



2026 World Conference on Lung Cancer

SEPTEMBER 12 – 15, 2026 | SEOUL, REPUBLIC OF KOREA

Deauville Score Predicts Pathologic Response After Neoadjuvant Chemoimmunotherapy in NSCLC

Mai Nishiina, Hana Oiki, Shota Fukuda, Shuta Ohara, Masaya Nishino, Akira Hamada,
Masato Chiba, Masaoki Ito, Toshiki Takemoto, Hideki Ujiie, Yasuhiro Tsutani

*Division of Thoracic Surgery, Department of Surgery,
Kindai University Faculty of Medicine, Sakai, Japan*



Introduction

Neoadjuvant chemoimmunotherapy is increasingly used for resectable NSCLC. However, accurate prediction of pathologic response using post-treatment imaging remains challenging.

Objective

To evaluate the predictive value of the FDG-PET Deauville score (DS) for pathologic complete response (pCR).

Deauville score (DS)

- DS1** No uptake
- DS2** Uptake $\leq$ mediastinal blood pool
- DS3** Uptake $>$ mediastinal blood pool but $\leq$ liver
- DS4** Uptake moderately $>$ liver
- DS5** Uptake markedly $>$ liver, and/or new lesions



Tumor



Mediastinal
blood pool



Liver

The Deauville score is an established visual PET response assessment in lymphoma and has also been applied to lung cancer.

Its role after neoadjuvant chemoimmunotherapy in resectable NSCLC remains unclear.

Patients with NSCLC treated with
neoadjuvant chemoimmunotherapy
Apr 2018–Jun 2025 (n=46)



No surgery (n=4)
No PET data (n=1)

Patients who underwent surgery (n=41)



Excluded from pathologic response assessment
Pleural dissemination at thoracotomy (n=1)

Patients included in the analysis (n=40)

DS assessment

Pre- and post-treatment PET images
were independently reviewed by two
physicians.
Discrepant DS ratings were resolved
by consensus.

Patient Characteristics (n=40)

Variable	n (%)
Age, years, median (range)	71 (45–83)
Sex	
Male	33 (82.5)
Female	7 (17.5)
Smoking history	
Ever	38 (95.0)
Never	2 (5.0)
Histology	
Adenocarcinoma	15 (37.5)
Squamous cell carcinoma	20 (50.0)
Large cell carcinoma	1 (2.5)
Unknown	4 (10.0)
cStage	
IIA	3 (7.5)
IIB	11 (27.5)
IIIA	19 (47.5)
IIIB	7 (17.5)

Variable	n(%)
Immune checkpoint inhibitor	
Nivolumab	34 (85.0)
Pembrolizumab	6 (15.0)
EGFR	
Wild-type	34 (85.0)
Uncommon mutation (Exon 20 S768I)	1 (2.5)
Unknown	5 (12.5)
PD-L1 TPS	
<1%	6 (15.0)
1–49%	13 (32.5)
≥50%	14 (35.0)
Unknown	7 (17.5)
Pre-treatment DS	
1	0 (0)
2	0 (0)
3	1 (2.5)
4	0 (0)
5	39 (97.5)

Radiologic Response by RECIST

RECIST	n	pCR, n (%)
CR	2	1 (50.0)
PR	26	11 (42.3)
SD	11	3 (27.3)
PD	1	0 (0)

RECIST category was not significantly associated with pCR.

