



INTRODUCTION

COPD is a risk factor for lung cancer development independent of smoking status, with three to six times more likely to develop lung cancer at a rate of 0.8–1.7%/year. This may be associated with genetic susceptibility to cigarettes, chronic inflammation caused by toxic gases. Inflammatory mediators may promote the growth of bronchioalveolar stem cells, and activation of nuclear factor- κ B and signal transducer and activator of transcription 3 play crucial roles in the development of lung cancer from COPD. The aim of the study is to evaluate the prevalence of lung cancer in patients with COPD.

METHODS

We performed a retrospective study, from 2012 to 2022, among 260 patients with pathologically confirmed diagnosis of lung cancer, aged 40-75 years.

Patients with lung cancer that had COPD diagnosed ≥ 10 years before lung cancer diagnosis, were investigated group (IG), and non-COPD patients with lung cancer were control group (CG).

Histological subtypes of lung cancer were determined based on histopathology reports and were categorized as squamous carcinoma, adenocarcinoma, small cell lung cancer (SCLC), large cell lung cancer (LCLC; including large cell neuroendocrine carcinoma), and other histological types according to 2015 WHO classification of lung tumors.

At the time of registration, sex, age, BMI, smoking status, treatment history, and symptoms, including the CAT score, were recorded.

In addition, at the time of registration, spirometry was performed both before and after inhalation of a bronchodilator, and a blood test and chest CT were also performed. The GOLD criteria was used to diagnose and assign severity of COPD: patients with a postbronchodilator $FEV_1/FVC < 0.70$ were classified as having COPD; $FEV_1 \geq 0.8$ was defined as mild, $0.5 \leq FEV_1 < 0.8$ as moderate, $0.3 \leq FEV_1 < 0.5$ as severe, and $FEV_1 \leq 0.3$ as extremely severe.

Patients were excluded if they presented with simultaneous or sequential second primary cancers or had a history of asthma, bronchiectasis, tuberculosis, pulmonary fibrosis, or other confounding diseases.

Epithelial tumours

2004

- Adenocarcinoma
- Squamous cell carcinoma
- Small cell carcinoma
- Large cell carcinoma
- Adenosquamous carcinoma
- Sarcomatoid carcinoma
- Carcinoid tumour
- Salivary gland tumours
- Papillomas
- Adenomas

2015

- Adenocarcinoma
- Squamous cell carcinoma
- Neuroendocrine tumours
- Large cell carcinoma
- Adenosquamous carcinoma
- Pleomorphic carcinoma
- Spindle cell carcinoma
- Giant cell carcinoma
- Carcinosarcoma
- Pulmonary blastoma
- Other and unclassified carcinoma
- Salivary gland-type tumours
- Papillomas
- Adenomas

Figure 1.

WHO Classification
of Lung Cancer
(2015)



RESULTS

The middle age of lung cancer diagnosis was 61.1 ± 8.5 years.

Of the total number of patients (260), 195 (75.0%) were male and 65 (25.0%) female. 190 (73.07%) were current smokers or ex-smokers.

The histological subtypes identified were as follows: **squamous carcinoma** (96 [36.9%]), **adenocarcinoma** (115 [44.2%]), **SCLC** (26 [10.0%]), **LCLC** (13 [5.0%]), and **other** histologic types (including adenosquamous, carcinoma carcinoid tumors, sarcomatoid carcinoma; 16 [6.15%]).

The proportion of squamous carcinoma was higher in COPD smokers/ex-smokers, while adenocarcinoma was more frequently observed in COPD non-smokers.

Emphysema-predominant phenotype was an independent prognostic risk factor for squamous carcinoma.

The prevalence of COPD in lung cancer patients was **92 (35.5%)**. Compared with lung cancer patients with non-COPD, those with COPD were older ($P < 0.001$), had a lower BMI ($P < 0.001$), and majority were male ($P < 0.001$) and smokers ($P < 0.001$).

Figure 2. Distribution of COPD patients (IG) vs. non-COPD patients with lung cancer (CG) by smoking status former/current smokers.

