



Salvage surgery for ALK-positive non-small cell lung cancer after induction therapy of ALK inhibitors: safety and feasibility

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INTRODUCTION

Even though anaplastic lymphoma kinase(ALK)-tyrosine kinase inhibitor(TKI) has recently changed the therapeutic paradigm for ALK-positive non-small cell lung cancer(NSCLC), novel therapeutic strategies are still needed to overcome drug resistance and improve the prognosis. Therefore, here we reported our novel treatment modality by combining salvage surgery with induction therapy of ALK-TKIs for advanced ALK-positive NSCLC.

METHODS

Design:

We retrospectively included advanced ALK-positive NSCLC patients who received salvage surgery after induction therapy of ALK-TKIs. Both clinical and pathological characteristics of the included patients were analyzed. Survival analysis was performed with Kaplan-Meier analysis for both progression-free survival(PFS) and overall survival(OS).

DISCUSSION AND CONCLUSION

Actionable Take Away Message

- Salvage surgery after induction therapy of ALK-TKIs seemed to be a feasible and effective treatment strategy for advanced NSCLC with ALK fusion gene mutation, which may be a promising choice for these patients after careful evaluation.

Future Direction for Research

- Well-conducted, multicentered, prospective randomized controlled trials are encouraged to validate our novel therapeutic strategies for locally advanced or advanced ALK-positive NSCLC.

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RESULTS

From January 2022 to June 2025, a total of 91 patients who underwent induction therapy of ALK-TKIs followed by salvage surgery in our center were included for analysis.

The mean age of the patients were 44.0 years old and 60 patients(65.9%) were at advanced stage. The included patients received selective ALK-TKIs as the first-line or second line treatment for a mean time of 11.5 months(3 months to 43 months).

All patients received salvage surgery and the major complication rate was 4.4%, which were all successfully managed with conservative therapy. There was no 30-day mortality with a R0 resection rate of 93.4%. Forty-two patients(46.2%) achieved pathological complete response while 80 patients(87.9%) yielded major pathological response.

After a median follow-up time of 32 months, the 3-year PFS and OS rates of these patients after induction ALK-TKIs therapy followed by salvage surgery were 85.6% and 100%, respectively. Younger age and non-R0 resection were found to be prognostic factors of poor PFS among these patients.

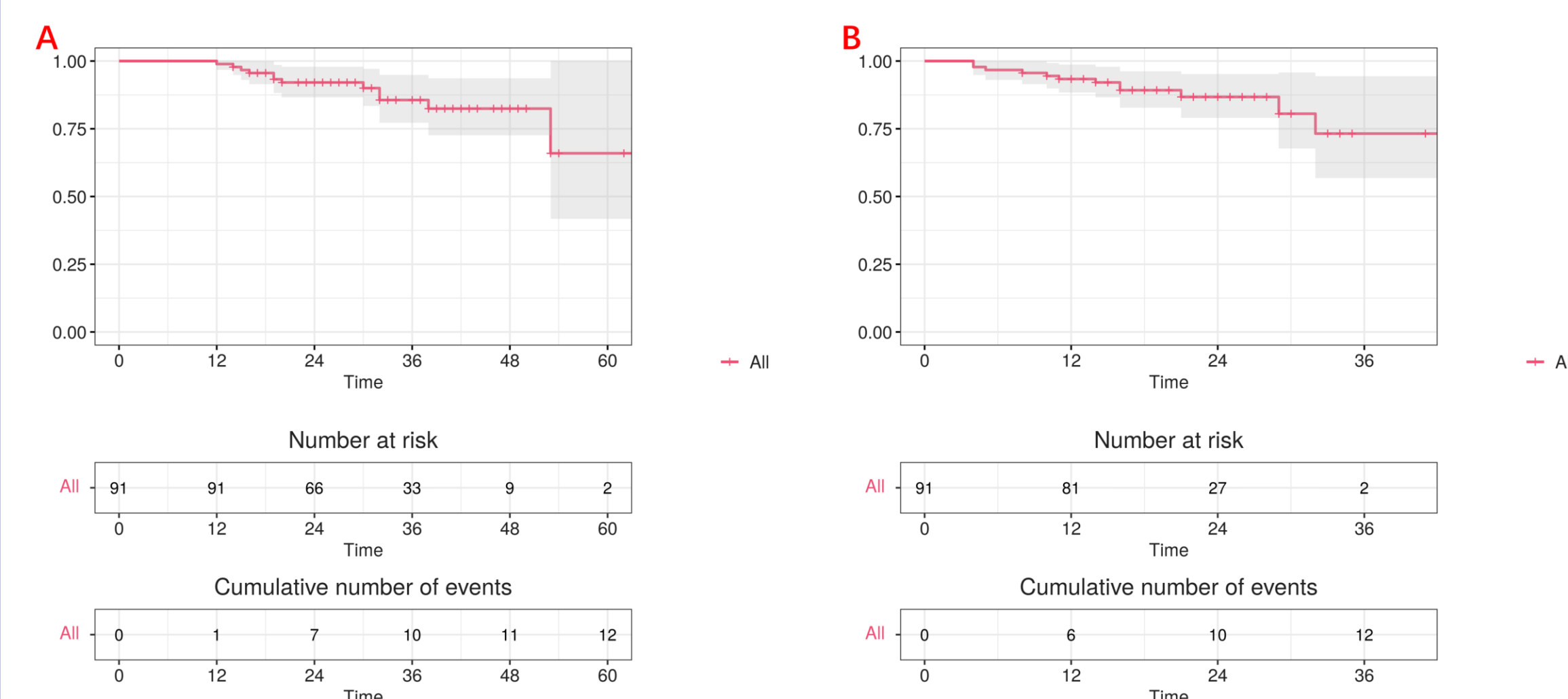


Figure 1. Progression-free survival(PFS) of the patients who receive salvage surgery after induction therapy of ALK-TKIs. A): PFS1: calculated from the date of ALK-TKIs treatment to the date of progression or last follow-up; B): PFS2: calculated from the date of surgery to the date of progression or last follow-up.

Figure 2. Overall survival(OS) of the patients who receive salvage surgery after induction therapy of ALK-TKIs. A): OS1: calculated from the date of ALK-TKIs treatment to the date of death or last follow-up; B): OS2: calculated from the date of surgery to the date of death or last follow-up.