Fisher's exact test: $p = 0.841$

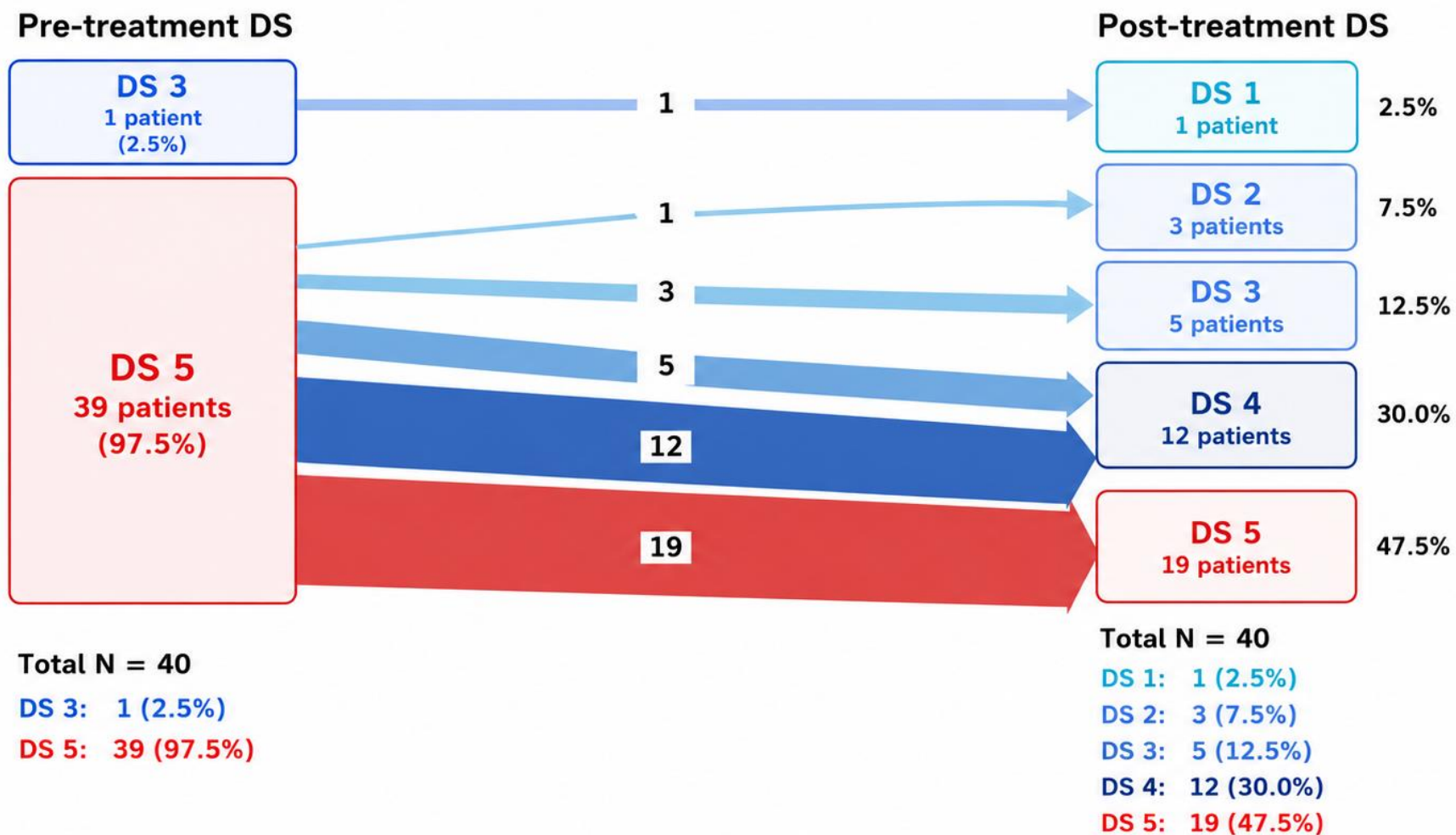
pCR by RECIST Response Group

RECIST response group	n	pCR, n (%)
CR + PR	28	12 (42.9)
SD + PD	12	3 (25.0)

The pCR rate did not differ significantly between the CR/PR and SD/PD groups.

