

COST-EFFECTIVENESS ANALYSIS OF OSIMERTINIB VERSUS AFATINIB FOR EGFR-MUTATED NON-SMALL CELL LUNG CANCER

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BACKGROUND AND IMPORTANCE

Non-small cell lung cancer (NSCLC) represents one of the leading causes of death worldwide. In EGFR-mutated patients, tyrosine kinase inhibitors (TKIs) have been shown to significantly improve prognosis; however, the costs associated with new-generation therapies necessitate cost-effectiveness evaluation.

AIM AND OBJECTIVES

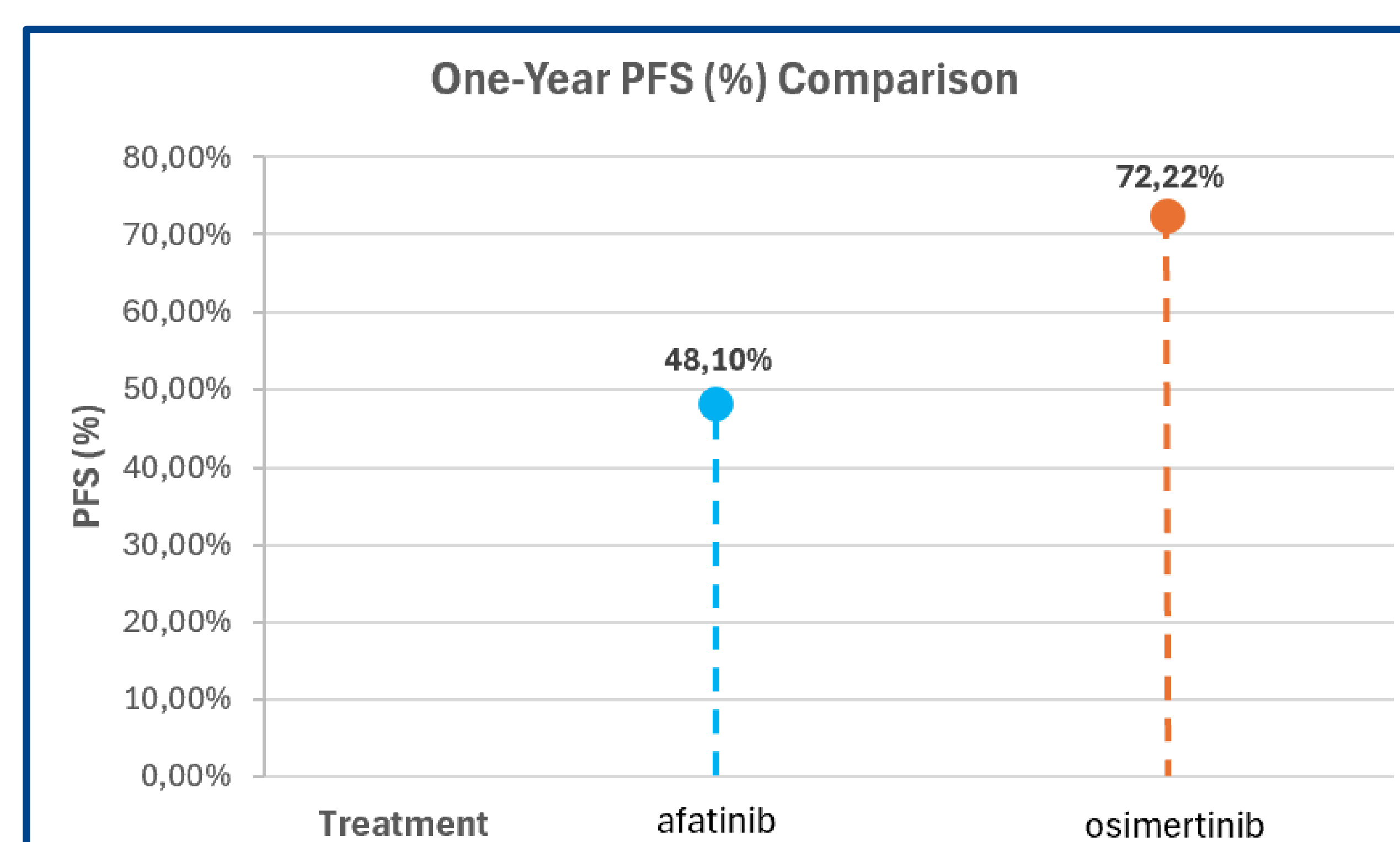
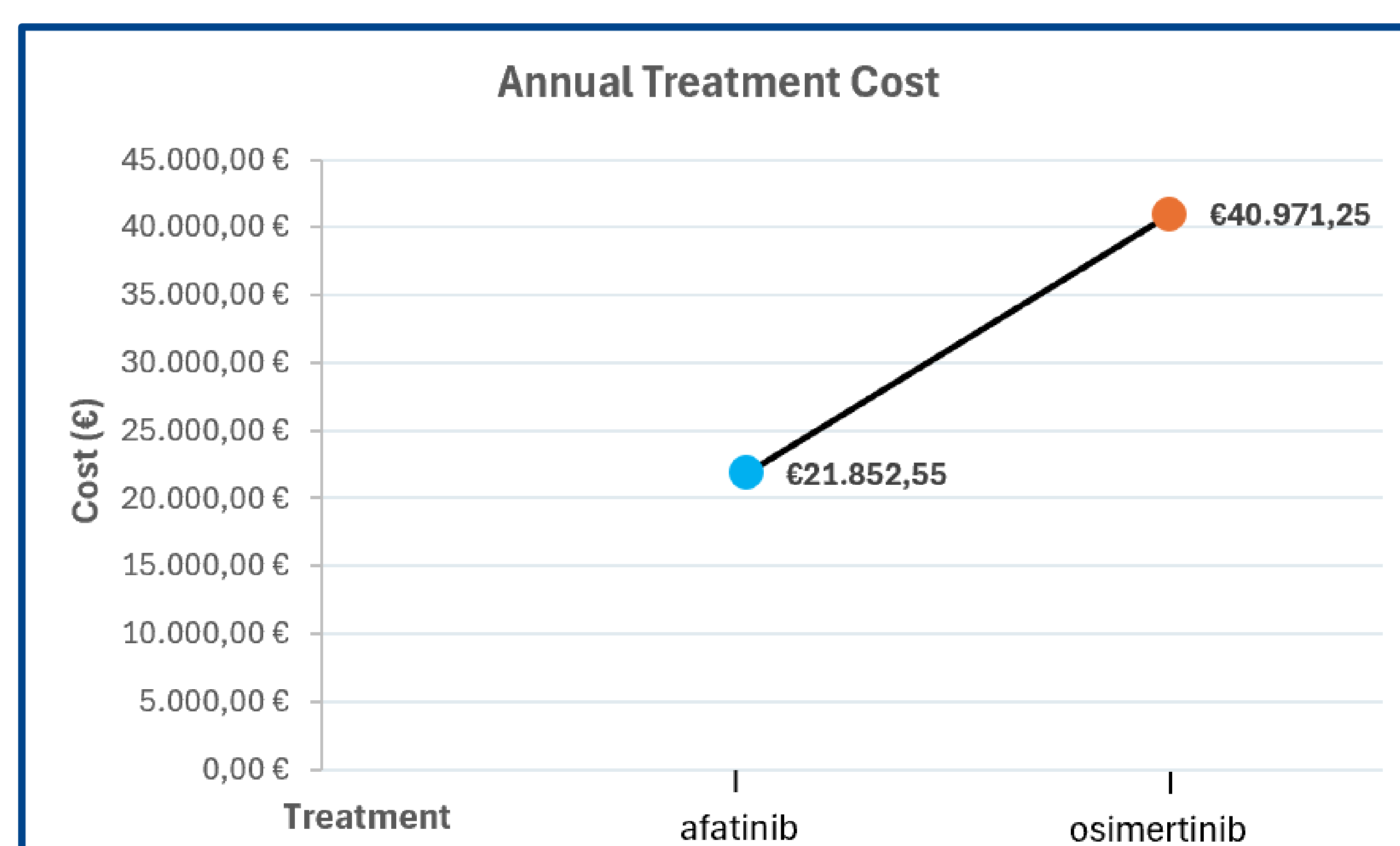
The primary aim of this study was to assess the economic sustainability of the innovative therapy (osimertinib) compared to the standard of care (afatinib).

