



# Characteristics of lung cancer in never- and light-smokers: a retrospective, single-center study

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## SUMMARY

Data from patients with lung cancer and no/light smoking history from Greece are scarce. This retrospective study presents the clinicopathological and molecular characteristics of never/light smokers with LC from a tertiary hospital in Athens between 2010-2024. Multicentre and prospective studies are needed to better describe this subgroup of patients.

## INTRODUCTION

Lung cancer (LC) in never- and light-smokers accounts for 10-20% of all LC cases. Demographic, clinicopathologic and molecular data of LC patients with no/light smoking history from Greece are scarce.

## AIM

To describe LC in never- and light-smokers in Greece.

## METHODS

This is a retrospective study enrolling all patients with LC from the Oncology Unit of a tertiary academic hospital in Athens between 2010-2024. Medical records were reviewed to identify never-smokers (<100 cigarettes during lifetime) and light-smokers (<5 cigarettes/day). Demographic, clinicopathologic and molecular data were recorded. Air quality index (AQI) was searched in https://www.iqair.com/.

## RESULTS

We identified 67 cases of never- and light- smokers with LC in a total of 1280 LC patients (prevalence= 5.2% n=67/1280, never-smokers=39, light-smokers= 28, mean age±SD=69.1±12.0). Females constituted 64.1% (25/39) of never smokers. Professional exposure (silica dust and radon) was reported in 4.47% (3/67) of patients and 10.5% (7/67) had family history of at least one first-degree relative with LC. AQI of the patients’ residence was moderate (51-100) in 53.7% and good (0-50) in 46.3% of the cases.

Variables	N	Results
<b>Demographics</b>		
Age (mean ± SD)	67	69.1±12.0
Sex (female %)	67	34 (50.7%)
<b>Risk Factors</b>		
Professional exposure	67	3 (4.47%)
Family history	67	7 (10.5%)
<b>AQI</b>		
Moderate	67	53.7 %
Good	67	46.3 %
<b>PD-L1</b>		
Negative (<1)	38	21
Low (1-49)	38	12
Hight (>50)	38	5
<b>Oncogenic Alterations</b>		
EGFR del19/L858R	46	11
EGFR exon 20	46	1
RET fusion	46	1
ERRB2 amplification	46	1
KRAS G12 mutations	46	7

## RESULTS

Adenocarcinoma subtype was diagnosed in 83.5% of the patients; other subtypes included squamous (n=4), LCNEC (n=2), adenosquamous (n=1), NOS (n=1) and SCLC (n=1). PD-L1 expression (TPS) was available in 38 patients and was negative (<1%) in 21, low (1-49%) in 12 and high (>50%) in 5 patients. NGS was available in 15 patients and PCR testing of main driver genes in 31 patients. Oncogenic alterations were identified in 21 patients and were: EGFR exon 19 del/L858R point mutations (n=11), EGFR exon 20 insertion (n=1), ERBB2 amplification (n=1), RET fusion (n=1) and KRAS G12 mutations (n=7, 6 light-smokers/1 never-smoker).

## CONCLUSIONS

Our data validate the need for multicenter national registries of never- and light-smokers with LC to identify the distinct characteristics of this subgroup in different patient populations.

## REFERENCES

1. LoPiccolo J, Gusev A, Christiani DC, Jänne PA. Lung cancer in patients who have never smoked - an emerging disease. Nat Rev Clin Oncol. 2024 Feb;21(2):121-146. doi: 10.1038/s41571-023-00844-0. Epub 2024 Jan 9. PMID: 38195910; PMCID: PMC11014425.

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