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Real-World Treatment Landscape of Stage III NSCLC: Comparing Cisplatin and Carboplatin in Curative-Intent Therapy

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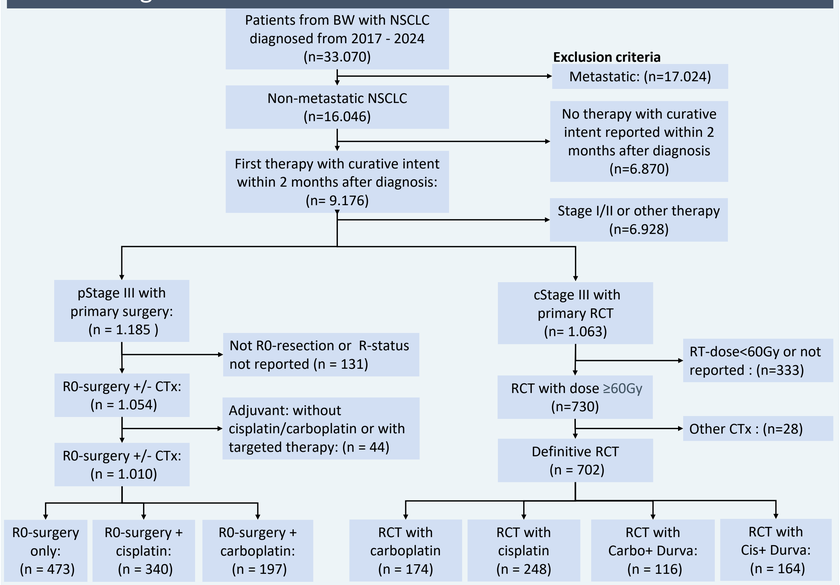
Background

- Stage III NSCLC represents a heterogeneous disease. Platinum-based chemo-therapy remains the corner stone.
- Accurate staging is essential; however, any substantial discordance between clinical and pathological staging may affect treatment allocation and outcome.
- This study uses real-world data from the Baden-Württemberg Cancer Registry (BWCR) to characterize:
  - staging accuracy in operated patients
  - outcomes of major curative-intent treatments in stage III NSCLC

Methods

- Retrospective, registry-based cohort study used data from the BWCR
- Patients aged ≥18 years with non-metastatic NSCLC diagnosed 2017- 2024
- **Discordance analysis:**
  - Patient-level comparison of clinical and pathological stage
  - Concordance defined as identical stage
- Two cohorts based on guideline-recommended curative-intent treatment:
  - **Surgery cohort**: primary resection with pathological stage III disease
  - **Definitive chemoradiotherapy cohort (RCT)**: clinical stage III disease treated with radiotherapy + concurrent chemotherapy
- The primary endpoint was overall survival (OS), assessed using Kaplan-Meier and Cox models, adjusted for age, sex, ECOG, stage and histology.

Consort diagram



- **Surgery cohort:** primary R0-resection± adjuvant platinum-based CTx
- **Definitive RCT cohort**: patients with RT-dose≥ 60Gy and platinum based CTx

Results

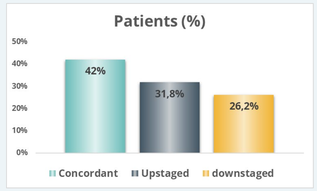
High discordance between clinical and pathological staging

- A total of 3,981 patients with available c- and p- staging were included

Table: Distribution of clinical (cStage) versus pathological staging (pStage)

