

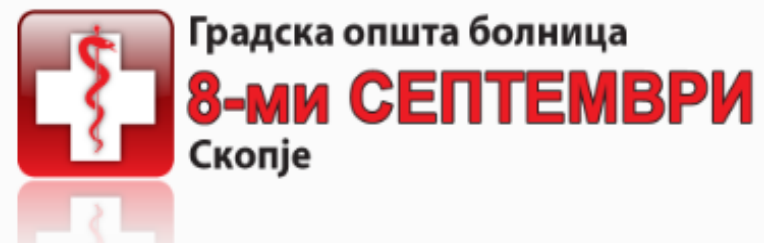


Prevalence of Bronchiectasis in COPD patients

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Introduction

There is increasing recognition that radiological bronchiectasis is present in many patient with COPD. Lung CT scan have been used to identify different radiological COPD phenotypes based on the presence and severity of emphysema, bronchial wall thickening and bronchiectasis. The prevalence of bronchiectasis in patients with COPD is high, especially in advanced stages. Estimated prevalence varies from 40 - 50%.

Methods

Design: Cross-sectional study.

Investigated group (IG): 220 patients (79.5% males) with COPD diagnosed according to GOLD (Global Initiative for Chronic Obstructive Lung Disease).

Control group (CG): 58 subjects, without COPD, matched by age, gender, body mass index.

Inclusion criteria for both groups: age 40-75, smoking history ≥ 10 pack/years, signed consent and clinically stable condition at least 6 weeks prior enrolment.

Exclusion criteria: patients with clinical bronchiectasis, aspergillus, CF, lung cancer, IPF, autoimmune disorders, hypersensitive pneumonitis, other chronic or acute pulmonary disease, body mass index $> 35 \text{ kg/m}^2$, who do not want to participate.

Investigations:

1. Pulmonary function tests;
2. Laboratory investigations (full blood count, erythrocyte sedimentation rate, immunoglobulin levels, biochemistry).
3. Chest-X ray in two directions;
4. Chest CT;

Scoring was by a simplified system based on Smith (Thorax, 1996):
0 = no bronchiectasis;

1 = 0-50% of the bronchi were abnormal of each lobe;

2 = 50-100% of the bronchi were abnormal of each lobe;

Total score 12 including the lingula; emphysema, interstitial lung disease (ILD) or other pathology was noted.

Results

In the COPD group bronchiectasis were present in 54.5% score from 2-12. Scores were highest in the lower lobes and lowest in the middle lobes (mean value 1.66 vs. 0.86, $p < 0.0001$). Patients with widespread bronchiectasis score ≥ 6 (of 12) had reduced bronchodilator reversibility (4% vs. 9%, $p=0.08$), compared to those with limited bronchiectasis. Emphysema was present in 77.2% and ILD in 11.36%. Patients with history of lung tuberculosis ($n=30$) did not differ in prevalence of emphysema from the rest COPD subjects, but in those with positive history the location of emphysema was more frequent in lower and middle lobes, and they were more prevalent for pan-lobular emphysema. (Table 1; Table 2; Figure 1; Figure 2).

Conclusion

In this study we found a higher prevalence of bronchiectasis than previously reported which may reflect the heterogeneity of COPD patient in a general respiratory clinic. Radiological features of bronchial wall thickening and mild bronchiectasis were commonly seen and when widespread this may result in reduced bronchodilator reversibility. The presence of radiological bronchiectasis was not related to disease severity.

Table 1. Distribution of the COPD patients by degree of airflow limitation and gender

Groups/ Subgroups	Gender			1p
	Male	Female	Total	
GOLD 1	43 (75.44%)	14 (25.56%)	57 (2.91%)	$X^2=0.358$; $df=3$; $p=0.9488$
GOLD 2	47 (75.81%)	15 (24.19%)	62 (18.18%)	
GOLD 3	38 (73.01%)	14 (29.92%)	52 (23.64%)	
GOLD 4	35 (71.43%)	14 (28.57%)	49 (22.27%)	
IG	163 (74.09%)	57 (25.91%)	220 (79.14%)	$X^2=0.272$; $df=1$; $p=0.6021$
CG	41 (70.69%)	17 (29.31%)	58 (20.86%)	

IG = Investigated Group; CG = Control Group; 1Pearson Chi-square test; *significance $p < 0.05$

Table 2. Distribution of the COPD patients by smoking status

Groups/ Subgroups	Smoking Status			1p
	Former smoker	Current smoker	Total	
IG - subgroups				
GOLD 1	19 (33.33%)	38 (66.67%)	57 (25.91%)	$X^2=2.642$; $df=3$; $p=0.4501$
GOLD 2	21 (33.87%)	41 (66.13%)	62 (18.18%)	
GOLD 3	20 (38.46%)	32 (61.54%)	52 (23.64%)	
GOLD 4	23 (46.94%)	26 (53.06%)	49 (22.27%)	
Groups				
IG	83 (37.73%)	137 (62.27%)	220 (79.14%)	$X^2=0.558$; $df=1$; $p=0.4549$
CG	25 (43.10%)	33 (56.90%)	58 (20.86%)	

