

Efficacy and Prognostic Factors of Chemo-Immunotherapy in Elderly Patients (≥ 70 Years) With Extensive-Stage Small Cell Lung Cancer

A single-institution retrospective cohort study, 2010–2025

H. Iida^{1,3}, M. Yomota¹, S. Togashi¹, K. Kishino¹, T. Kobayashi¹, T. Inoue¹, R. Mizushima¹, M. Morita¹, M. Asai¹, K. Shinada¹, K. Watanabe¹, Y. Hosomi¹, T. Kato¹, M. Seike²

¹Tokyo Metropolitan Cancer and Infectious Diseases Center Komagome Hospital, Tokyo/JP

²Department of Pulmonary Medicine and Oncology, Graduate School of Medicine, Nippon Medical School, Tokyo/JP

³Present affiliation of H. Iida: Department of Respiratory Medicine, Nippon Medical School Musashi Kosugi Hospital, Kawasaki/JP

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● Disclosures

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Relevance to the present study	None — outside the submitted work

No other conflicts of interest relevant to this study are declared.

AI Use Disclosure

Generative AI tools — ChatGPT (OpenAI) and Claude (Anthropic) — were used to assist with the organization, slide layout, and language editing of this presentation. All study design, data collection, statistical analyses, and interpretation of results were performed solely by the authors, who reviewed and verified all content and take full responsibility for its accuracy and integrity.

● Background & Methods

Background

Elderly patients (≥ 70 y) with extensive-stage small-cell lung cancer (ES-SCLC) are under-represented in the pivotal chemoimmunotherapy (chemo-IO) trials — IMpower133¹ and CASPIAN^{2,3}. Whether chronological age or performance status (PS) should guide first-line treatment selection in this population remains unclear, and real-world evidence in older patients is limited.

We evaluated the efficacy, prognostic factors, and safety of first-line chemo-IO in an elderly ES-SCLC cohort.

Methods

Design Single-institution retrospective cohort (2010–2025).

Patients Age ≥ 70 y, ES-SCLC, first-line platinum–etoposide + PD-L1 inhibitor (durvalumab or atezolizumab). ILD excluded.

Endpoints OS, PFS, best overall response, adverse events (CTCAE v5.0)⁴.

Assessment

Best overall response and disease progression were determined by the treating physicians based on routine radiologic and clinical assessment; formal RECIST v1.1 evaluation was not performed.

Analysis

Kaplan–Meier with log-rank test; multivariable Cox regression (age, PS); 1:1 propensity-score matching⁵ (age, ECOG PS, liver and/or brain metastasis) vs. historical chemotherapy-alone controls.

N = 45

elderly ES-SCLC patients receiving first-line platinum–etoposide + PD-L1 inhibitor

● Patient Characteristics (N = 45)

Age, median (range), y	75 (70–89)
Age ≥75 / 70–74 y	30 / 15
Sex, male / female	27 / 18
ECOG PS 0 / 1 / 2 / 3	7 / 23 / 10 / 5
PS ≤1 / ≥2	30 / 15
Liver metastasis, any	19 (42%)
Brain metastasis, any	9 (20%)
Liver only / brain only / both	17 / 7 / 2
Neither liver nor brain metastasis	19 (42%)
Platinum — carboplatin / cisplatin	43 / 2
PD-L1 inhibitor — durvalumab / atezolizumab	38 / 7
G-CSF support	32 (71%)
Completed 4 cycles	35 (78%)

Median age

75 years (range 70–89)

Two-thirds of the cohort was ≥75 years old.

Functional status

PS ≤1 **30 (67%)**

PS ≥2 **15 (33%)**

A third of patients had ECOG PS ≥2 — a population largely excluded from the pivotal trials.