Fisher's exact test: $p = 0.477$

Change in Deauville Score Before and After Treatment



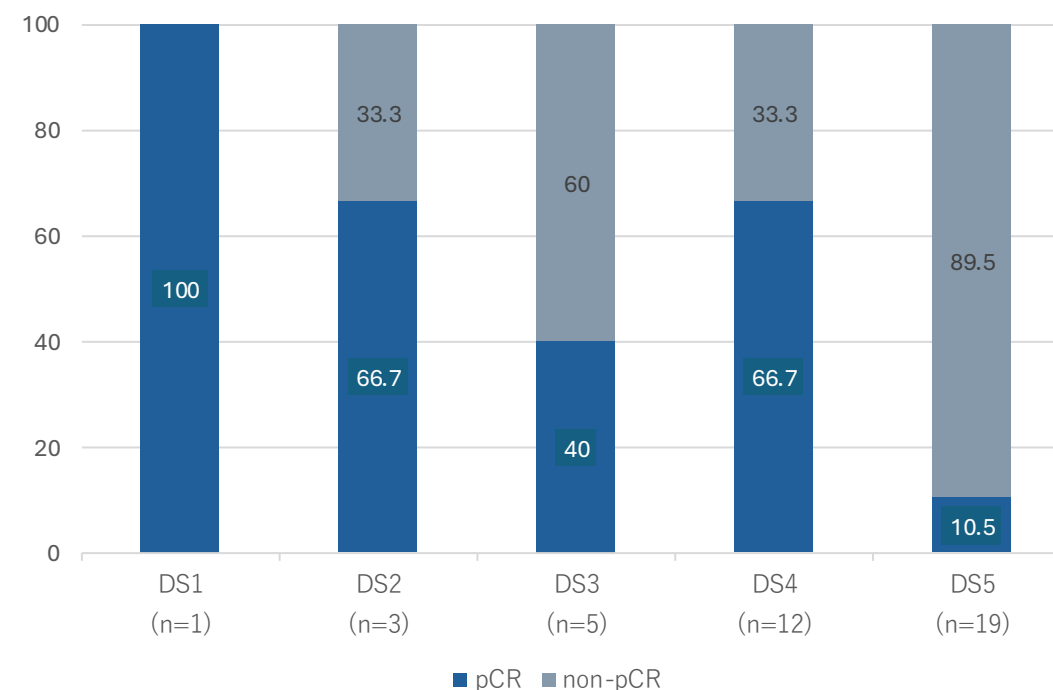
pCR Rate by Post-treatment Deauville Score

Post-treatment DS	n	pCR, n (%)
DS 1	1	1 (100.0)
DS 2	3	2 (66.7)
DS 3	5	2 (40.0)
DS 4	12	8 (66.7)
DS 5	19	2 (10.5)

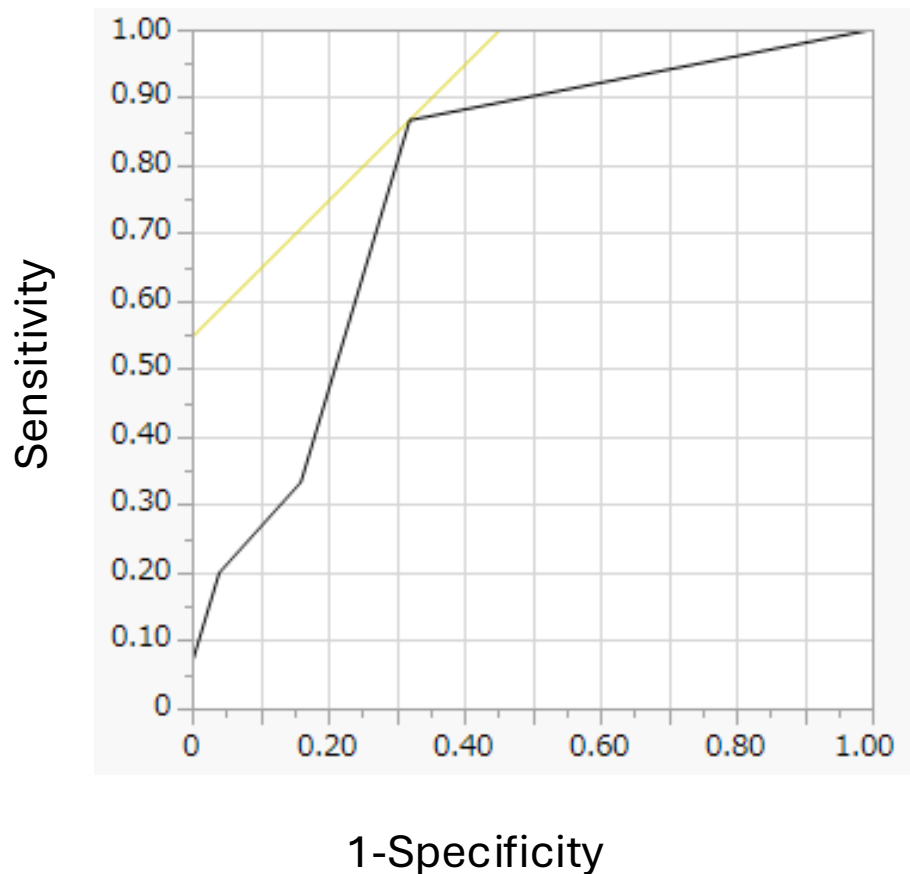
Fisher's exact test: $p = 0.256$

Although the overall association was not statistically significant, the pCR rate was lowest in patients with DS 5.

pCR Rate by Post-treatment DS (%)



ROC Analysis of DS for Predicting pCR



DS showed moderate discrimination for predicting pCR.