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

Figure 1. Distribution of bronchiectasis according to groups/subgroups

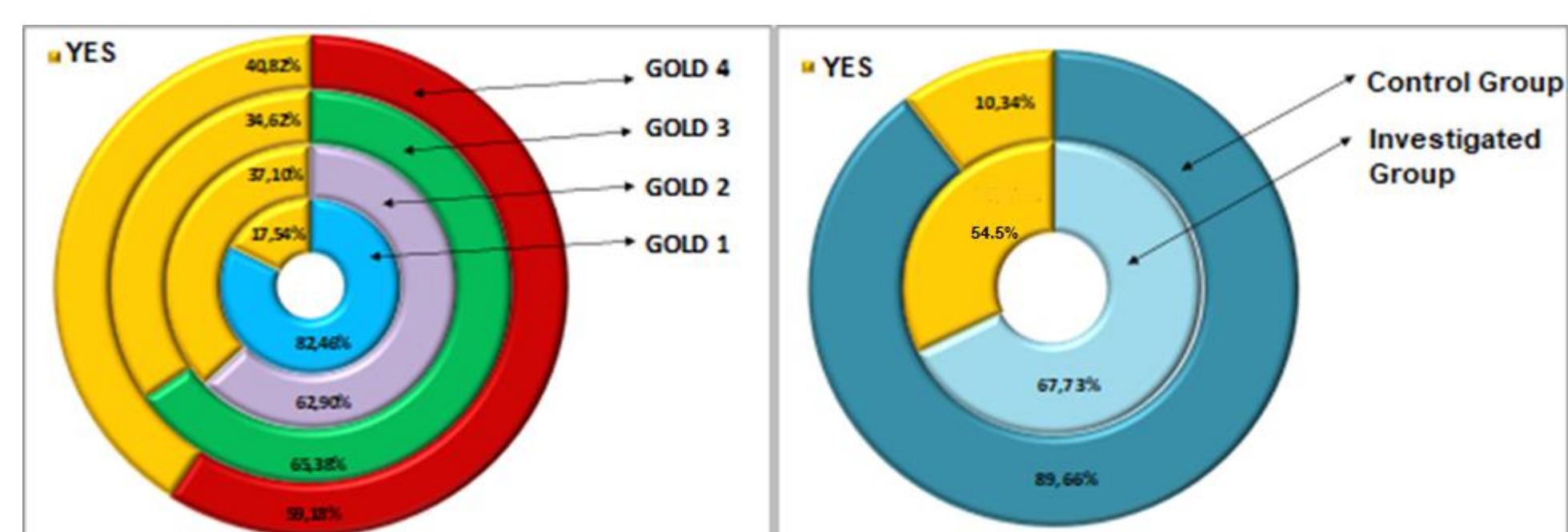
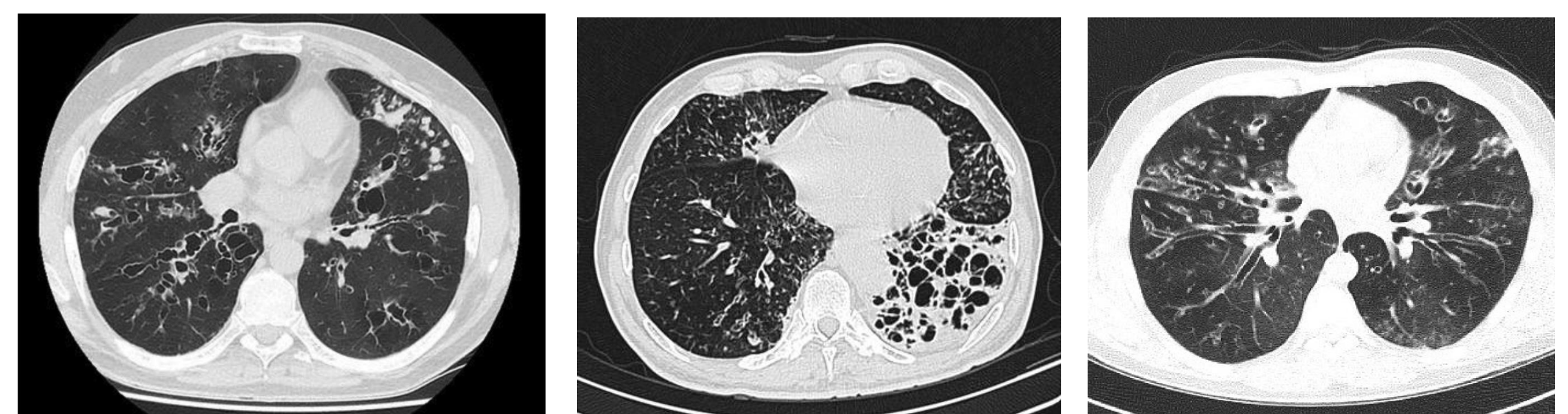


Figure 2. Lung CT of bronchiectasis in COPD patients



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