



Dyslipidemia in COPD patients

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Градска општа болница
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Скопје

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INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a progressive inflammatory lung disease that causes obstructed airflow limitation from the lungs. COPD is currently the third leading cause of death worldwide and is characterized by airway inflammation, alveolar destruction, and airflow limitation. It is prone to the viewpoint that systemic inflammation maybe complicated in the pathogenesis of majority comorbidities.

MATERIAL AND METHODS

The study was conducted at the General Hospital “8th September”, Skopje, in the period 2018-2020 as a continuum of our investigation of the impact of cardiovascular comorbidities on COPD. The design is a cross-sectional study, including 220 patients with stable COPD as investigated group (IG), aged 40-75 years and 58 non-COPD subjects, matched by gender, age, BMI, smoking-status, as control group (CG). All study subjects underwent pulmonary evaluation (dyspnea severity assessment, baseline and post-bronchodilator spirometry, gas analyses), BMI measurement, laboratory analyses with attention to lipid profile (cholesterol, triglycerides, LDL = low density lipoprotein, HDL = high density lipoprotein).

CONCLUSION

Chronic obstructive pulmonary disease - associated chronic illnesses and systemic comorbidities pose a significant problem in the risk assessment and affect the integrated treatment plans.

RESULTS

For $p < 0.05$, the analysis indicated a significant difference between the four IG subgroups in terms of triglyceride level (Kruskal-Wallis test: $H(3) = 12,842$; $p = 0.005$). Analysis in IG/CG indicated an average triglyceride level of 1.34 ± 0.74 (mmol/L) in IG vs. 1.41 ± 0.69 (mmol/L) in CG. For $p > 0.05$, there was no significant difference between IG and CG respondents in relation to triglyceride value (Mann-Whitney U Test: $Z = -1,484$; $p = 0.1377$). For $p > 0.05$, there was no significant difference between the four IG subgroups in terms of cholesterol level (Kruskal-Wallis test: $H(3) = 2,303$; $p = 0.512$). Analysis in IG/CG indicated an average cholesterol value of 4.88 ± 1.07 (mmol/l) in IG vs. 4.79 ± 1.12 (mmol/l) in CG. For $p > 0.05$, there was no significant difference between IG and CG subjects in relation to cholesterol levels (Mann-Whitney U Test: $Z = 1,187$; $p = 0.235$). The proportion of hypercholesterolemia, hypertriglyceridemia and combination (hypercholesterolemia + hypertriglyceridemia) was consequential in: a) GOLD1 - 19 (33.33%) vs. 4 (7.02%) vs. 5 (8.77%); b) GOLD2 - 24 (38.71%) vs. 9 (14.52%) vs. 2 (3.23%); c) GOLD3 - 14 (26.92%) vs. 4 (7.69%) vs. 5 (9.62%); and d) GOLD4 - 21 (42.86%) vs. 1 (2.04%) vs. 1 (2.04%). For $p > 0.05$, there was no significant association between the GOLD subgroup of IG, which included respondents and the dyslipidemia status for the Fisher Freeman Halton test: $p = 0.190$.

