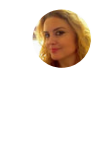


Metabolic Syndrome (MetS) as a comorbidity of Chronic Obstructive Pulmonary Disease (COPD)

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Metabolic Syndrome (MetS) as a comorbidity of Chronic Obstructive Pulmonary Disease (COPD)

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Aims

1. To investigate the association between COPD and MetS;
2. Assessment of the relation between the severity of airflow limitation and MetS;
3. To investigate the relation between MetS and serum C-reactive protein (CRP) level.

Material and methods

1. Study design: Cross-sectional study;

2. Subjects:

☐ Investigated group: 120 patients with initially diagnosed COPD, aged 40 to 75 years;

☐ Control group: 60 non-COPD subjects matched by gender, age, smoking status, body mass index.

3. Investigations: Pulmonary evaluation (dyspnea severity assessment, baseline and post-bronchodilator spirometry, gas analyses, chest X-ray); Measurement of CRP, anthropometric measurements, fasting blood sugar (FBS), lipid profile.

Results

The presence of MetS was diagnosed in 47.5% of COPD patients vs. 20.0% of controls (p=0.0004).

The frequencies of MetS in patients with COPD according to GOLD stages I, II, III, and IV, were 40.0%, 45.8%, 46.7%, 43.0% respectively.

The frequencies of MetS according to the combined assessment test (A, B, C, D) were 29.2%, 37.5%, 35.0%, 41.7% respectively.

COPD patients with MetS presented significant association with serum CRP level (p=0.001) and no association with pulmonary function.

FBS was higher in COPD compared to controls (8.4±1.1mmol/L vs. 4.9±2.1mmol/L) with statistical significance (p<0.0001). HDL was lower in COPD than in non-COPD (39.1±6.4mg/dL vs. 49.6±3.9mg/dL, p<0.0001).

Waist circumference and blood pressure (BP) were higher in COPD 95.8±3.4cm vs. 91.8±2.9cm, p<0.0001. Mean systolic blood pressure was 138.3±12.2mmHg vs. 125.5±6.1mmHg, p<0.0001 in non-COPD group.

Results

Characteristic	COPD patients (n = 120)	Non-COPD (n = 60)
Males	82 (68.3%)	46 (76.7%)
Females	38 (31.7%)	14 (23.3%)
Mean age (years)	63.6 ± 5.5	64.8 ± 3.6
Active smokers	75 (62.5%)	36 (60%)
Former smokers	45 (37.5%)	24 (40%)
Pack-year smoked	65.1 ± 23.8	67.4 ± 25.5
Mean BMI value	27.2 ± 2.2	26.9 ± 3.1
FVC (% pred)	75.8 ± 12.3	115.2 ± 16.8
FEV₁ ((% pred)	46.5 ± 15.9	92.3 ± 14.7
FEV₁/FVC ratio	0.6 ± 0.07	0.8 ± 0.05
CRP < 3,14 mg/L	20 (16.7%)	30 (50%)
CRP 3,14 - 10mg/L	54 (45%)	20 (33.3%)
CRP > 10mg/L	46 (38.3%)	10 (16.7%)

Conclusion

Higher prevalence of MetS in COPD suggest an urgent need to develop comprehensive strategies for prevention, screening and start of treatment in the early stage of the disease.

Results

Characteristic	COPD patients (n = 120)	Non-COPD (n = 60)
Abdominal circumference	95.8±3.4cm	91.8±2.9cm
Systolic blood pressure	138.3±12.2mmHg	125.5±6.1mmHg
Hypertriglyceridemia (>=1.7mmol/L)	22 (18.3%)	8 (13.3%)
Cholesterol (mmol/L) (mean value±SD)	5.5±1.3mmol/L	5.5±1.3mmol/L
Triglycerides (mean value±SD)	2.5±1.3mmol/L	2.5±1.3mmol/L
High density lipoprotein	39.1±6.4mg/dL	49.6±3.9mg/dL
Fasting blood sugar (mmol/L)	8.4±1.1mmol/L	4.9±2.1mmol/L
Metabolic Syndrome	57 (47.5%)	12 (20.0%)

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