



Real-world outcomes of first-line Osimertinib in common EGFR-mutant advanced NSCLC: A single institution experience in Taiwan

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INTRODUCTION

The incidence of EGFR mutations is approximately 51.4% among patients with metastatic lung adenocarcinoma in East Asia¹. Osimertinib, an irreversible third-generation epidermal growth factor receptor tyrosine kinase inhibitor (EGFR-TKI), has demonstrated robust efficacy in the pivotal FLAURA study and is currently the standard of care for advanced non-small cell lung cancer (NSCLC) harboring common EGFR mutations². In the trial, the median PFS and OS were 18.9 months and 38.6 months, respectively³. However, subgroup analyses revealed a less pronounced PFS benefit for patients with the L858R mutation compared with those harboring the exon 19 deletion. Furthermore, real-world data concerning clinical efficacy, patterns of progression, and toxicity profiles remain limited in Taiwan. Therefore, this study evaluated the clinical outcomes of first-line osimertinib in treatment-naïve patients with EGFR-mutant advanced NSCLC at a single institution in Taiwan.

METHODS

We retrospectively reviewed patients with advanced NSCLC harboring common EGFR mutations who received first-line osimertinib at MacKay Memorial Hospital from February 1, 2019, to May 30, 2025. Data were collected until March 30, 2026. Clinical data, including patterns of disease progression and adverse events (AEs), were analyzed. Progression-free survival (PFS) and overall survival (OS) were calculated using the Kaplan-Meier method via IBM SPSS software version 31.0.2.0.

DISCUSSION AND CONCLUSION

In our real-world data analysis, the PFS and OS trended shorter in patients with L858R mutation compared to those with exon 19 deletion. Adverse events leading to osimertinib treatment discontinuation accounted for 4.7%. Osimertinib demonstrated good control of brain metastases; only 15.56% of patients experienced intracranial progression during the data collection period. Primary progression occurred in 10.93% of patients even though common EGFR mutations were detected. There remains unmet need for these patients, especially for those with L858R mutation. It is still not fully understand why some patients experience primary progression while others respond well. Identifying these patients in advanced and considering combination therapy remains warranted.

Limitations of this analysis include the relatively small sample size, which constrains the statistical power of subgroup comparisons.

Actionable Take Away Message

- The cohort showed a median PFS of 17.27 months and a median OS of 26.53 months with first-line Osimertinib
- Patients with exon 19 deletions trended toward more prolonged PFS and OS benefits compared to those with L858R mutations.
- Intracranial progression occurred in only 15.6% during Osimertinib treatment.
- Primary resistance was observed in 10.93% highlighting the clinical need for comprehensive molecular profiling to identify de novo resistance mechanisms.

REFERENCES

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RESULTS

Between February 2019 to May 2025, 64 EGFR-mutant patients were treated with first-line Osimertinib. A total of 62.5% patients were female, 79.7% were non-smoker, and exon 19 deletion and L858R accounts for 76.7% and 23.4%, respectively. Patient demographics and baseline characteristics were detailed in table1.

Disease progression occurred in 45 patients (70.31%), including seven (15.56%) who experienced intracranial progression during Osimertinib treatment. Primary resistance to Osimertinib occurred in 7 patients (10.93%). Regarding toxicity, two patients (3.1%) experienced Osimertinib-induced heart failure and one (1.6%) developed grade 3 interstitial pneumonitis, all these three patients discontinued osimertinib.

In the total population, the median PFS was 17.27months (95% CI: 7.87-26.67), and the median OS was 26.53 months (95% CI: 20.86-32.21). Subgroup analysis showed a median PFS of 22.5 months for exon 19 deletion (95%CI: 11.58-33.42) versus 12.67 months for L858R (95%CI: 3.24-22.09, p=0.369). The median OS was 27.5 months for exon 19 deletion (95%CI: 21.35-33.64) and 18.77 months for L858R (95%CI 3.03-34.51, p=0.327)(Figure1).

