



# Anemia as a comorbidity in COPD patients

*Buklioska Ilievska Daniela, Associate Professor*

**XI INTERNATIONAL WORKSHOP ON LUNG HEALTH**  
New Scenarios

Seville – Spain  
January 18-20, 2024



Градска општа болница  
**8-ми СЕПТЕМВРИ**  
Скопје

General Hospital „8-th September“ – Skopje, Associate Professor at Faculty of Medical Sciences, Goce Delcev University, Stip, Macedonia

## INTRODUCTION

Anemia is common in patients with chronic diseases and associated with impaired long-term survival and quality of life. The prevalence of comorbid anemia in patients with COPD ranges from 7.5% to 34%, depending upon the populations selected and diagnostic tools employed to determine the level of hemoglobin. The true prevalence of anemia in patients with COPD, its impact on quality of life, healthcare utilization and mortality, in patients with COPD is unknown. The prevalence of coexisting anemia in COPD is highly variable and depends on the severity of the lung disease, the presence of other comorbidities, and other factors such as socioeconomic status and race.

## MATERIAL AND METHODS

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, body mass index (BMI), smoking-status, as control group (CG). All study subjects underwent pulmonary evaluation (dyspnea severity assessment, baseline and post-bronchodilator spirometry, gas analyses, chest X-ray, 6-minute walk distance, modified Medical Research Council dyspnea questionnaire, St. George’s Respiratory Questionnaire), and laboratory analyses (blood count, sedimentation rate, c-reactive protein (CRP), routine biochemistry). Patients were classified as anemic based on hemoglobin (Hgb) levels (Hgb <12/13 g/dl, female patients/male patients, according to The World Health Organization). Patients with known causes for anemia were excluded.

## CONCLUSION

Comorbid anemia in patients with COPD was associated with greater healthcare resource utilization, impaired quality of life, older age, and male gender. Moreover, anemia in patients with COPD is an independent prognostic predictor of premature mortality and a greater likelihood of hospitalization. Based on the findings from the existing literature, more work is necessary to establish the true prevalence of anemia in COPD. More prospective clinical studies are needed to improve the management of COPD patients with comorbid anemia.

## RESULTS

Results presented statistically significant difference between presence of normocytic anemia in IG 13.6% (n=30) vs. CG 3% (n=3) (p<0.05). There was a significant linear positive correlation between anemia and GOLD stage (R=0.174; p<0.05). With decrease of FEV1(GOLD1→GOLD4), the frequency of anemia increased significantly. According to gender anemia was more frequent in male 9% (n=20), vs. female 4.5% (n=10) (p<0.05). Anemia was associated with higher levels of serum C-reactive protein in COPD patients with anemia 10.5mg/L, vs COPD patients without anemia 2.3mg/L (p<0.05). Anemic participants were older with worse airflow obstruction and they had a higher prevalence of cardiac and metabolic comorbidities. Anemia was strongly associated with 6-minute walk distance ( $\beta$ , -62.34; 95% confidence interval [CI], -84.12 to -36.63), St. George’s Respiratory Questionnaire ( $\beta$ , 3.82; 95% CI, 1.06–6.62) and modified Medical Research Council dyspnea questionnaire ( $\beta$ , 0.31; 95% CI, 0.12–0.45). There was a significant linear positive correlation between anemia and BMI (p=0.012) and partial oxygen pressure (PaO<sub>2</sub>) (p=0.001) in comparison to non-anemic patients.