pStage/cStage	IA	IA1	IA2	IA3	IB	IIA	IIB	IIIA	IIIB	IIIC
IA	13,2	16,7	15,5	11,8	1,5	2,1	0,7	0,3	0,6	0
IA1	10,5	35,5	5,2	1,1	0,8	0	0,7	0,4	0,3	0
IA2	28,9	26,8	40,9	9,9	5,9	0	2,8	2,2	0,3	0
IA3	19,1	2,9	10,6	31,3	9,9	3,1	4,1	2,9	1,9	9,5
IB	15,1	4,3	15,2	30,7	44,6	24,6	11,1	6,8	5,2	0
IIA	1,3	0	0,6	1,1	9,3	30,3	3,6	3,4	3,2	4,8
IIB	5,9	9,4	7,9	11,6	17,1	26,2	48,8	17,7	17,2	14,3
IIIA	5,3	4,3	3,9	2,4	9,8	11,8	22,2	55,4	32,1	38,1
IIIB	0,7	0	0,1	0	1,2	2,1	5,7	10,5	37,7	33,3
IIIC	0	0	0	0	0	0	0	0,1	1	0
IV	0	0	0	0	0	0	0	0,3	0,3	0
IVA	0	0	0	0,2	0	0	0,3	0	0	0

- Percentages are given per cStage
- Diagonal indicates concordance;
- off-diagonal indicates stage migration



- Only 42% of patients showed concordant staging.
- Upstaging occurred in 31.8% and down-staging in 26.2%, indicating substantial bidirectional misclassification across all stages.

Primary surgery ±platinum-based CTx: pathological stage III

Table: Baseline characteristics

Characteristic	surgery only	surgery+carbo	surgery+cis
n	473 (46.8)	197 (19.5)	340 (33.7)
Age - median	72	68	63
Sex			
m	312 (66.0)	128 (65.0)	214 (62.9)
w	161 (34.0)	69 (35.0)	126 (37.1)
Histology			
Adeno	235 (49.7)	113 (57.4)	209 (61.5)
Squamous	201 (42.5)	64 (32.5)	103 (30.3)
Others	37 (7.8)	20 (10.2)	28 (8.2)
ECOG			
0	152 (47.6)	114 (71.7)	158 (65.8)
1	149 (46.7)	42 (26.4)	76 (31.7)
2-4	18 (5.6)	3 (1.9)	6 (2.5)
pStage			
IIIA	381 (80.5)	144 (73.1)	273 (80.3)
IIIB	92 (19.5)	53 (26.9)	67 (19.7)
ICI use			
no	-	166 (84.3)	289 (85.0)
yes	-	31 (15.7)	51 (15.0)

- Surgery only:
  - significantly older and poorer ECOG
  - 7.8% 30-day mortality
- Carboplatin patients older but had better ECOG than cisplatin patients
- Adjuvant platinum-based therapy was associated with improved survival
- Cisplatin and carboplatin showed com-parable effectiveness across all groups

Overall Survival and subgroup analysis

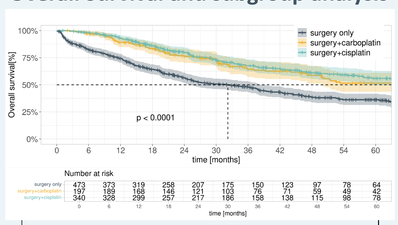
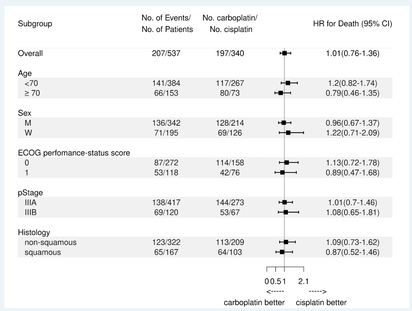


Table. OS (%) by treatment group (95% CI)

time	surgery only	surgery + carbo	surgery + cis
24 months	56%(52-61)	76%(70-83)	80%(75-84)
36 months	48%(43-53)	64%(57-72)	68%(62-73)
48 months	39%(34-44)	59%(51-67)	61%(55-67)
60 months	36%(31-42)	52%(44-61)	56%(50-63)



- Subgroup analysis: Cox models adjusted for key clinical factors and adjuvant ICI

