



# Closing the age gap : Real-world effectiveness and tolerability of first line EGFR-TKIs in elderly patients with advanced NSCLC

Kezreen Kaur Dhaliwal<sup>1</sup>, Nurhannah Sharif Zaidi<sup>1</sup>, Arvindran Alaga<sup>1</sup>  
<sup>1</sup>Respiratory department, Hospital Sultanah Bahiyah, Kedah, Malaysia  
**Correspondence:** kezreen3@gmail.com

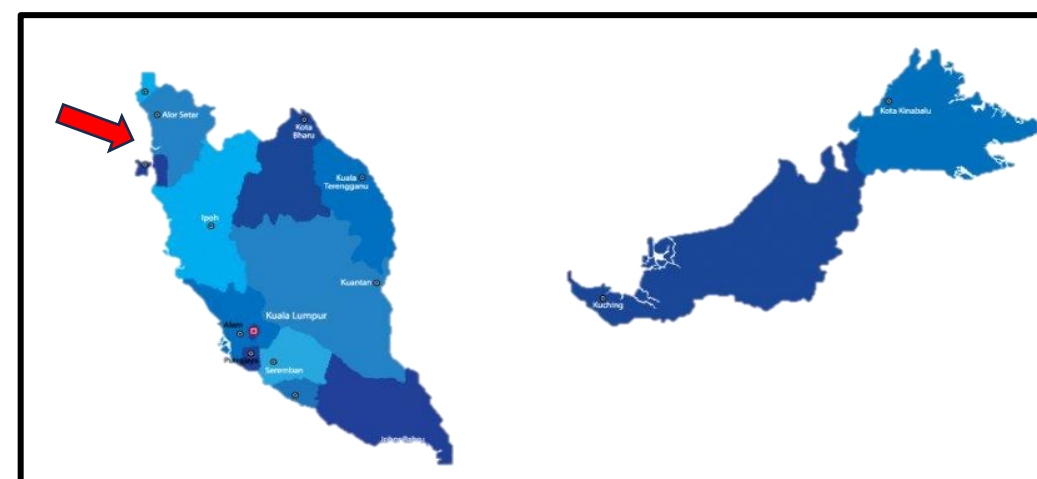


## INTRODUCTION

- In Malaysia, **lung cancer incidence** peaks within the **seventh decade of life** (60–74 years)<sup>1</sup>, yet elderly patients remain underrepresented in clinical trials.
- Real-world data** on the effectiveness and tolerability of epidermal growth factor receptor (EGFR) tyrosine kinase inhibitors (TKIs), particularly in older populations, **remain limited**.<sup>2</sup>
- We aimed to evaluate baseline characteristics, treatment patterns, outcomes, and tolerability of first-line EGFR-TKIs in elderly patients, with a focus on those aged ≥70 years.

## METHODS

- ❖ **Retrospective**, observational study
- ❖ Study population: elderly patients, aged **≥65 years old, stage IV EGFRm NSCLC who received first line EGFR-TKI**
- ❖ Study site: **Hospital Sultanah Bahiyah**, Alor Setar, Kedah, Malaysia
- ❖ Timeline: **5 years**; from 1<sup>st</sup> January 2021 to 31<sup>st</sup> December 2025



Patients with stage IV EGFRm NSCLC who received an EGFR-TKI during the study period

### Inclusion Criteria (n=32)

- Age ≥65 years
- Received first-line EGFR-TKI treatment
- Available clinical and treatment records

### Exclusion Criteria

- Age <65 years
- EGFR-TKI used beyond first line
- Insufficient outcome data

### Data Collection

- Demographic data:** age, gender, race
- Baseline characteristics:** smoking status, ECOG score, histology, EGFR mutation profile, and metastatic burden
- Treatment data:** type of first line EGFR-TKI used, dose reductions, treatment adverse events
- Treatment outcomes:** Progression free survival(PFS), overall survival(OS), objective response rate(ORR) disease control rate (DCR)