FIGURE 1 - Distribution of anemia according to groups/subgroups

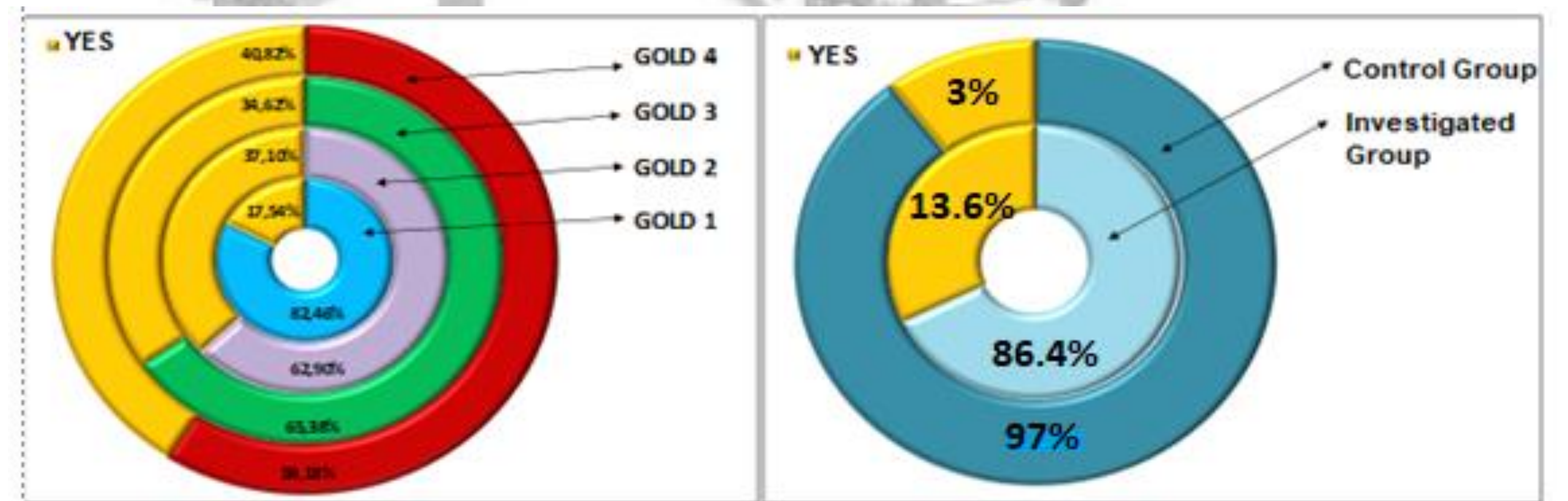
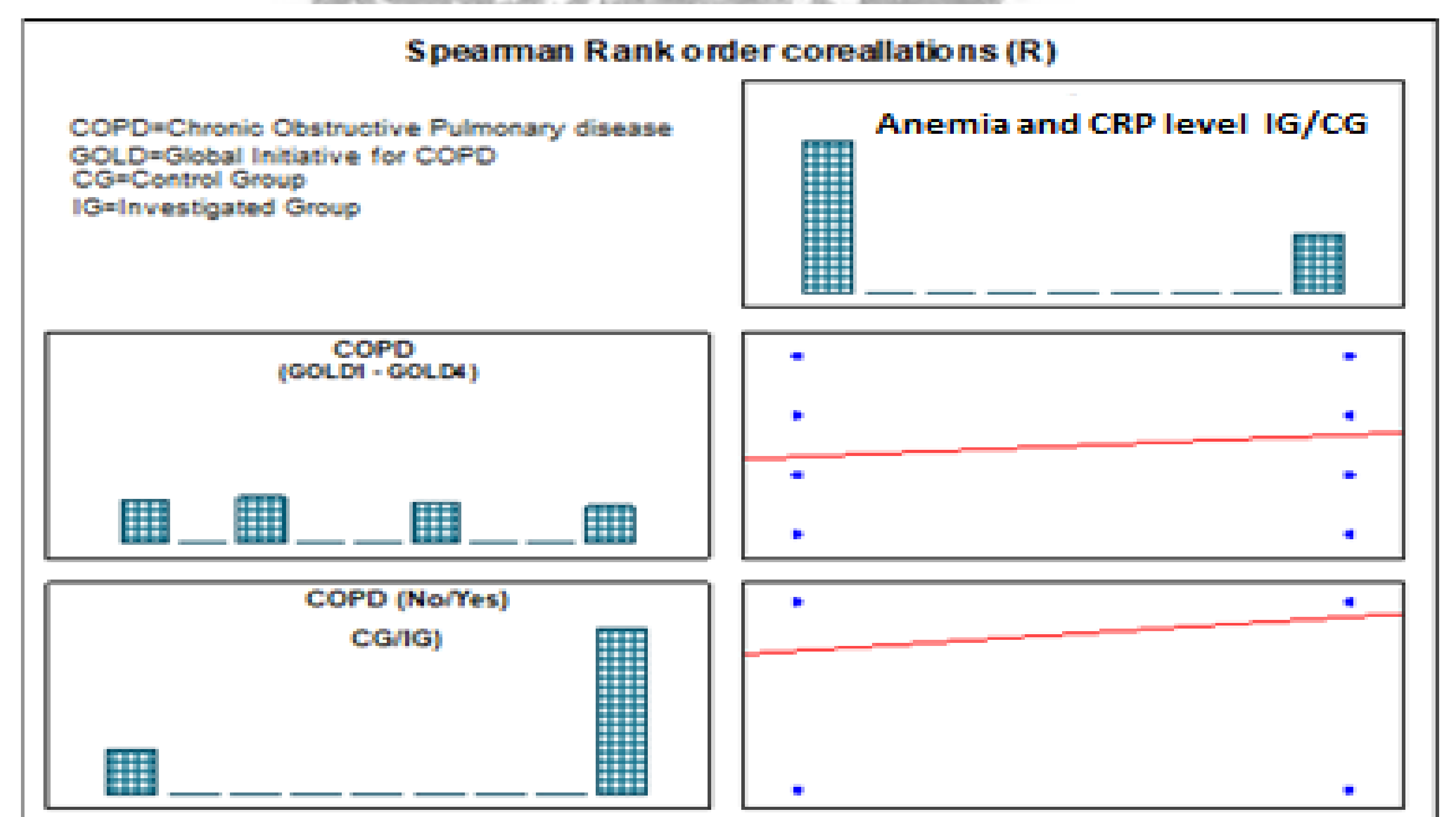


FIGURE 2 – Correlation between anemia and CRP level in Investigated Group (IG) vs. Control Group (CG)



## CONTACT

Daniela Buklioska Ilievska, Associate Professor, Specialist of internal medicine and subspecialist of pulmonology and allergology

[dbuklioska@yahoo.com](mailto:dbuklioska@yahoo.com)