● Survival Outcomes

15.7_{mo}

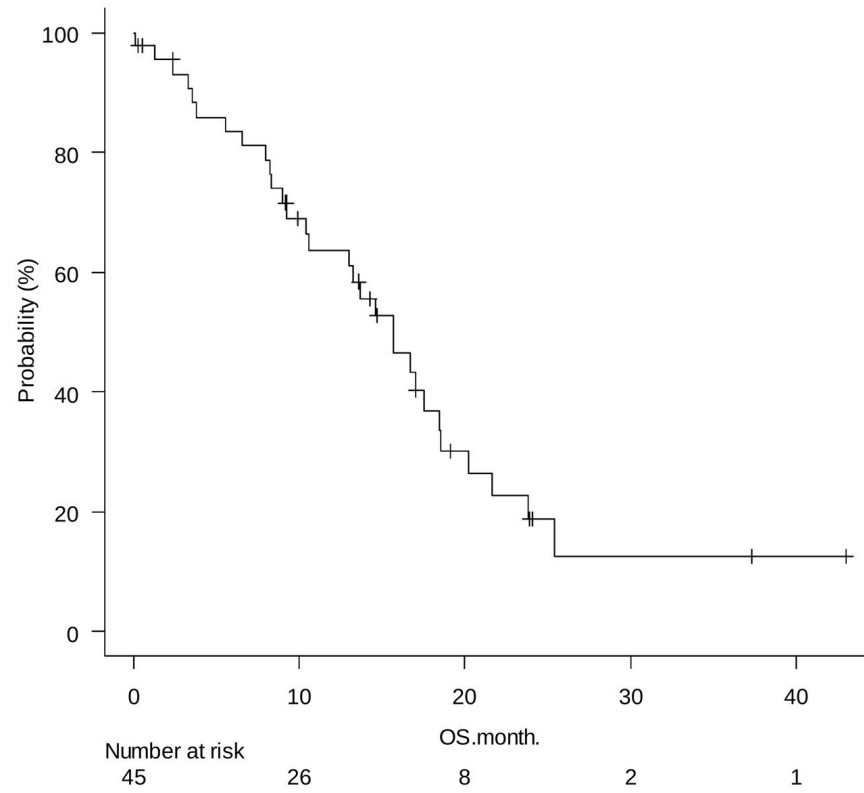
Median OS (95% CI 10.4–18.5)

5.6_{mo}

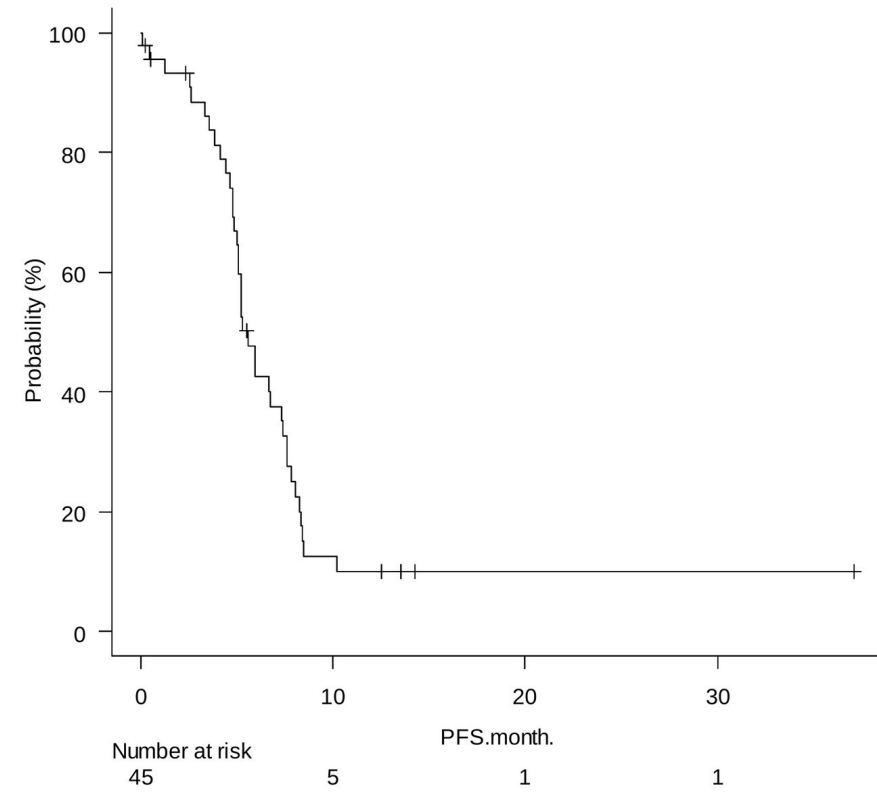
Median PFS (95% CI 5.0–7.3)

84.4 %

ORR (CR 1, PR 37; physician-assessed)



Overall survival (N = 45)



Progression-free survival (N = 45)

● Prognostic Subgroups (univariate analysis)

Subgroup	mOS	mPFS
PS ≤ 1 (n = 30)	17.0	5.9
PS ≥ 2 (n = 15)	10.6	5.2
<i>log-rank p</i>	<0.05*	0.35
Age ≥ 75 (n = 30)	15.7	5.9
Age 70–74 (n = 15)	10.6	5.2
<i>log-rank p</i>	0.58	0.51

Median survival in months. * significant.