FIGURE 3 - Distribution of COPD patients according to triglyceride level

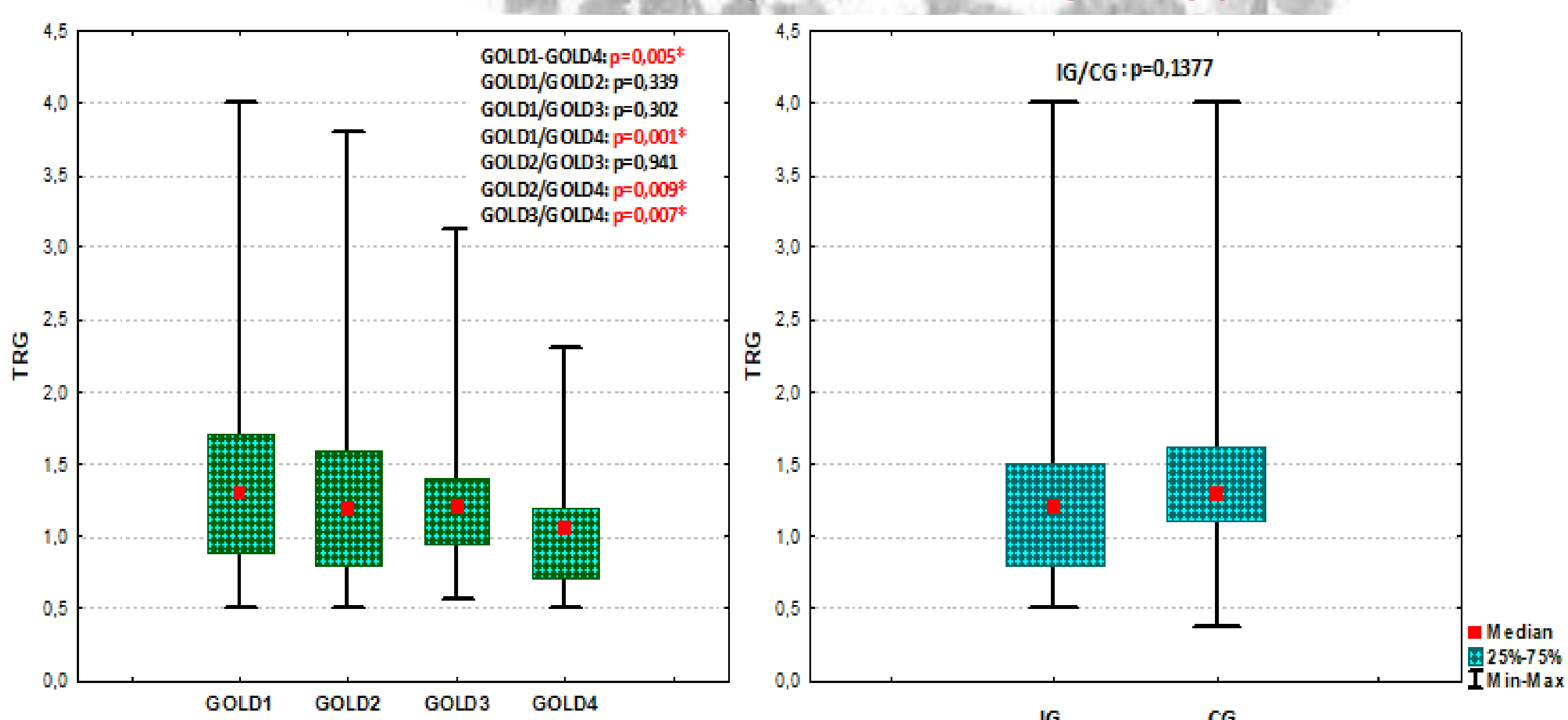


FIGURE 4 - Distribution of COPD patients according to cholesterol level

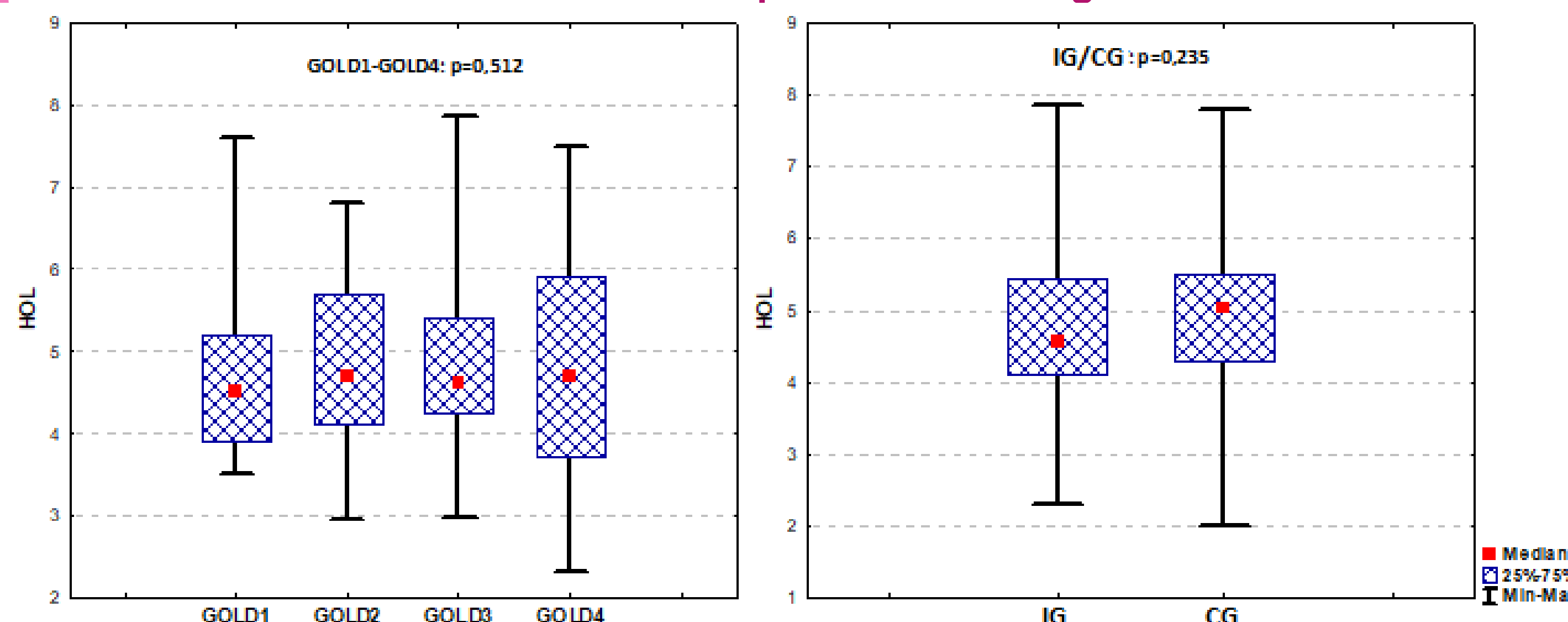


FIGURE 1 - Distribution of COPD patients according by degree of airflow limitation

Groups/ Subgroups	Gender			1p
	Male	Female	Total	
GOLD 1	43 (75.44%)	14 (25.56%)	57 (2.91%)	$\chi^2 = 0.358$; $df = 3$; $p = 0.9488$
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%)	$\chi^2 = 0.272$; $df = 1$; $p = 0.6021$
CG	41 (70.69%)	17 (29.31%)	58 (20.86%)	

FIGURE 2 - Distribution of COPD patients according to lipid profile

Parameters	Subgroups				P	Groups	
	GOLD 1 N=57	GOLD 2 N=62	GOLD 3 N=52	GOLD 4 N=49		IG N=220	CG N=58
Cholesterol – HOL (mmol/l)							