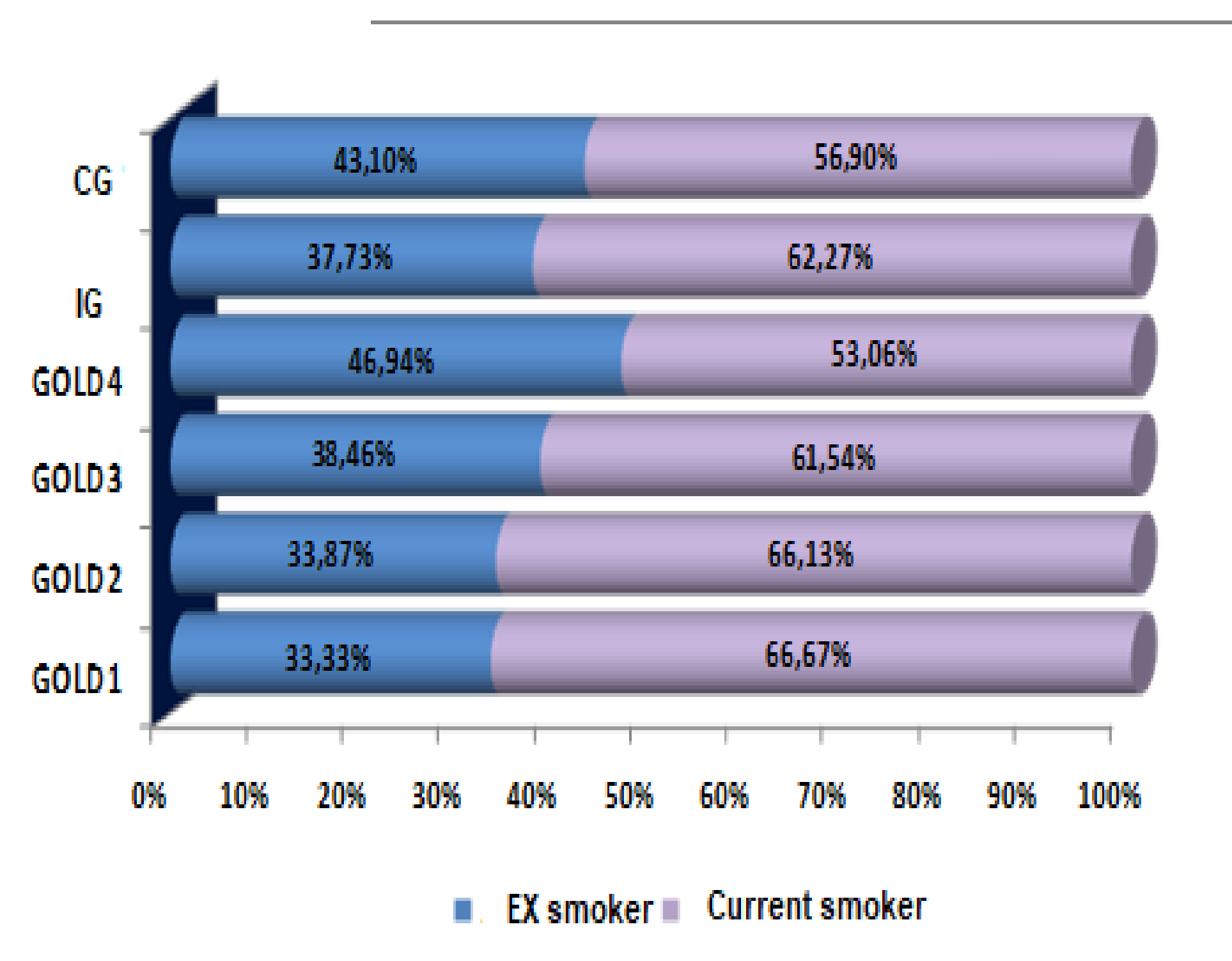


Table 1. Distribution of COPD patients and non-COPD patients with lung cancer according to Professional Exposition

Groups/ Subgroups	Professional exposition			1p
	NO	YES	TOTAL	
IG - subgroups				
GOLD 1	39 (42,1%)	53 (57,9%)	24 (25,9% of 92 patients)	X ² =1.715; df=3; p=0.6336
GOLD 2	40 (43,5%)	52(56,4%)	17 (18,2% of 92 patients)	
GOLD 3	32 (34,6%)	60 (65,4%)	22 (23,6% of 92 patients)	
GOLD 4	43 (46,9%)	49 (53,0%)	29 (31,5% of 92 patients)	
Groups				
IG	38 (41.8% of 92 patients)	54 (52,2% of 92 patients)	92 (35.5% of 260 patients)	X ² =0.031; df=1; p=0.8601
CG	96 (56,9% of 168 patients)	72 (43,1% of 168 patients)	168 (64,5% of 260 patients)	

IG=Investigated Group; CG=Control Group; ¹Pearson Chi-square; *significant for p<0.05