Definitive radiochemotherapy ± durvalumab: clinical stage III

Table: Baseline characteristics

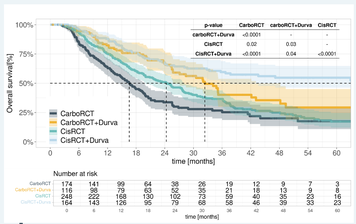
Characteristic	CarboRCT	CarboRCT+ Durva	CisRCT	CisRCT+ Durva
n	174 (24.8)	116 (16.5)	248 (35.3)	164 (23.4)
Age - median	69	69	65	64
Sex				
m	117 (67.2)	76 (65.5)	166 (66.9)	110 (67.1)
w	57 (32.8)	40 (34.5)	82 (33.1)	54 (32.9)
Histology				
Adeno	67 (38.5)	45 (38.8)	100 (40.3)	72 (43.9)
Squamous	92 (52.9)	63 (54.3)	126 (50.8)	79 (48.2)
Others	15 (8.6)	8 (6.9)	22 (8.9)	13 (7.9)
ECOG				
0	79 (51.0)	57 (55.3)	99 (55.0)	75 (52.4)
1	63 (40.6)	41 (39.8)	71 (39.4)	63 (44.1)
2-4	13 (8.4)	5 (4.9)	10 (5.6)	5 (3.5)
cStage				
IIIA	53 (30.5)	37 (31.9)	81 (32.7)	43 (26.2)
IIIB	84 (48.3)	58 (50.0)	113 (45.6)	77 (47.0)
IIIC	37 (21.3)	21 (18.1)	54 (21.8)	44 (26.8)

- Carboplatin-based: older patients
- cStage distribution:
  - comparable,
  - the majority in stage IIIB
- No major imbalances in tumor (cT) or nodal (cN) stage

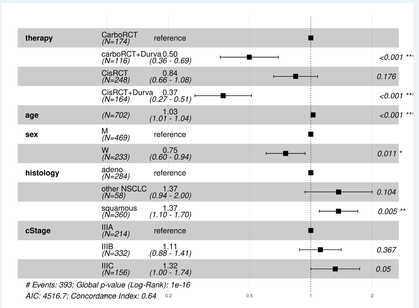
Overall Survival: univariate analysis

Table. OS (%) by treatment group (95% CI)

time	carboRCT	carboRCT+Durva	cisRCT	cisRCT+Durva
24 months	34%(27-42)	67%(58-77)	51%(45-58)	66%(59-75)
36 months	25%(19-34)	40%(30-54)	37%(31-44)	60%(52-69)
48 months	20%(13-30)	36%(25-50)	25%(19-32)	55%(46-65)
60 months	18%(11-28)	29%(19-45)	17%(12-25)	55%(46-65)



Overall Survival: multivariable Cox analysis



- RCT + durvalumab: significantly improved OS compared to RCT alone
- A trend toward improved survival with cisplatin compared to carboplatin-based regimens
- Further prognosis factors: Increasing age, male sex, and squamous histology

Conclusion

- Real-world evidence from BWCR reveals considerable staging discrepancy in non-metastatic NSCLC
- Adjuvant platinum therapy confers benefit to pIII-patients irrespective of platinum regimen
- In non-resectable cIII-disease, durvalumab after definitive RCT improves survival, with a consistent trend favoring cisplatin-based regimens over carboplatin

Conflict of interest : Wilfried EE Eberhardt has received honoraria for advisory board function from Astra Zeneca, Roche, MSD, Pfizer, Novartis, Sanofi, Regeneron, BeOne, Amgen, Daichii Sankyo, Pierre Fabre, GSK, Takeda and Onkowissen.de. He has reveied honoraria for educational lectures from Astra Zeneca, Roche, MSD, Pfizer, His institution has received an unrestricted research grant for an investigater initiated trial from Astra Zeneca.Sanofi, Regeneron, Amgen, Daichii Sankyo, Takeda, Onkowissen.de and Boehringer Ingelheim.He has no further financial relationship or other relationships with conflict of interest potential

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