

Utility of laser microdissection and pressure catapulting in the diagnosis of non small cell lung cancer: Preliminary data

(Article)

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Abstract

Background: There are controversies about the adequacy of tumor tissue sample on which the sequencing of molecular diagnosis could be performed to achieve the targeted-therapy on lung cancer. The aim of this study is to demonstrate the role of the Laser Microdissection Pressure Catapulting (LMPC) technique to obtain adequate tumor tissue sample for the molecular analysis of gene mutations in the targeted therapy of lung cancer. **Findings:** From a consecutive series of 24 patients with a diagnosis of locally-advanced or metastatic Non Small Cell Lung Cancer (NSCLC), we performed 29 diagnostic procedures using the system of LMPC, to obtain an homogeneous samples where it was possible to run the sequencing of the 4 most frequently mutated exons of Epidermal Growth Factor Receptor (EGFR) (exon 18, 19, 20, 21). **Results:** There were 14 males (58.3%) and 10 females (41.7%), with a mean age of 61 years old. Twenty one patients were affected by adenocarcinomas, 2 by squamous cell carcinomas and 1 by large cell carcinoma. We were able to obtain the sequencing on 26 out 29 samples (89,6%) for EGFR mutation. EGFR mutation rate in our population was 7,7%. In 5 samples, we found a polymorphism in exon 20 and one of them carried a mutation on exon 18 as well. In another sample we found the deletion of exon 19. On the other 20 samples we did not find any mutation. **Conclusions:** Our preliminary data suggest that the LMPC technique permits to obtain the tumor cells sample more homogeneous facilitating the application of biological molecular analysis for EGFR-gene mutation in a larger number of patients with NSCLC.

Author keywords

Bronchoscopy; EGFR; Laser microdissection pressure catapulting; Lung cancer; Molecular analysis; NSCLC