**Data analysis** using R version 4.3.0(1)

## DISCUSSION

- Baseline patient characteristics** in our study were consistent with other studies with higher proportion of females, nonsmokers and patients with Exon 19 deletions.<sup>2,3</sup>
- The **median progression free survival (PFS)** and **overall survival (OS)** are comparable with other real-world studies such as the OCTOMUT study where **median PFS and median OS were 11.9 months and 20.9 months**, respectively.<sup>3</sup>
- The most common **metastatic sites** in our cohort were bone and pleural metastasis. In contrast, the frequency of brain metastasis were lower than in other studies (6.3% vs 20-30% <sup>2</sup>)
- Despite nearly half of the cohort having ≥3 metastatic sites, first-line EGFR-TKIs achieved a **high disease control rate**, suggesting meaningful clinical benefit even in patients with a substantial metastatic burden.
- The overall rate of **adverse events in our study was lower compared to other studies (59.4% vs 85-92%)**.<sup>2,3</sup> Dose reductions was required in 31.3% of patients, most commonly among those on afatinib.
- Comparable outcomes** observed in patients aged **≥70 years** reinforce that **age alone should not preclude treatment with EGFR-TKIs**. Careful patient selection based on functional status, comorbidities and patient preference remains essential.

## CONCLUSION

In this real-world cohort, first-line EGFR-TKIs demonstrated **favourable clinical outcomes in elderly patients** with advanced EGFR-mutated NSCLC. Outcomes in patients aged ≥70 years were comparable, supporting the use of EGFR-TKIs in carefully selected older patients. Toxicities were common but manageable, with a notable proportion requiring dose modification.

## REFERENCES

- Rajadurai P, How SH, Liam CK, Sachithanandan A, Soon SY, Tho LM. Lung Cancer in Malaysia. Journal of Thoracic Oncology, 15, 317-323.
- Hung L, Hsu P, Yang C, Kuo C, Chang J, Huang C, Chang C, Wu C. Effectiveness and safety of afatinib, gefitinib, and erlotinib for treatment-naïve elderly patients with epidermal growth factor receptor-mutated advanced non-small-cell lung cancer: a multi-institute retrospective study. Aging (Albany NY). 2024; 16:550-567.
- Corre R, Gervais R, Guisier F, Tassy L, Vinas F, Lamy R, Fraboulet G, Greillier L, Doubre H, Descourt R, Chouaid C, Auliac JB. Octogenarians with EGFR-mutated non-small cell lung cancer treated by tyrosine-kinase inhibitor: a multicentric real-world study assessing tolerance and efficacy (OCTOMUT study). Oncotarget. 2018 Jan 2;9(9):8253-8262.

### Artificial Intelligence (AI) Use Disclaimer

OpenAI ChatGPT was used to assist with language refinement, organization, and presentation of the poster content. All study data, statistical analyses, scientific interpretation, references, and final content were reviewed and verified by the authors, who retain full responsibility for the work.

## RESULTS

**Table 1: Patient Characteristics**

| Characteristics               | Overall n=32 |
|-------------------------------|--------------|
| <b>Mean age</b> (years)       | 70           |
| <b>Gender</b>                 |              |
| Female                        | 24 (75%)     |
| Male                          | 8 (25%)      |
| <b>Smoking status</b>         |              |
| No                            | 29 (90%)     |
| Yes                           | 3 (10%)      |
| <b>ECOG</b>                   |              |
| 0–1                           | 27 (84.4%)   |
| ≥2                            | 5 (15.6%)    |
| <b>Histology</b>              |              |
| Adenocarcinoma                | 32 (100%)    |
| <b>Mutations</b>              |              |
| Exon 19 deletion              | 20 (62.5%)   |
| L858R                         | 12 (37.5%)   |
| <b>Metastatic sites</b>       |              |
| Brain metastasis              | 2 (6.3%)     |
| Liver metastasis              | 7 (21.9%)    |
| Bone metastasis               | 10 (31.3%)   |
| Pleural metastasis            | 16 (50.0%)   |
| <b>No of metastatic sites</b> |              |
| 0–2                           | 17 (53.1%)   |
| ≥3                            | 15 (46.9%)   |