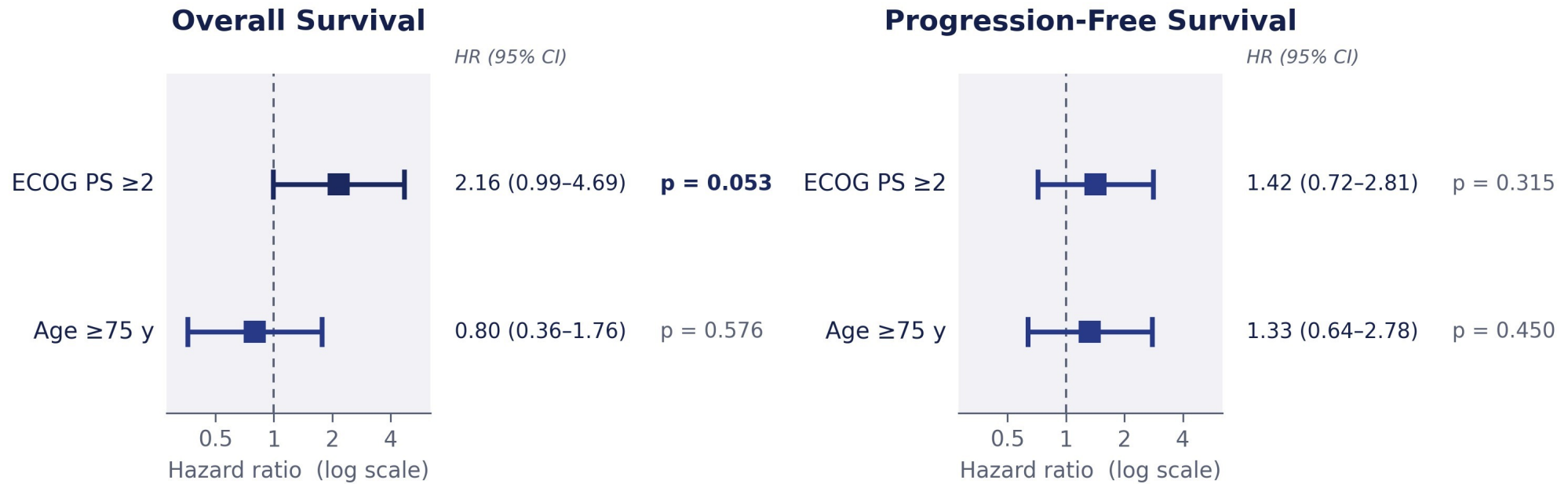
Performance status matters

OS 17.0 vs 10.6 months for PS ≤ 1 vs ≥ 2 (log-rank p < 0.05).

Chronological age does not

No significant OS or PFS difference between the ≥ 75 y and 70–74 y subgroups.

● Multivariable Analysis (Cox regression)



Adjusted for age and ECOG PS. ECOG PS ≥ 2 was associated with a more than two-fold risk of death (HR 2.16, p = 0.053); age ≥ 75 y was not prognostic for either endpoint.

● Propensity-Matched Analysis (chemo vs chemo-IO)

1:1 propensity-score matching⁵, 32 matched pairs. Covariates: age · ECOG PS · liver and/or brain metastasis.

Median (mo)	chemo	chemo-IO	p
PFS	5.1	5.9	0.84
OS	11.2	15.7	0.31

+4.5 months
numerical OS difference favouring chemo-IO (not significant)

Numerically favourable, but no statistically significant IO benefit in this elderly cohort.

Comorbidity (e.g. Charlson Comorbidity Index) was not recorded and could not be included as a matching covariate — residual confounding cannot be excluded. With 32 pairs the analysis is also underpowered to detect a moderate survival difference.