AUC = 0.768

Logistic regression

OR = 0.384 per 1-point increase in DS

95% CI, 0.161–0.765; $p = 0.0139$

ROC analysis

Sensitivity: 86.7%

Specificity: 68.0%

The ROC-derived cutoff corresponded to DS ≤ 4 versus DS 5.

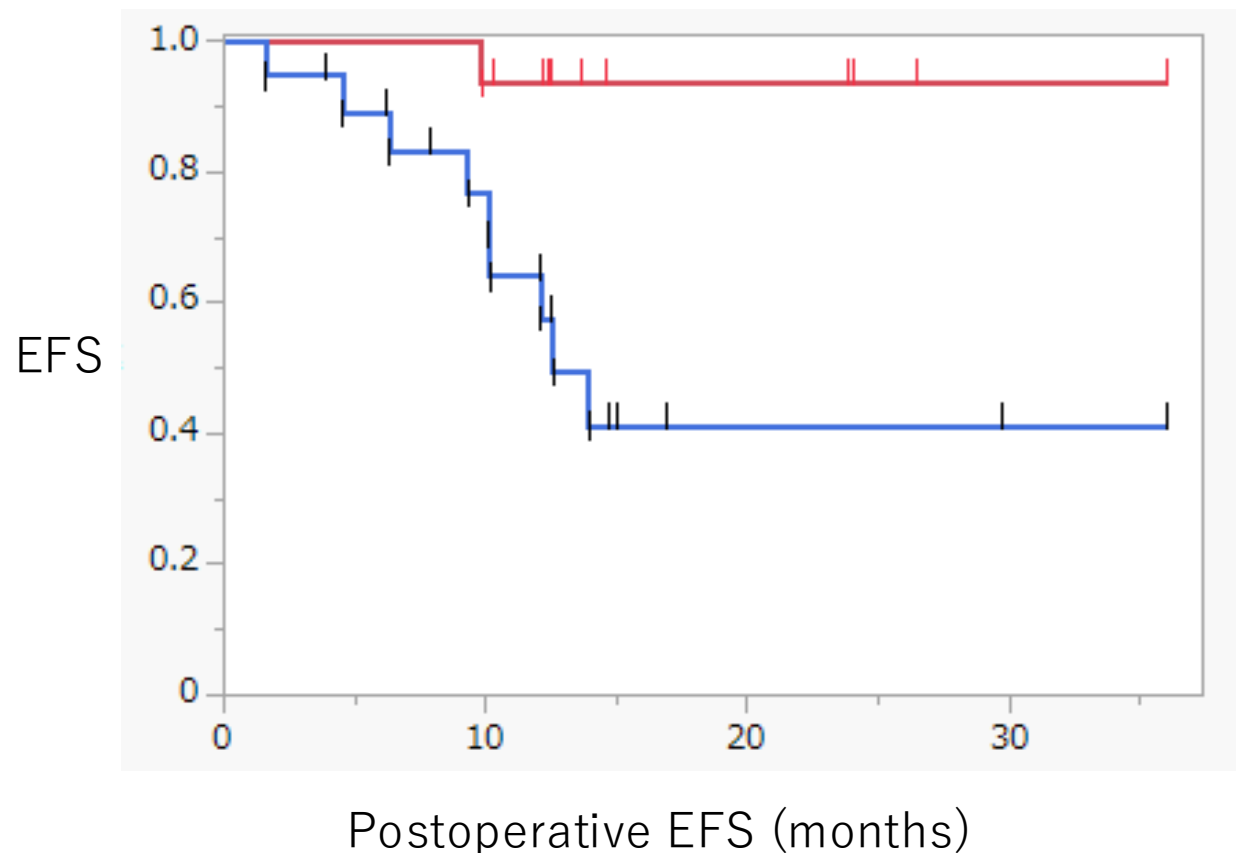
Exploratory Analysis Focusing on DS5

Post-treatment DS	n	pCR, n (%)	
DS 1–4	21	13 (61.9)	DS 5 vs DS 1–4 OR for pCR = 0.072 95% CI, 0.013–0.400 Fisher's exact test: $p = 0.001$
DS 5	19	2 (10.5)	

The pCR rate was significantly lower in patients with DS 5 than in those with DS 1–4 (10.5% vs 61.9%, $p = 0.001$).