**Figure 2: Clinical Outcomes**

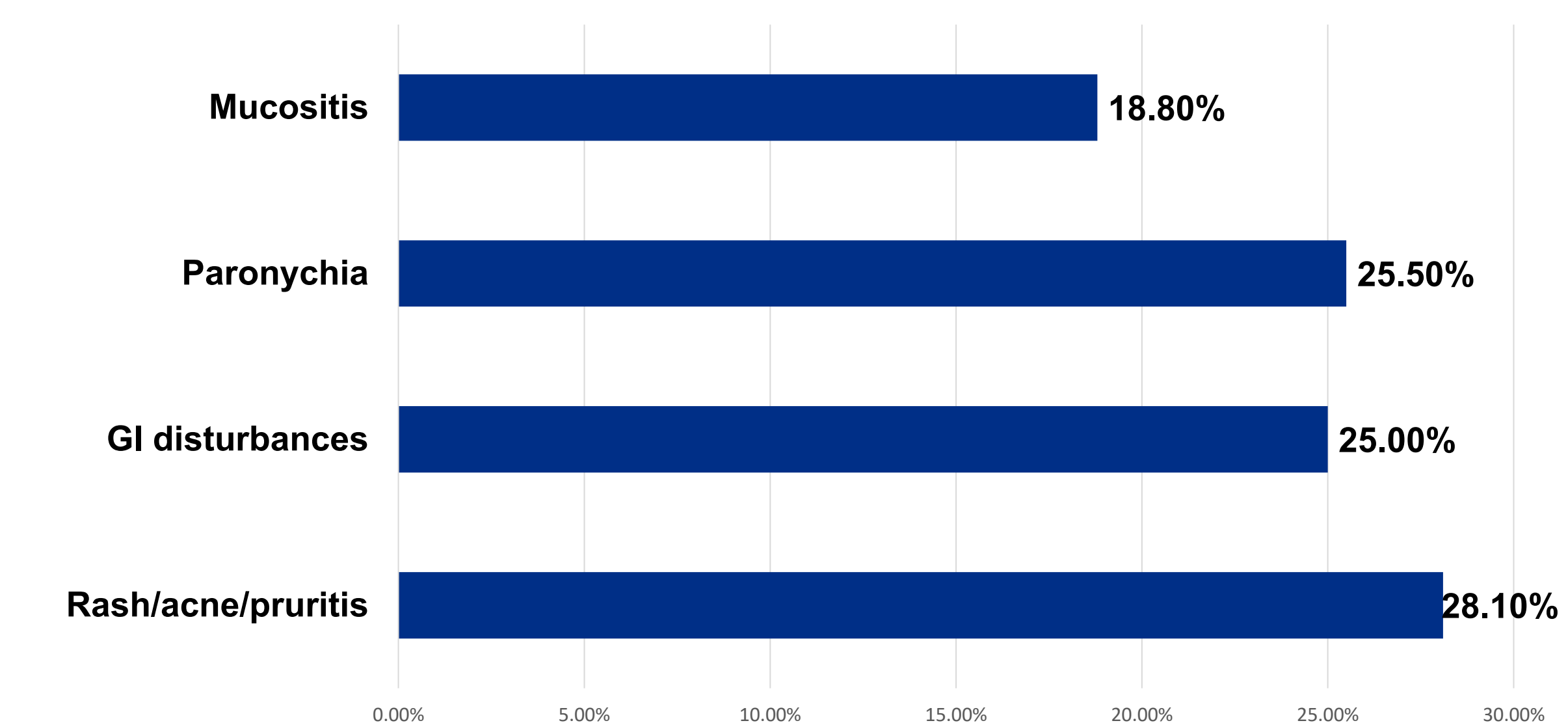
**Median Progression Free Survival(PFS)**  
**14 months (IQR 10)**

**Median Overall Survival**  
**19.5 months (IQR 18.5)**

**Objective Response Rate(ORR)**  
**76.7%**

**Disease Control Rate(DCR)**  
**96.7%**

**Figure 3. Treatment Adverse Events**



- Overall adverse event rate 59.4%**
- Dose reduction due to adverse event was required in 31.3% of patients.**

**Figure 4: Subgroup Analysis of patients ≥70 years old (n=17)**

|                               |                             |
|-------------------------------|-----------------------------|
| <b>Median PFS</b>             | <b>16 months (IQR 15.5)</b> |
| <b>Median OS</b>              | <b>19 months (IQR 25.5)</b> |
| <b>DCR</b>                    | <b>94.1%</b>                |
| <b>Overall adverse events</b> | <b>70.6%</b>                |
| <b>Dose reduction</b>         | <b>23.5%</b>                |

**Figure 1: Types of EGFR-TKI used**

