | **0.914-4.554** | **0.082** | 1.876 | 0.817-4.308 | 0.138 |
| **pCR** | non-pCR vs pCR | 1.780 | 0.793-3.995 | 0.162 | | | |
| **Therapy** | Platinum vs non-platinum | 0.629 | 0.270-1.465 | 0.283 | 0.832 | 0.345-2.005 | 0.683 |
| **Overall survival (13 events)** | | | | | | | |
| **Age** | ≤ 50 yrs vs > 50 yrs | 1.444 | 0.485-4.301 | 0.509 | | | |
| **Tumor size** | ≥ 2 cm vs < 2cm | 1.985 | 0.440-8.962 | 0.373 | | | |
| **Nodal status** | pos vs neg | **4.017** | **1.105-14.598** | **0.035** | **3.702** | **1.017-13.475** | **0.047** |
| **Grading** | G1 + G2 vs G3 | 1.573 | 0.527-4.690 | 0.417 | | | |
| **pCR** | non-pCR vs pCR | **3.191** | **0.878-11.598** | **0.078** | 2.904 | 0.797-10.572 | 0.106 |
| **Therapy** | Platinum vs non-platinum | 0.410 | 0.112-1.499 | 0.178 | 0.497 | 0.136-1.817 | 0.290 |

## Conclusion

Similar to the results of the prospective BrighTNess-trial, we demonstrate in our prospective cohort, that the addition of Carboplatin to neoadjuvant chemotherapy for patients with TNBC was highly effective. Our data support the current recommendations to include Carboplatin in neoadjuvant therapy for TNBC.

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