

INTRODUCTION

Family history, occupational exposure, and underlying pulmonary diseases are well-established risk factors for lung cancer in never-smokers. The present study aims to evaluate the clinical features and prognostic outcomes of lung cancer patients harboring epidermal growth factor receptor (EGFR) mutations, stratified by the presence or absence of a family history of lung cancer.

METHODS

Design:
We used the Korean EGFR Registry, which is a prospective multicenter observational cohort study including patients with all stages of EGFR- mutated non-small cell lung cancer (NSCLC). The patients were enrolled from May 2022, with follow-up until May 2025 in 40 university hospitals in Korea.

We analyzed total 1085 EGFR mutant stage IV NSCLC patients. And We conducted an analysis by dividing patients into two groups: those with a family history of lung cancer and those without.

DISCUSSION AND CONCLUSION

Actionable Take Away Message

- Patients with a family history of lung cancer exhibited a shorter PFS and a poorer prognosis compared to those without a family history.

Future Direction for Research

- Rigorous surveillance is essential for early diagnosis in patients with a family history of lung cancer.
- In particular, more aggressive treatment strategies should be considered for patients whose parents have a history of lung cancer.

REFERENCES & ACKNOWLEDGEMENTS

- Family history of lung cancer in never smokers with non-small-cell lung cancer and its association with tumors harboring EGFR mutations. Lung Cancer, 2012; 79, 193-197.
- The impact of family cancer history on tumor metabolism and prognosis in patients with non-small cell lung cancer. Sci Rep 14, 22632 (2024).

Artificial Intelligence (AI) Use Disclaimer
The author certifies that no generative artificial intelligence (AI) tools were utilized in the creation, research, or drafting of this work.

RESULTS

- Among total 1078 patients in our analysis, number of patients with a family history of lung cancer was 140.
- The EGFR mutation of exon 21 L858R was higher in patients with a family history of lung cancer (50.0% vs 41.5%, $p = 0.023$). And lower PD-L1 (programmed death-ligand 1) expression was seen in this group. (48.6% vs 37.2%, $p = 0.015$).
- Patients with family history of parents tended to be younger and exhibited a shorter progression-free survival (PFS), compared to patients with family history of siblings.
- Analyzing the factors affecting PFS in patients with a family history of lung cancer, both type of EGFR mutation and pleural metastasis were identified as significant factors.

Figure 1.
PFS in patients with EGFR mutant stage IV NSCLC according to family history of lung cancer

According to the Kaplan-Meier (KM) curve, patients with a family history of lung cancer had a significantly lower PFS compared to those without a family history (15.9 months vs 18.5 months, $p = 0.048$).