$\bar{x} \pm SD$	4,65±1,07	4,79±1,09	4,91±1,01	4,84±1,34	Kruskal-Wallis test: $H(3) = 12,842$; $p = 0,5119$	4,79±1,12	4,88±1,07
Median (IQR)	4,5 (3,9-5,2)	4,7 (4,1-5,7)	4,6 (4,2-5,4)	4,7 (3,7-6)		4,6 (4,1-5,4)	5 (4,3-5,5)
p	Mann-Whitney U Test: $Z = -1,187$; $p = 0,2352$						
Triglycerides – TRG (mg/dL)							
$\pm SD$	1,92±0,99	1,36±0,71	1,34±0,62	1,02±0,35	Kruskal-Wallis test: $H(3) = 12,842$; $p = 0,005^*$	1,34±0,74	1,41±0,69
Median (IQR)	1,3 (0,9-1,7)	1,2 (0,8-1,6)	1,2 (0,9-1,4)	1 (0,7-1,2)		1,2 (0,8-1,5)	1,3 (1,1-1,6)
p	Mann-Whitney U Test: $Z = -1,484$; $p = 0,1377$						
HDL (mmol/L)							
$\pm SD$	1,29±0,46	1,24±0,39	1,26±0,35	1,27±0,30	Kruskal-Wallis test: $H(3) = 0,397$; $p = 0,941$	1,27±0,38	1,17±0,35
Median (IQR)	1,3 (0,8-1,8)	1,2 (0,9-1,5)	1,2 (1-1,5)	1,3 (1-1,5)		1,3 (0,9-1,5)	1,1 (0,9-1,3)
p	Mann-Whitney U Test: $Z = 1,827$; $p = 0,068$						