Epidermal growth factor receptor mutations (EGFRm) are one of the most common (~40-50%) in non-small cell lung cancer (NSCLC) in China.1

Targeted therapies including 1st generation (1G), 2nd generation (2G) or 3rd generation (3G) EGFR-tyrosine kinase inhibitors (TKIs) have been approved and used among patients with EGFR mutation positive (EGFRm) NSCLC.2

EGFR T790M resistance contribute to 50%-60% of acquired resistance following 1G/2G EGFR-TKI therapy.3

Osimertinib, an oral 3G EGFR-TKI that efficiently inhibits T790M mutations, has been approved in China for EGFR T790M-positive NSCLC patients who had progressed from first-line (1L) 3G EGFR-TKI monotherapy. Moreover, Osimertinib has also been approved for 1L treatment for patients with EGFRm (19del/21L858R).4

In this context, understanding the relevance of molecular testing for T790M mutations in patients progressing 1L EGFR-TKIs becomes crucial.

However, in real-world setting, data on the molecular testing patterns, existing barriers for molecular testing and subsequent treatment patterns among patients progressing following 1L EGFR-TKI therapy are lacking.

OBJECTIVE

To assess molecular testing patterns, barriers to testing and treatment patterns among patients with EGFR mutation-positive, locally advanced or metastatic NSCLC showing disease progression following 1L EGFR-TKI therapy.

METHODS

Study Design

Multicenter, non-interventional, prospective observational study conducted in 16 hospitals in China.

- Stage IIB/IV NSCLC
- EGFR mutation positive
- Patients progressed following 1L EGFR-TKI

RESULTS

Molecular testing after 1L EGFR-TKI progression in China:

Among 291 eligible patients, disease progression was observed in 93.5% (N=272) of patients following 1L 1G/2G EGFR-TKI and 8.5% (N=19) of patients following 1L 3G EGFR-TKI.

In patients with disease progression on 1L 1/2G EGFR-TKI, molecular testing was performed in 75.1% (N=205) of the patients, whereas testing was performed in only 33% (N=6) of patients who progressed on 1L 3G EGFR-TKI treatment.

Patient preference (38.7%; N=24) and physician’s decision (37.1%; N=23) were identified to be the major factors behind the absence of molecular testing among patients who progressed from 1L 1G/2G EGFR-TKI therapy (Figure 1a).

Similarly, patient preference (58.3%; N=7) was the primary contributor for the absence of molecular testing among patients who progressed from 3G EGFR-TKI (Figure 1b).

CONCLUSIONS

Though EGFR T790M mutation status determines subsequent treatment decisions, real-world data from China show that a substantial fraction (24.9%) of EGFRm NSCLC patients do not receive molecular testing for T790M mutation, following 1L 1G/2G EGFR-TKI progression.

Only one third of the patients received 2L 3G EGFR-TKI based treatment upon progression from 1L 1G/2G EGFR-TKIs.

These results suggest that there is a compelling need to improve the mutation testing rate for identifying EGFR-TKIs resistance mechanisms in order to optimize clinical management, which could lead to better survival of patients progressed from 1L 1G/2G EGFR-TKI therapy.

Conflicts of Interest:

The authors declare no conflicts of interest

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