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Treatment patterns, overall survival, and healthcare costs of first and second-line ALKi in NSCLC: real-world evaluation in Brazil

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Introduction

Non-small cell lung cancer (NSCLC) accounts for 85% of all lung cancers. In more advanced cases of NSCLC, the five-year survival and prognosis rate is extremely low. Several anaplastic lymphoma kinase inhibitors (ALKIs) have demonstrated excellent efficacy on overall survival (OS), progression-free survival (PFS) and also better adverse effect (AE) profiles in advanced stage anaplastic lymphoma kinase (ALK) rearrangement-positive non-small cell lung cancer (NSCLC) in phase III randomized clinical trials (RCTs).

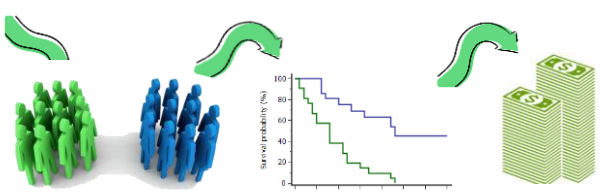
Nonetheless, as within any other therapy, the effectiveness of ALKIs in real-world settings may differ from the evidence obtained in controlled trials, especially regarding patients with characteristics that did not meet clinical trials' eligibility criteria.

This study aimed to describe the clinical outcomes and healthcare costs of first and second-line anaplastic lymphoma kinase inhibitors (ALKi)-based treatments in patients diagnosed with advanced non-small cell lung cancer in Brazilian Health Insurance Provider.

Methods

This was a real-world, retrospective chart review using data from the health insurance company database (South region in Brazil) to identify patients with ALK-positive advanced NSCLC, aged ≥18 years, with at least one current treatment (crizotinib or alectinib) between November 2018 and November 2021. Patient characteristics, demographic, clinical data and costs of exams and drugs/treatments were monthly extracted from the records.

The Kaplan-Meier method was used to estimate the overall survival (OS) ($p<0.05$ was considered statistically significant) (GraphPad Software Inc., USA). Descriptive statistics were conducted with results reported as frequencies and 95% confidence intervals (CI).



Results

Sixteen patients with advanced NSCLC were included in this study. More than half of the patients were female and underwent previous chemotherapy; five different chemotherapy regimens/protocols were reported. The median duration of treatment was 19.8 months (range 2.37– 36.40). Overall, 50% (n=8) patients used crizotinib with a median treatment duration of 15.70 months (range 2.37-35.47), while the other half used alectinib with a median duration of 21.70 months (range 5.63 – 36.40 months). Exploratory results revealed no significant differences on OS among these ALKi (HR = 0.46; 95% CI: 0.76 - 2.77; Log-Rank test p= 0.39) (Table 1).

Table1. Baseline patient characteristics

	Crizotinib (n=8)	Alectinib (n=8)	All Patients (n = 16)
Characteristics			
Sex, female N (%)	4 (50%)	5 (62,5%)	9 (56,35%)
Age at diagnosis (range)	69.57 (54-88)	71.87 (62-86)	70.8 (54-88)
Metastasis (%)	2 (25%)	4 (50%)	6 (37.5%)
Treatment line			
First (%)	3 (37.5%)	2 (25%)	5 (31.25%)
Second(%)	5 (62.5%)	6 (75%)	11 (68.65%)
Months of follow-up			
Mean (SD)	15.70 (16,25)	21.70 (11,44)	HR = 0.46; 95% CI 0.76 - 2.77; log-rank test p= 0.39
Median (range)	6.87 (2.37 -36.23)	24,30 (5.63-36.40)	

Note: Treatment between November 2018 and November 2021

The monthly cost of the disease for each treatment was calculated, but in overall, mean total unadjusted direct and indirect expenses by the cooperative after using the ALKIs were USD 55.782,6657 (results of USD 27.997,74 for crizotinib and USD 79.567,90 for alectinib groups) in entire period studied (1 USD = 5,4199 BRL, dollar exchange data in November 11,2021).

Conclusions

This real-world portray demonstrated that treatment remains complex for advanced NSCLC. ALKi can significantly improve patients' OS, yet they account for an important burden to Brazilian private payers. Differences in the clinical profile and costs of crizotinib vs. alectinib should be further evaluated in larger cohorts.

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