Can sequencing of TKI inhibitors improve clinical outcomes and cost of treatment in first line advanced non-small cell lung cancer with common EGFR+ mutations in Spain?

N. Paladío¹, N. González-Rojas¹, A. Solé¹, C. Samuelsen², Ingolf Griesbach²

Presented at XXXIX Jornada Economía de la Salud, Albacete (12-14th June 2019)

INTRODUCTION

ESMO guidelines recommend the use of 1st, 2nd and 3rd generation tyrosine kinase inhibitors (TKI) as first line options for patients with epidermal growth factor receptor mutation-positive (EGFR+) non-small cell lung cancer (NSCLC). Even though TKI treatments are effective interventions, resistance mechanism ultimately develops, most commonly due to T790M mutations. For these patients, osimertinib is the only targeted therapy available. No targeted therapy is available after failure of osimertinib in first line. In the absence of a RCT, it is currently unclear what the optimal treatment sequence is for patients with EGFR+ NSCLC.

METHODS

• Model design: A decision-analytic model was developed to compare the results of two treatment options:
  - Sequential treatment with afatinib plus osimertinib (Scenario 1): Patients received first-line afatinib treatment. Upon disease progression, T790M+ patients received second-line osimertinib, and subsequent chemotherapy upon further disease progression. T790M- patients received second line chemotherapy.
  - First-line osimertinib treatment plus chemotherapy (Scenario 2): Patients received first-line osimertinib treatment. Upon disease progression, patients received second line chemotherapy.

• Population: EGFR+ mutation NSCLC patients ¹ ².

• Time horizon: Time period from initiation of first-line TKI treatment to best supportive care (BSC) or death health state.

• Perspective: Spanish National Health System (NHS).

• Model inputs: EGFR T790M mutation rate and successive-line treatment rates are described in Figure 1.

RESULTS

The model showed that sequential treatment results in:

• A gain in efficacy: sequential treatment may lead to improved tumour control with an additional 4.4 months in expected ToT in comparison to osimertinib plus chemotherapy (29.1 vs. 24.8 months, respectively) (Figure 2).

• Improved quality and quantity of life: the ToT benefit is translated into a gain of 3 quality adjusted-life months (QALM) (sequential treatment 20.5 vs. first-line osimertinib 17.4 months), suggesting a favourable risk benefit profile for the sequence.

• Reduced costs: sequential treatment offers potential cost-savings when compared to first-line osimertinib treatment (€373.38 per patient), in the base case scenario. In the sensitivity analysis, cost-savings are still observed with sequential treatment (Figure 3).

CONCLUSION

The model showed that TKI sequencing could lead to an increase of ToT and QALM in first-line treatment in NSCLC EGFR+. Additionally, utilizing first-line afatinib may result in a total treatment–related cost reduction, generating potential cost-savings for the Spanish NHS. Further clinical research is required to assess the relative benefit of the two treatment strategies. In addition, more comprehensive economic evaluations should be considered when mature survival data is reported for osimertinib.

REFERENCES


OBJECTIVE

The model aims to compare the time on treatment (ToT) and the TKI treatment-related costs of sequential treatment with afatinib vs. first-line osimertinib treatment, in patients with EGFR+ NSCLC in Spain.