



Prognostic Blood Biomarkers of Chronic Obstructive Pulmonary Disease in Metabolic Syndrome

Project Brief

Both Chronic Obstructive Pulmonary Disease (COPD) and Metabolic Syndrome (MetS) are pro-inflammatory states, and while the diagnosis of MetS in COPD has been extensively studied, the diagnosis of COPD in MetS is poorly investigated. The study aimed to identify blood biomarkers associated with COPD prognosis in people living with both COPD and MetS.

Methodology

Research subjects were recruited from Diabetes Clinic at Mater Dei Hospital, Malta. Following an overnight fast, routine blood tests were performed together with a respiratory questionnaire and assessment. Subjects were followed up for 12 months, and COPD hospitalisations and mortality during this period were noted.

Results & Conclusions

A total of 24 research subjects were diagnosed with both MetS and COPD. From the participants, 16.7% (n=4) died within 12 months.

Blood C-reactive protein ($p=0.030$), alkaline phosphatase ($p=0.030$) and mean platelet volume ($p=0.023$) were significantly positively correlated with future COPD hospitalisations over a 12-month period.

The following blood parameters were significantly **lower** in those who died compared to those who were alive after 12 months:

- lymphocyte count ($p=0.037$)
- haemoglobin ($p=0.003$)
- ferritin ($p=0.010$)
- 25-hydroxy-vitamin D ($p=0.032$)

The following blood parameters were significantly **higher** in those who died compared to those who were alive after 12 months:

- serum creatinine ($p=0.007$)
- C-reactive protein ($p=0.036$)
- alkaline phosphatase ($p=0.022$)
- brain natriuretic peptide ($p=0.020$)

This study has identified specific blood parameters which are prognostic biomarkers in people living with COPD and MetS. These parameters help clinicians to identify which patients have a poor prognosis.