	Total (n=64)
Age (Median)	65 (62-70)
Gender	
Female	40 (62.5%)
Male	24 (37.5%)
Smoking	
Never smoker	51 (79.7%)
Ex-or current smoker	13 (20.3%)
Stage	
IVA	16 (25.0%)
IVB	48 (75.0%)
Initial Metastatic Site	
Brain	35 (54.7%)
Liver	12 (8.8%)
Bone	41 (64.1%)
Pleural or pericardial effusion	27 (42.2%)
Others	8 (12.5%)
EGFR	
Exon 19 deletion	49 (76.6%)
L858R	15 (23.4%)
PD-L1 status	
0%	23 (45.1%)
1~49%	25 (49.0%)
≥50%	3 (5.9%)
Progression	N=45
Extracranial	38 (84.4%)
Intracranial	7 (15.6%)
Adverse Events	
Heart failure	2 (3.1%)
Interstitial lung disease	1 (1.6%)

Table 1. Patient demographics and baseline characteristics

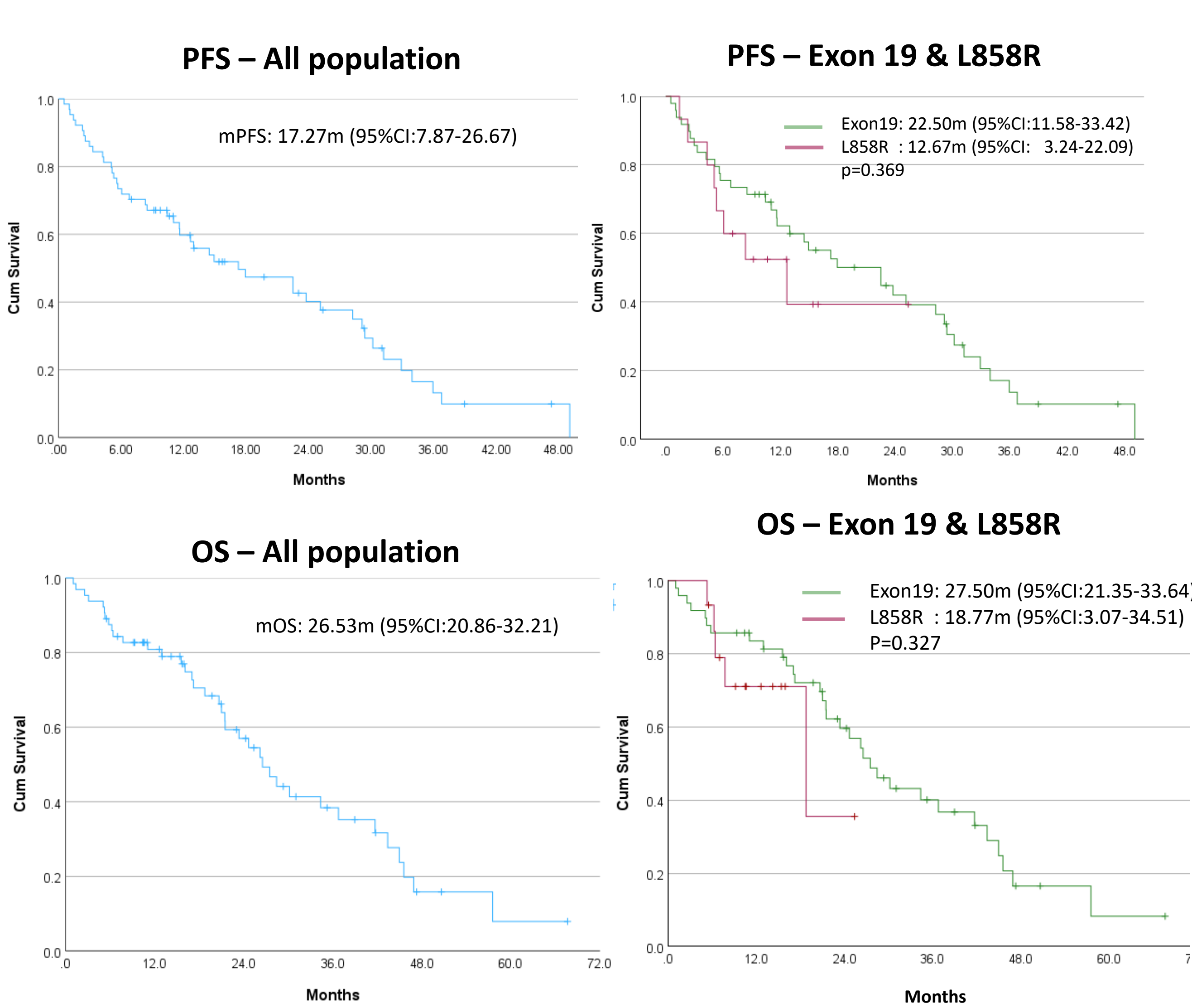


Figure 1. PFS and OS