Prevalence of EGFR T790M mutation in NSCLC patients after afatinib failure, and subsequent response to osimertinib

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**Background**

- Targeted treatment with first- or second-generation EGFR TKIs has become the standard of care for patients with advanced NSCLC harboring sensitive EGFR mutations.
- Patients initially achieving ≥3 months' disease control with a first- or second-generation TKI are at risk of acquiring resistance mutations including T790M
- The gatekeeper T790M mutation is the most common mechanism of resistance to first- or second-generation TKIs

**Objectives**

- To identify the prevalence of the EGFR T790M mutation in patients who progressed after treatment with afatinib
- To assess the response to osimertinib after afatinib failure in patients with the EGFR T790M mutation

**Methods**

- Single-center retrospective analysis of patients with EGFR+ stage IIA/B or IIIA/B adenocarcinoma of the lung
- Included patients who progressed between April 2015 and April 2017 after initially achieving ≥3 months' disease control with afatinib

**Key findings and conclusions**

- The prevalence of acquired T790M mutation did not appear to correlate with baseline characteristics (EGFR TKI treatment, smoking status)
- For patients receiving afatinib in the second or third line, it is not known when the EGFR T790M mutation emerged, as testing took place after failure on atezolizumab

**Efficacy**

- Rates of response to afatinib were high (95% ORR), although this analysis only included patients who had achieved ≥3 months' disease control with afatinib
- Osimertinib elicited a high ORR (61%) in afatinib-resistant patients who acquired the EGFR T790M mutation, with 22% of patients having a CR

**References**


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