Event-Free Survival : DS 1-4 vs DS 5



— DS 1-4

— DS 5

DS 5 vs DS 1-4: HR 3.42
(95% CI 1.48–14.68)Log-rank $p = 0.003$

Events, n (%)

DS 1-4 : 1/21 (4.8%)

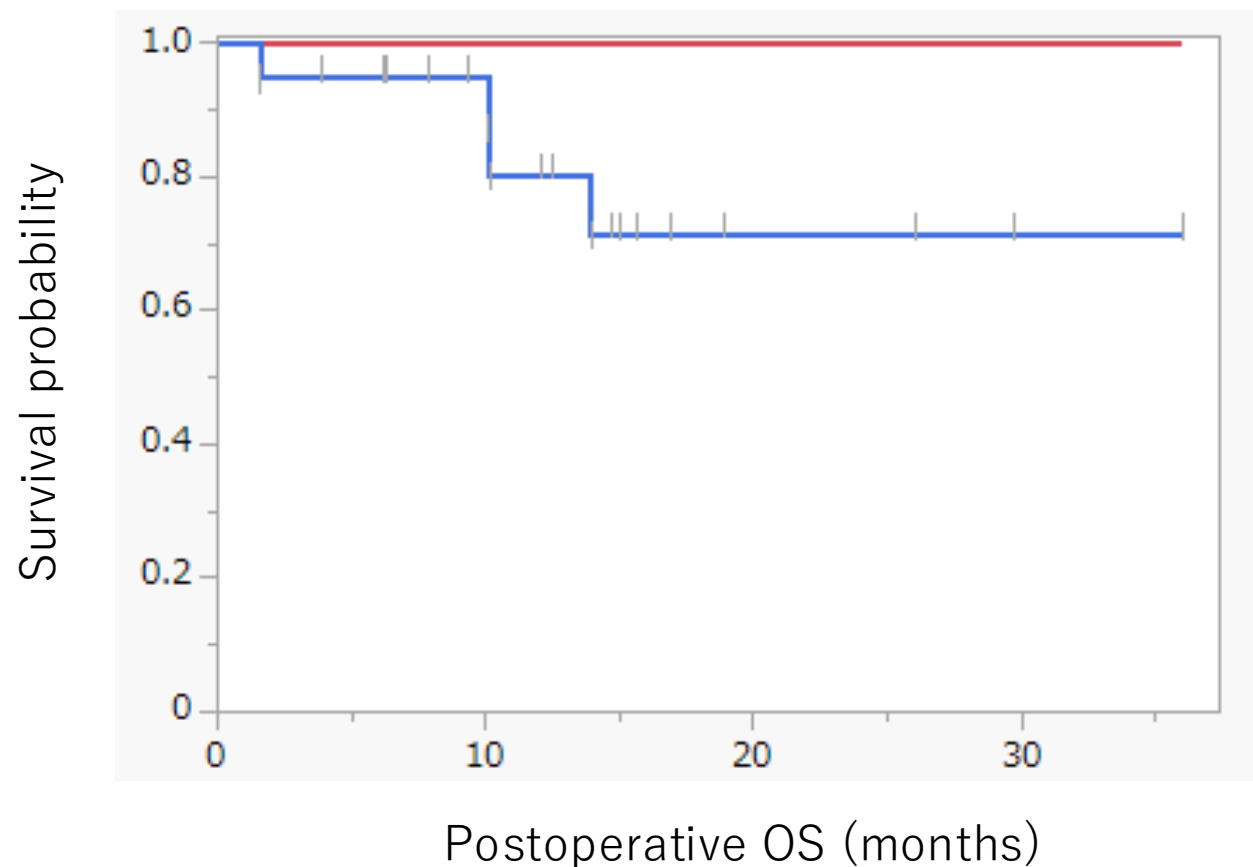
DS 5 : 9/19 (47.4%)

No. at risk	0	12	24	36
DS 1-4	21	15	7	5
DS 5	19	10	2	1

EFS was significantly worse in the DS 5 group than in the DS 1-4 group.



