FACTORS PREDICTIVE OF CLINICAL OUTCOME IN ADVANCED NON-SMALL-CELL LUNG CANCER PATIENTS RECEIVING OSIMERTINIB TREATMENT: A REAL-WORLD EXPERIENCE

Tzu-Yu Yeh[1], Kai-Cheng Chang[1], Shih-Chieh Shao[2], Hui-Yu Chen[1], Yuk-Ying Chan[3], Yueh-Fu Fang[4,5*]

[1] Department of Pharmacy, Linkou Chang Gung Memorial Hospital, Taoyuan, Taiwan
[2] Department of Pharmacy, Keelung Chang Gung Memorial Hospital, Keelung, Taiwan
[3] Department of Pharmaceutical Materials Management, Chang Gung Medical Foundation, Taoyuan, Taiwan
[4] Department of Thoracic Medicine, Chang Gung Foundation, Chang Gung Memorial Hospital, Taoyuan, Taiwan
[5] Chang Gung University, Taoyuan, Taiwan

Background

- Osimertinib, a third-generation irreversible tyrosine kinase inhibitor of both activating EGFR mutations and resistance-associated T790M point mutation, was approved for treating advanced non-small cell lung cancer (NSCLC).
- The aim of this study was to investigate the factors predictive of clinical outcome in advanced NSCLC patients receiving osimertinib treatment.

Method

- Study design：Retrospective study
- Study setting: Multi-institutional electronic medical records database in Taiwan
- Study period: From January 2020 and December 2020
- Study population: Advanced NSCLC patients newly receiving osimertinib as second-line or beyond systemic therapy
- Data analysis: Kaplan-Meier methods to estimate median progression-free survival (PFS) based on the Response Evaluation Criteria in Solid Tumors (RECIST), overall survival (OS). Uni-variable and multi-variable Cox regression models were applied to identify the prognostic factors.

eahp

Link to 6ER-017

ATC code:
L01- ANTINEOPLASTIC AGENTS

Results

Table 1. Baseline characteristics

	Total (n = 286)
Female sex (%)	176 (61.5%)
Age, median years (range)	66.8 (58.8-73.1)
Smoking (%)	11 (3.9%)
ECOG	
0-1	267 (93.4%)
>1	19 (6.6%)
Stage, ⅢB/Ⅳ (%)	2/284 (0.7%/99.3%)
Metastatic status	
Brain (%)	71 (24.8%)
Bone (%)	130 (45.5%)
Liver (%)	35 (12.2%)
Lymph (%)	164 (57.3%)
Bilateral lung (%)	137 (47.9%)
Adrenal gland (%)	22 (7.7%)
Other sites metastases (%)	78 (27.3%)
Type of EGFR mutation* (%)	
T790M + L858R	89 (31.1%)
T790M + Exon 19 deletion	103 (36.0%)
T790M + others	55 (19.2%)
Others	39 (13.6%)
Unknown	1 (5.9%)
First-line EGFR-TKIs therapy (%)	
Gefitinib	53 (18.5%)
Erlotinib	92 (32.2%)
Afatinib	141 (49.3%)
Duration of first-line EGFR-TKIs therapy, median months (range)	17.2 (10.7-26.8)
Chemotherapy between first-line failure and osimertinib start date (%)	58 (20.3%)

Results

Table 2. Association between EGFR mutation CT data and outcome

Variable	HR	95% CI	P value
Overall survival			
T790M L858R	1.46	1.08-1.96	0.01
T790M 19Del	1.10	0.67-1.81	0.69
Time to treatment failure			
T790M L858R	1.47	1.15-1.81	< 0.01
T790M 19Del	0.82	0.57-1.17	0.27

Figure 1. KM curve for overall survival

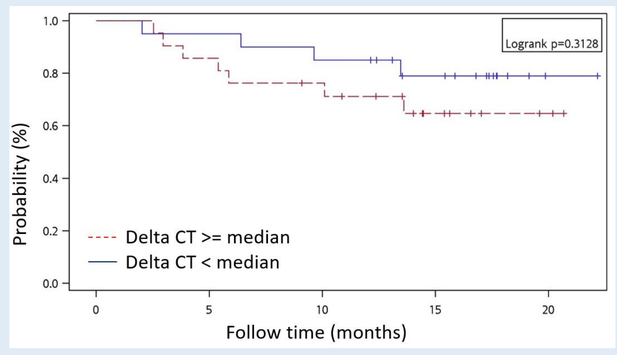
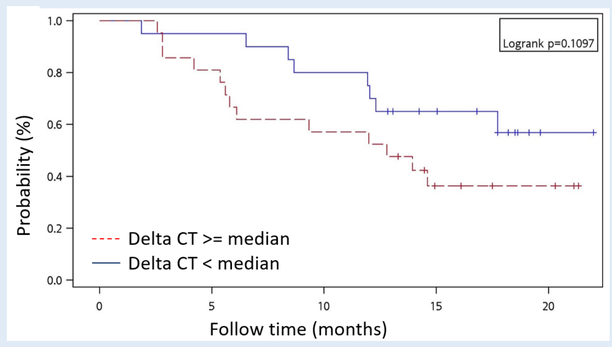


Figure 2. KM curve for time to treatment failure



Conclusion

- Osimertinib was an effective treatment option for advanced NSCLC patients in real-world experience.
- Tumor burden liver metastasis, ECOG performance and a mutation in exon 19 deletion were independent predictive factors for progression free survival.
- ΔCT between T790M and L858R mutation was also a predictive factor while using osimertinib.
- Future real-world studies with large sample size and longer follow-up time are suggested to confirm our findings.