

Conclusion

Occurrence of drug resistance is one of the most relevant limitations in lung cancer therapy. At the beginning of the targeted therapy era, oncologists believed that new targeted agents might lead to a definitive cure in patients with advanced lung cancer. Unfortunately, even if targeted therapies are extending survival, all patients inevitably relapse after an initial response, and some patients are resistant even in the presence of the drug target. Identification of mechanisms responsible for drug resistance is important because of the potential consequences to patient therapy, quality of life and survival. This is the reason why many investigators are currently evaluating the changes that occur in the tumor under therapy pressure and the role of new techniques for biomarker assessment. In lung cancer, tumor tissue available for analyses is often limited and repeating a tumor biopsy is not feasible in a large percentage of patients. Optimizing procedures for biomarker assessment and the possibility of performing analyses in the blood, the so-called liquid biopsy, will be crucial for implementing our knowledge on the mechanisms underlying targeted therapy failure. Finally, failure of all currently available targeted therapies suggests that one single targeted agent is not enough for eradicating a metastatic tumor and new strategies, including combination of multiple targeted agents, should be investigated.