● Safety — Adverse Events excluding irAE (CTCAE v5.0)

Adverse event	Any grade	Grade ≥3
Neutropenia	23 (51.1%)	18 (40.0%)
Leukopenia	22 (48.9%)	16 (35.6%)
Anemia	42 (93.3%)	11 (24.4%)
Thrombocytopenia	24 (53.3%)	5 (11.1%)
Febrile neutropenia	4 (8.9%)	4 (8.9%)
Hepatobiliary enzyme increased	14 (31.1%)	1 (2.2%)
Nausea / vomiting	7 (15.6%)	0
Anorexia	8 (17.8%)	2 (4.4%)
Fatigue	5 (11.1%)	1 (2.2%)
Constipation	4 (8.9%)	0
Hyponatremia	6 (13.3%)	1 (2.2%)
Hyperkalemia	10 (22.2%)	2 (4.4%)
Alopecia	4 (8.9%)	0

Predominantly hematologic

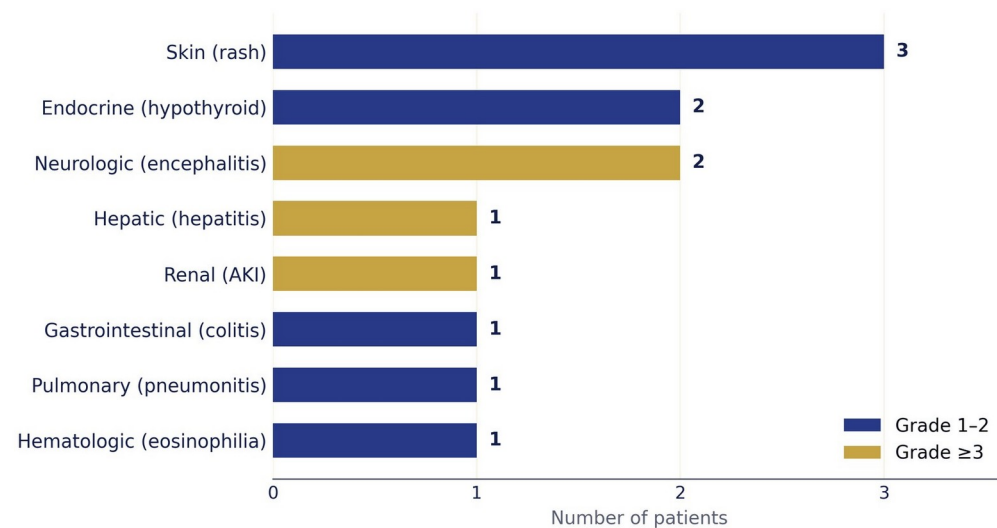
Grade ≥3 toxicity was mainly myelosuppression and was manageable with G-CSF support, used in 71% of patients.

One treatment-related death

Grade 5 pneumonitis (1 / 45) — not immune-related.

● Immune-Related Adverse Events (irAE)

irAE (organ system)	Pts	Gr ≥3
Rash — skin	3	0
Hypothyroidism — endocrine	2	0
Encephalitis — neurologic	2	2
Hepatitis — hepatic	1	1
Acute kidney injury — renal	1	1
Colitis — gastrointestinal	1	0
Pneumonitis — pulmonary	1	0
Eosinophilia — hematologic	1	0
Any irAE — patients	9 (20.0%)	4 (8.9%)



irAE by organ system — Grade 1-2 vs Grade ≥3

20.0 %
Any irAE (9 / 45)

8.9 %
Grade ≥3 (4 / 45)

Events (12) exceed patients (9): one patient had 3 concurrent irAEs (rash, hypothyroidism, acute kidney injury) and another had 2 (rash, eosinophilia). irAEs were predominantly low-grade.

● Conclusions

- 1 First-line chemo-IO in elderly (≥ 70 y) ES-SCLC achieved a median OS of 15.7 months — comparable to the pivotal randomized trials¹⁻³.
- 2 Performance status, not chronological age, was the dominant prognostic factor (OS by PS $p < 0.05$; adjusted PS ≥ 2 HR 2.16).
- 3 Toxicity was manageable and consistent with known profiles; immune-related AEs occurred in 20% (Grade ≥ 3 , 8.9%). The single treatment-related death (Grade 5 pneumonitis) was not immune-related.
- 4 Chemo-IO is a reasonable option for older patients selected by functional status rather than by chronological age alone.

Limitations · Single-institution retrospective design, small sample size ($N = 45$), physician-assessed response, and unrecorded comorbidity (neither adjusted for nor matched) — residual confounding cannot be excluded.

Disclosures H. Iida has received lecture honoraria from AstraZeneca (bronchial asthma), outside the submitted work. **Correspondence** H. Iida, MD — Nippon Medical School Musashi Kosugi Hospital, Kawasaki, Japan · **E-mail:** s15-003ih@nms.ac.jp

● References & Disclosures

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Correspondence H. Iida, MD — Department of Respiratory Medicine, Nippon Medical School Musashi Kosugi Hospital, Kawasaki, Japan. **E-mail:** s15-003ih@nms.ac.jp

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