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Primary Surgery vs. Neoadjuvant Chemotherapy in Advanced Ovarian, Tubal, and Peritoneal Carcinoma: Real-World Evidence from a Cancer Registry

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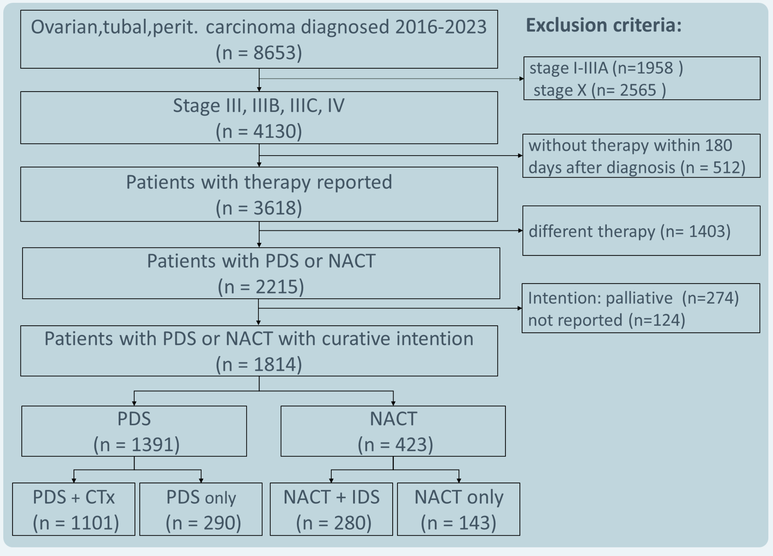
Background

- **Standard:** Primary debulking surgery (PDS) + chemotherapy (CTx)
- **Alternative:** Neoadjuvant chemotherapy (NACT) + interval debulking surgery (IDS) - efficacy uncertain
- **Evidence:**
  - EORTC-GCG & CHORUS → NACT+IDS non-inferior
  - TRUST → PDS improved PFS (esp. <65 yrs, stage III), no OS benefit
- **Aim:** Compare oncologic outcomes of NACT vs. PDS in advanced ovarian, tubal & peritoneal carcinoma using real-world data of Baden-Wuerttemberg Cancer Registry (BWCR), Germany

Methods

- **Study type**: Cancer registry study
- **Data source**: Baden-Wuerttemberg Cancer Registry (BWCR), Germany
- **Patients**: FIGO IIIB-IV ovarian, tubal, or peritoneal carcinoma (diagnosed 2016-2023)
- **Treatment**: PDS or NACT with paclitaxel-carboplatin (+/- bevacizumab).
- **Statistics**: Fisher's exact/chi-square test; Kaplan-Meier and Cox models.
- **Endpoints**:
  - Primary – Overall survival (OS), progressive-free survival (PFS)
  - Secondary - surgical outcomes (macroscopic complete resection (CR) vs. residual disease) and 90-day postoperative mortality.

Fig. 1: Consort Diagram



- **No surgery after NACT**: 143 (33.8%) patients.
- **No adjuvant CTx after PDS**: 290 (20.8%) patients

Results

Table 1: Patient characteristics

	Overall	NACT	PDS	P - value
Total – no. (%)	1814	423 (23.3)	1391 (76.7)	
Age – mean (SD)	64.0	66.0	64.0	0.036
stage – no. (%)				0.38
▪ III	1243 (68.5)	282 (66.7)	961 (69.1)	
▪ IV	571 (31.5)	141 (33.3)	430 (30.9)	
grade – no. (%)				0.176
▪ 1-2	147 (8.4)	27 (6.6)	120 (8.9)	
▪ 3	1610 (91.6)	381 (93.4)	1229 (91.1)	
Localisation – no. (%)				<0.001
▪ Ovar	1512 (83.4)	352 (83.2)	1160 (83.4)	
▪ Fallopian tube	218 (12.0)	34 (8.0)	184 (13.2)	
▪ Peritoneum	84 (4.6)	37 (8.7)	47 (3.4)	

Baseline characteristics:

- Well balanced between treatment groups
- Stage IV disease: 28.8% of the cohort.