MATERIAL AND METHODS

A retrospective observational study was performed, analyzing the medical records of adult patients with EGFR-mutated NSCLC. The analysis was conducted from the Regional Health Service (SSR) perspective over a one-year period. The dosage evaluated was a daily intake of one tablet for each drug: osimertinib 80 mg (€112.25 per tablet) and afatinib 40 mg (€59.87 per tablet). The annual treatment cost for osimertinib was calculated as €40,971.25, and for afatinib as €21,852.55.

The one-year progression-free survival (PFS) data were also analyzed, with rates of 72.22% and 48.1%, respectively.

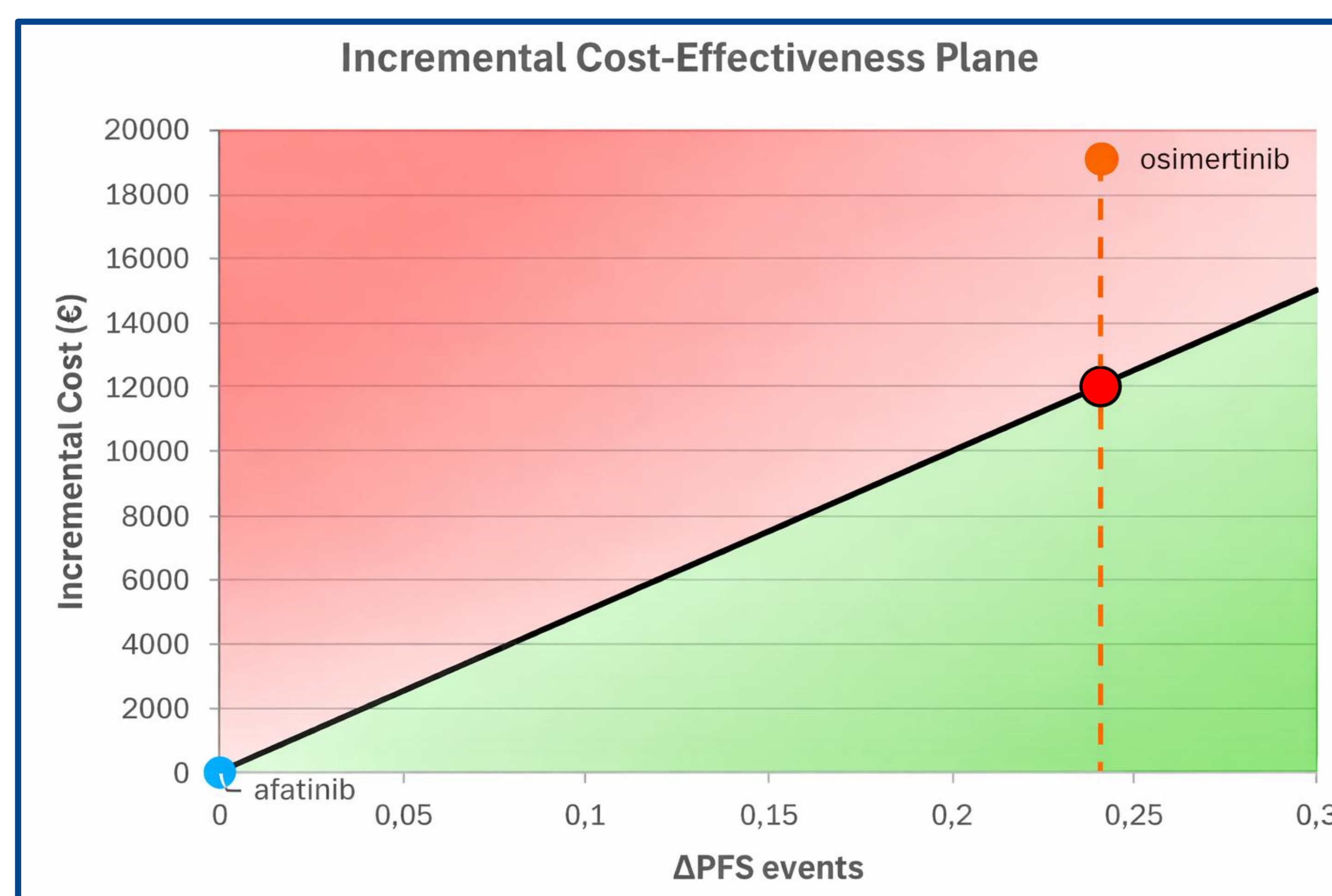
The Incremental Cost-Effectiveness Ratio (ICER) was estimated as the increase in cost per unit of effectiveness gained, with a willingness-to-pay (WTP) threshold set at €50,000 per PFS event. Osimertinib data were obtained from 43 patients undergoing treatment, while Afatinib data were extrapolated from clinical trials.



RESULTS

The Incremental Cost-Effectiveness Ratio (ICER) estimated for osimertinib versus afatinib was determined to be €78,963.74. This value exceeds the willingness-to-pay (WTP) threshold, suggesting that osimertinib therapy is not cost-effective within the clinical and economic context of this study. The Number Needed to Treat (NNT) with osimertinib to observe one additional progression-free survival event compared to afatinib was 4.13.

In a backward sensitivity analysis, setting the WTP at €50,000, the maximum sustainable cost for osimertinib therapy would be €33,958.55 per year, equivalent to €93.04 per tablet.



CONCLUSION AND RELEVANCE

The analysis suggests that, although osimertinib offers a clinical advantage in terms of PFS, it has a high incremental cost compared to afatinib. Therefore, the treatment is not cost-effective based on the threshold value adopted. However, it is essential to note that additional considerations related to toxicity, quality of life and long-term benefits could influence and potentially modify the overall assessment of the cost-benefit profile.

