

Efficacy of Immunotherapy and Targeted Therapy and Analysis of KRAS Mutation Subtypes in Advanced Non-Small Cell Lung Cancer

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INTRODUCTION

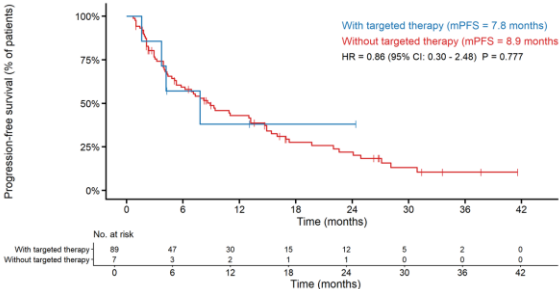
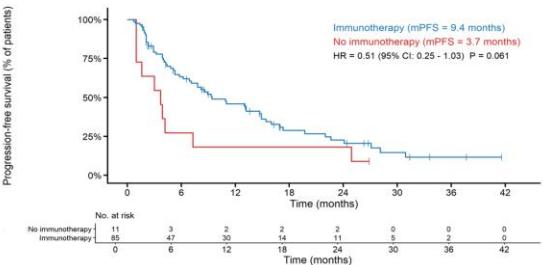
- KRAS-mutant advanced non-small cell lung cancer (NSCLC) is associated with a poor prognosis and substantial biological heterogeneity.
- Clinical outcomes may differ according to mutation subtypes, co-mutation profile, and treatment strategy, yet real-world data in the immunotherapy and targeted therapy era remain limited.
- We therefore retrospectively evaluated the clinical characteristics, first-line treatment patterns, and survival outcomes of patients with advanced KRAS-mutant NSCLC in a single-center real-world cohort.

METHODS

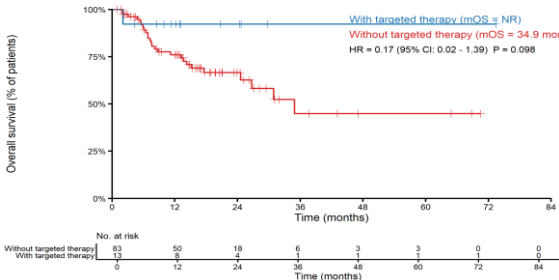
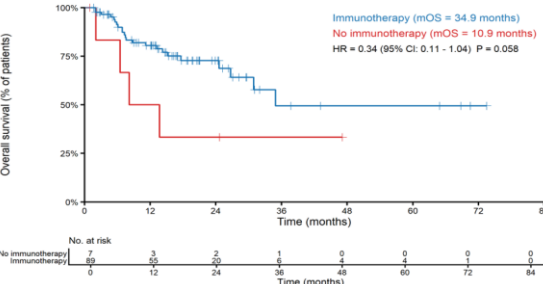
- Patients with advanced KRAS-mutant NSCLC treated at Jinling Hospital between January 1st, 2018 and January 1st, 2026 were retrospectively identified.
- Baseline clinicopathologic characteristics, KRAS mutation subtypes, co-mutation status, treatment regimens, and follow-up data were collected.
- Progression-free survival (PFS) and overall survival (OS) were estimated using the Kaplan-Meier method and compared with the log-rank test.

RESULT

A total of 96 patients were included. Patients were predominantly male (86.46%), aged ≥ 65 years (61.47%), and had adenocarcinoma histology (91.67%). Most had stage IV disease (81.25%), ECOG performance status 0–1 (84.38%), and a history of smoking (65.63%). KRAS G12C was the most common subtype (36.46%). First-line treatment was most commonly chemotherapy plus immunotherapy (66.67%). The overall objective response rate was 45.3%, with similar rates between the immunotherapy and non-immunotherapy groups (45.2% vs 45.5%).



In the first-line setting, immunotherapy-containing regimens were associated with numerically longer first-line PFS than regimens without immunotherapy (median PFS, 9.4 vs 3.7 months; HR 0.51, 95% CI 0.25–1.03; P=0.061). No significant difference in first-line PFS was observed between targeted and non-targeted regimens (mPFS 7.8 vs 8.9 months; HR 0.86, 95% CI 0.30–2.48; P=0.777).



Across the entire treatment course, immunotherapy exposure was associated with longer OS (mOS 34.9 vs 10.9 months; HR 0.34, 95% CI 0.11–1.04; P=0.058), and targeted therapy exposure showed a similar trend (mOS not reached vs 34.9 months; HR 0.17, 95% CI 0.02–1.39; P=0.098). No significant differences in PFS or OS were observed across KRAS mutation subtypes or co-mutation groups.

CONCLUSION

In this real-world cohort of advanced KRAS-mutant NSCLC, first-line immunotherapy-containing regimens showed a trend toward longer PFS, and exposure to immunotherapy or targeted therapy during the treatment course was associated with numerically longer OS. No significant survival differences were observed across KRAS subtypes or co-mutation groups. Larger studies are warranted to confirm these findings.