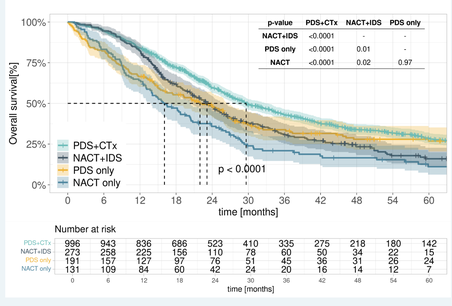
Table 2: Oncological Outcomes

	Overall	NAT	PDS	P - value
90d mortality – no. (%)	54 (3.0)	4 (0.9)	50 (3.6)	0.008
Residual disease – no.(%)				0.018
▪ CR	927 (66.2)	183 (73.8)	744 (64.6)	
▪ Microscopic residual	243 (17.4)	31 (12.5)	212 (18.4)	
▪ Macroscopic residual	230 (16.4)	34 (13.7)	196 (17.0)	

- **Complete resection rates**: Higher in NACT+IDS (73.8% vs. 64.6% (p = 0.018))
- **90-day postoperative mortality**: Significantly higher after PDS:
  - 3.6% (PDS) vs. 0.9% (NACT+IDS) (p = 0.008)

Fig. 2: Progressive free survival

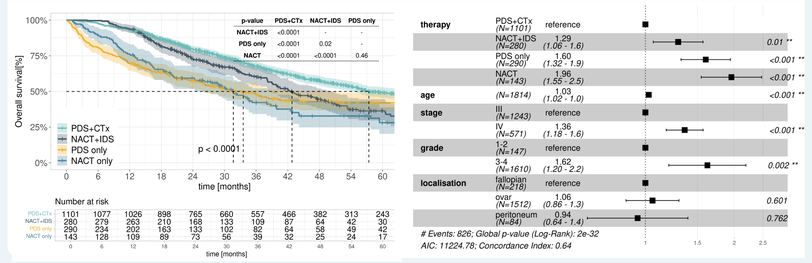
Kaplan Meier plots of PFS



- PDS+CTx → longer PFS than NACT+IDS
  - **mPFS:** 29.6 (95%CI: 27.7-33.0) vs 23.1 (95% CI: 20.6-26.1) months
- NACT without IDS → poorest PFS:
  - **mPFS:** 16.1 months (95% CI: 13.9.-20.4)
- PDS only / NACT+IDS → similar outcomes
  - **mPFS**: 22.0 (95% CI: 16.5-26.4) vs 23.1 (95% CI: 20.6-26.1) months

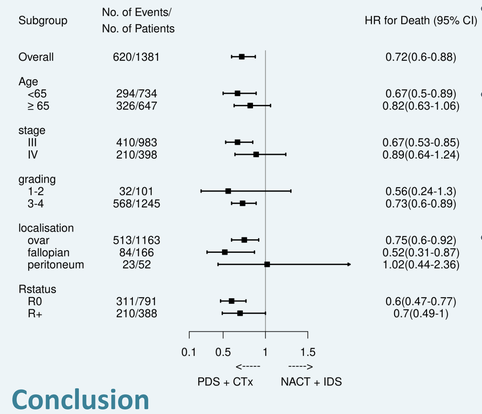
Fig. 3: Overall Survival

A. OS: Kaplan Meier and multivariate Cox model



- median follow-up: 53.6 months
- PDS+CTx was associated with longer OS compared to NACT+IDS:
  - **mOS:** 57.4 vs 42.8 months (p=0.01)
- **Poorer outcomes** were observed in patients receiving NACT without subsequent IDS and patients with PDS only:
  - **mOS:** 32 (33.6) months (p<0.0001)
- **Independent prognostic factors**:
  - age (HR 1.03, 95%CI 1.02-1.04), tumor grade (HR 1.6, 95%CI 1.2-2.2), and stage (HR 1.36, 95% CI 1.2-1.6)

B. PDS+CTx vs. NAT+IDS: Subgroup-analysis



- PDS+CTx: improved OS in the total cohort:
  HR 0.72, 95%CI 0.6-0.88
- Strongest benefit:
  - patients <65 years
    HR 0.67, 95%CI 0.5-0.9
  - stage III disease
    HR 0.67, 95%CI 0.5-0.85
- No significant benefit:
  - Patients older 65 years:
    HR 0.82, 95%CI 0.6-1.06
  - Stage IV disease
    HR 0.89, 95%CI 0.6-1.2

Conclusion

- **Key determinant of outcome** is treatment pathway completion; failure to complete multimodal therapy predicts the poorest prognosis.
- **NACT+IDS** achieved higher complete resection rates and lower 90-day mortality, but patients without subsequent surgery had poor outcomes.
- **PDS** provided a survival benefit in patients under 65 years and with stage III disease, while outcomes were similar in older patients and those with stage IV disease.
- Real-world data from state-run cancer registries help bridge the gap between clinical trials and daily oncology practice, supporting treatment decisions in real-world settings.

Conflict of interest : No conflict of interest

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