Overall Survival : DS 1-4 vs DS 5



— DS 1-4

— DS 5

DS 5 vs DS 1-4:
HR not estimable
Log-rank $p = 0.034$

Deaths, n (%)
DS 1-4: 0/21 (0%)
DS 5: 4/19 (21.1%)

No. at risk	0	12	24	36
DS 1-4	21	15	7	5
DS 5	19	11	3	1

OS was also significantly worse in the DS 5 group than in the DS 1-4 group.

Results

Higher post-treatment DS was associated with a lower probability of pCR.

The pCR rate was significantly lower in DS 5 than in DS 1–4 (10.5% vs 61.9%, $p = 0.001$).

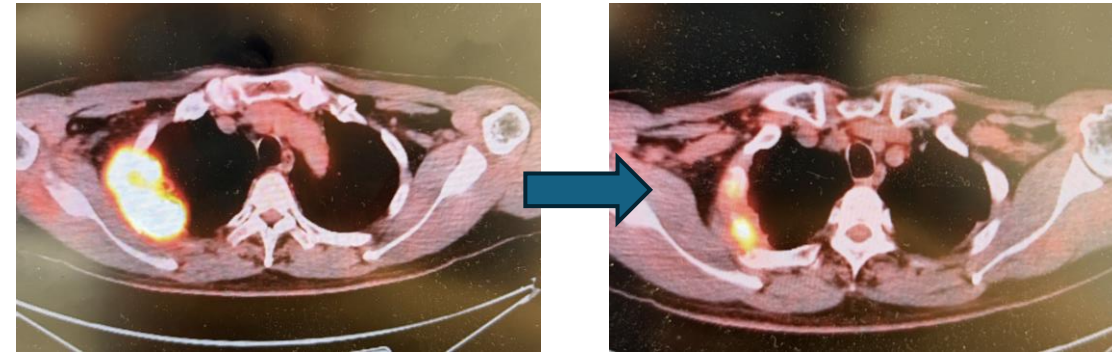
EFS and OS were significantly worse in the DS 5 group than in the DS 1–4 group.

These findings suggest that DS 5 may identify patients with residual viable tumor and an unfavorable prognosis.



Limitations

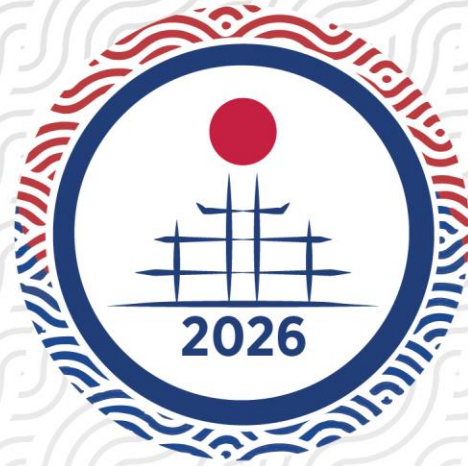
- Single-center retrospective study with a small sample size.
- Few patients had DS 1–3, limiting the precision of comparisons across individual DS categories.
- Some tumors showed substantial shrinkage despite remaining DS 5 after treatment, suggesting the need to incorporate additional factors, such as changes in tumor volume.
- Heterogeneity in PET acquisition conditions and treatment regimens could not be completely eliminated.
- The small sample size limited robust multivariable adjustment for clinical factors affecting pathologic response and EFS.



Conclusion

- Higher post-treatment Deauville Score was associated with a lower probability of pCR after neoadjuvant chemoimmunotherapy for resectable NSCLC.
- DS 5 was associated with a low pCR rate and significantly worse EFS and OS.
- Post-treatment DS may serve as a potential imaging biomarker for predicting pathologic response and prognosis.





Thank You. ●

**AI Use Disclosure: ChatGPT (OpenAI) was used to assist with language editing and presentation development.
All scientific content and analyses were reviewed and verified by the authors.**

